

3. DEMAND FORECASTS

This section documents Umgeni Water's water demand forecast review that was completed in September 2010. The review process:

- Assessed and revised the short-term forecast for the financial year ending in June 2011 (2010/2011);
- Compiled a short-term forecast for the financial year ending in June 2012 (2011/2012); and
- Extended this short-term forecast to a long-term forecast (30-year forecast) to the end of June 2041 (2040/2041).

All data presented has been updated to include the September 2010 sales figures and all statistics and trends have been based on the moving annual average and year-on-year growth figures as determined at 30 September 2010.

3.1 2010 SALES FORECAST REVIEW

The initial forecasted water sales value for the financial year ending in June 2010 (F'10), determined in September 2008, was 1,237 MI/day. This value was reviewed as part of the sales forecasting process that occurred in October 2009. Sales volumes at the end of F'09 were lower than what had been forecast and it was anticipated that the decreasing trend in water sales would continue into the near future, hence the forecasted value was revised downward to 1 170 MI/day. Sales remained low in the first half of 2010 in line with the slowed economic growth in the region and as a result of the successful impact of various water demand management initiatives implemented by Umgeni Water's customers. Total sales recorded for the F'10 financial year averaged 1 167 MI/day (425 848 MI), falling slightly below the revised forecast value.

Total water sales for F'09 financial year was 1 140 MI/day (415 956 MI) and hence the F'10 sales is a 2.38% year-on-year increase on the F'09 financial year. This can be compared to the 3.02% growth that was realized in the previous financial year.

It is the eighth consecutive year that Umgeni Water's sales have shown positive growth. Since 2002, when the annual sales amounted to 315 370 MI, sales have increased by an average of 3.84% per annum. Annual sales over the past five years reflect an average annual growth rate of 3.87%. **Figure 3.1** shows the 12-month moving average of Umgeni Water's total average daily water sales for the past 10 years.

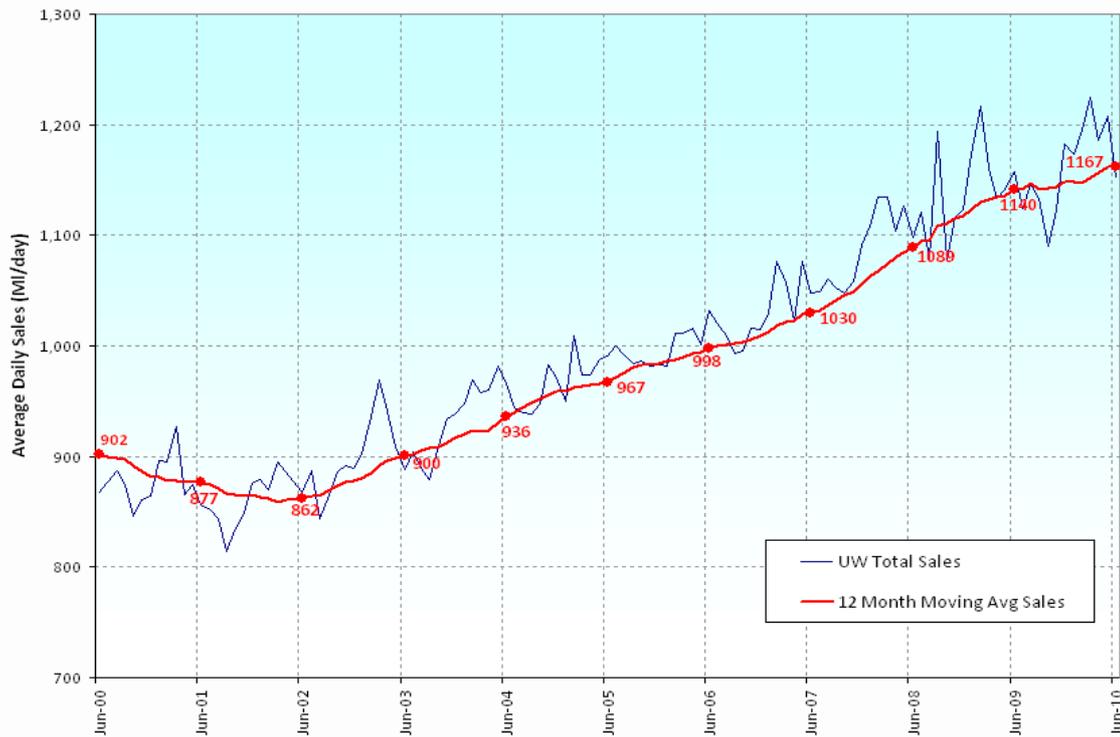


Figure 3.1 Umgeni Water Total Average Daily Sales

3.2 2011 SHORT-TERM BULK WATER SALES FORECASTS

The economy has yet to recover fully from the recent economic slowdown and recession and this appears to have had an impact on Umgeni Water’s total bulk water sales. eThekweni Municipality’s current water demand management initiatives have also had a marked influence on Umgeni Water’s bulk water sales, and these initiatives are expected to influence future sales in the short-term.

Bulk water sales to eThekweni Municipality constitute by far the largest percentage (77.1%) of Umgeni Water’s total water sales. Consequently, the expected growth in bulk water sales to eThekweni has a significant influence on Umgeni Water’s sales forecast. The Msunduzi Municipality is Umgeni Water’s second largest customer, accounting for 13.7% of the organisation’s total sales, and hence also has an appreciable influence on the sales forecast. The remaining customers influence the forecast to a lesser degree. **Figure 3.2** illustrates the average daily sales volume split per customer as at the end of June 2010.

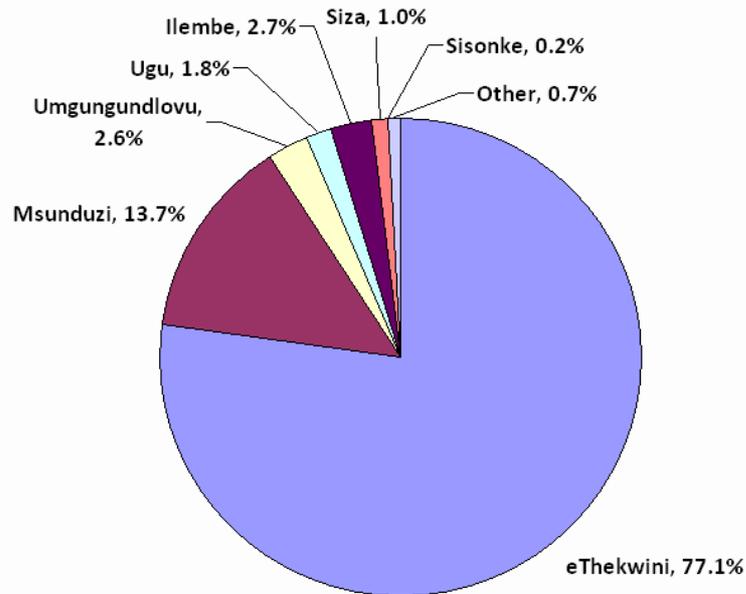


Figure 3.2 Distribution of Umgeni Water Sales Volumes at end June 2010

In September 2009 the Umgeni Water short-term bulk water sales forecast for F'11 was estimated to be 1 193 MI/day. Following the recent discussions with Umgeni Water's major customers and based on the latest economic and water sector related development information available for the region, this value has been revised downward to 1 175 MI/day (**Figure 3.3**). This value is a consolidation of individual customer forecasts and, as stated earlier, is primarily shaped by the forecast provided by eThekweni Municipality. This forecast represents a 0.71% year-on-year increase in growth, and is a significantly lower growth rate than what was achieved in the previous year (2.38%).

This trend is expected to continue into the following financial year. Resulting from the same discussions and analysis as mentioned in the preceding paragraph, the Umgeni Water short-term bulk water sales forecast for F'12 is estimated to be 1 184 MI/day (**Figure 3.3**). This represents a 0.77% year-on-year increase in growth from F'11, which is marginally higher than the previous year, and is again primarily determined by the forecast provided by eThekweni Municipality.



Figure 3.3 Umgeni Water Total Average Daily Sales Volumes - Annual short-term forecast comparison

3.2.1 eTHEKWINI MUNICIPALITY

In 2008 and 2009 the year-on-year growth in sales to eThekwini Municipality increased by as much as 5%. This growth has reduced to approximately 1% over the past year and the reduction in growth has been mainly attributed to their water demand management initiatives.

Over the next two years substantial growth is still expected to occur in the northern eThekwini area. This expected growth can be ascribed to the proposed development of formal housing projects and to the industrial development of the Dube Trade Port in the vicinity of the new King Shaka International Airport. eThekwini Municipality has, however, predicted that their continuing water demand management initiatives will completely offset the expected growth in the northern areas. Increased demand on the Hazelmere WTP, due to proposed development on the KwaZulu-Natal North Coast, is to be shifted to the Durban Heights WTP. This load shift will occur via the eThekwini Northern Aqueduct and the Hazelmere to Verulam Pipeline. It is anticipated that the water demand management initiatives in the supply area of the Durban Heights WTP will offset this shifted demand. In addition, water demand management initiatives in both the supply areas of the Wiggins WTP and the Umlaas Road supply area are expected to completely offset any potential growth in demand.

The anticipated growth in bulk water sales to eThekwini Municipality (as presented by them) for F'11 and F'12 is thus 0.0%. This equates to 899 Ml/day in F'11 and in F'12. The historical sales and future demand projection for eThekwini Municipality are presented in **Figure 3.4**.

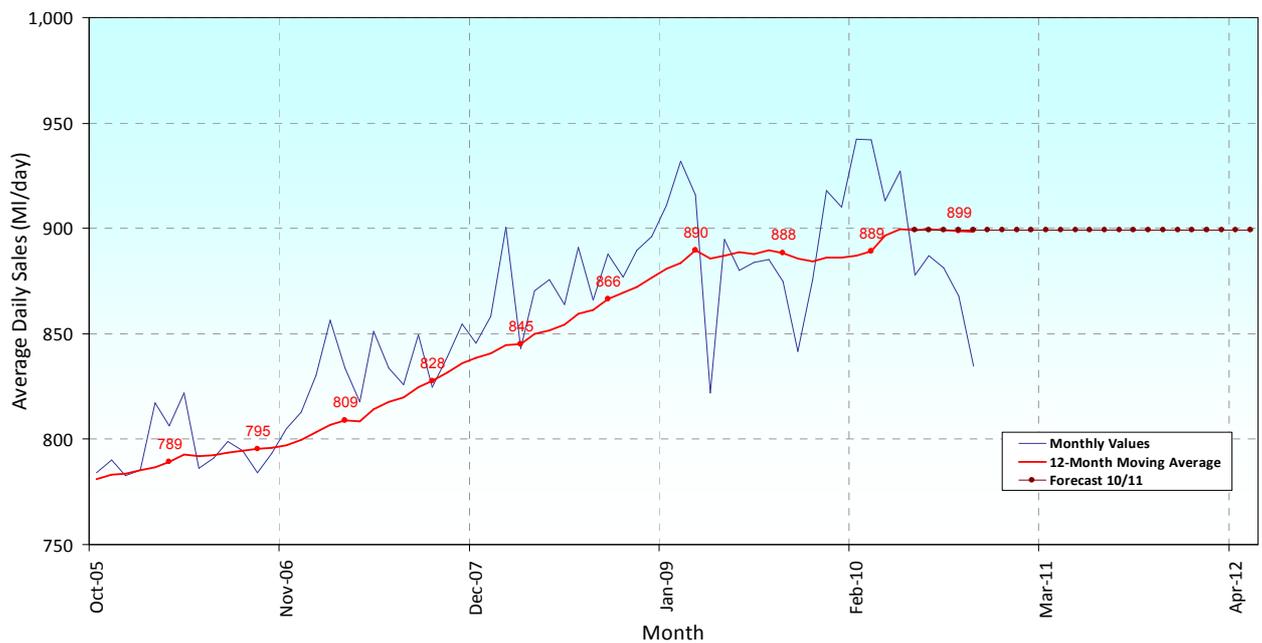


Figure 3.4 eThekweni Municipality Total Volumes - Annual short-term forecast

3.2.2 THE MSUNDUZI MUNICIPALITY

The total sales to The Msunduzi Municipality increased by 3.5% from 56 525 MI in F'09 to 58 501 MI in F'10. From discussions with The Msunduzi Municipality held on 5 August 2010, this type of growth is not expected to be maintained over the short-term forecast period. The projected demands are expected to increase by about 2% per annum. The total sales for F'11 and F'12 are expected to be 59 569 MI and 61 028 MI respectively.

The municipality is embarking on an aggressive credit control policy which, The Msunduzi Municipality expects, will have the impact of slowing the demand growth rate. The new administration has also identified the financial potential of reducing water losses and has prioritised plans to address the current high water losses. During 2011, it is expected that pressure reduction in the reticulation system will contribute to reducing water losses. It is expected that the increased tariffs, particularly for electricity, will also have the effect of reducing the growth in demand.

There are potential developments that will contribute to an increase in demand. Some of these major developments are listed in **Table 3.1**.

Table 3.1 Potential developments in The Msunduzi Municipality.

Development	No. of Units	Demand (kl/day)	Completion Year	Remarks
Ward 10 Housing	400	240	2012	Low cost housing
Ward 16 Housing	400	240	2012	Low cost housing
Copesville	750	450	2014	Another 750 units after 2012
Edendale Shopping Centre & Private Hospital	n/a	unknown	2012	
Industrial developments in Ashburton	n/a	unknown	2011 onwards	

The shopping centre in Edendale represents the major commercial development in Pietermaritzburg. It is expected to be operational by the end of 2011. This development, however, will not contribute to a stepped increase in demand because it is not considered a high water consumption activity. It is expected that all the projects listed in **Table 3.1** will be accommodated by the projected 2% increase in The Msunduzi Municipality's demand.

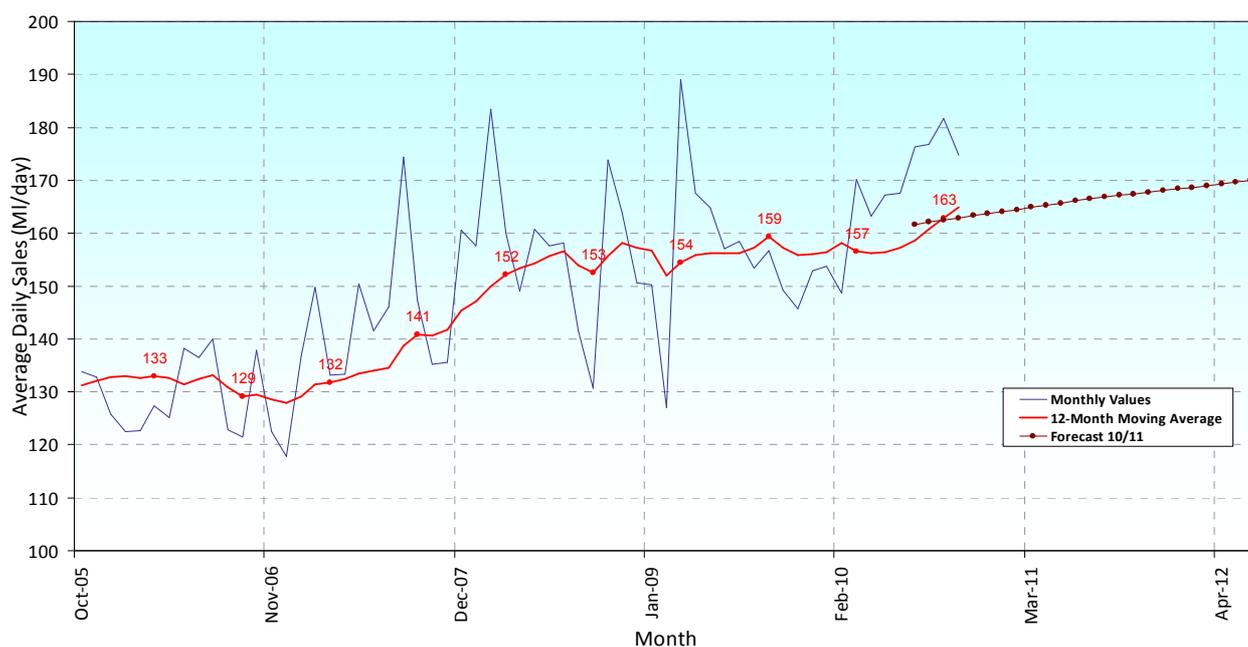


Figure 3.5 The Msunduzi Municipality Total Volumes - Annual short-term forecast.

3.2.3 UMGUNGUNDLOVU DISTRICT MUNICIPALITY

The total sales to the Umgungundlovu District Municipality increased by 6% from 10 572 MI in F'09 to 11 219 MI in F'10. From discussions with Umgungundlovu District Municipality officials, this type of growth is not expected to be maintained for the short-term forecast period. The total sales for F'11 and F'12 are expected to be 11 285 MI and 11 840 MI respectively.

There are no water loss reduction initiatives currently being undertaken, or planned, that will reduce the growth in water demand. The growth in water demand in Howick will increase once the reticulation infrastructure is extended to support proposed new developments west of the N3 freeway. New housing developments are also proposed in the uMshwati Municipality however, the water demand in this area is constrained by the limited capacity of the existing Umgeni Water infrastructure to support further developments. The projection for uMshwati Municipality, which is supplied from DV Harris WTP, has therefore been restricted to a 3% annual growth.

The major potential for increased water demand in uMngeni Municipality is in a low cost housing development (Khayelisha) located next to Mpophomeni. uMngeni Municipality plans to construct 3500 units by 2013. Assuming 2000 units are constructed by 2012, the potential increase in demand would be 1.2 MI/day.

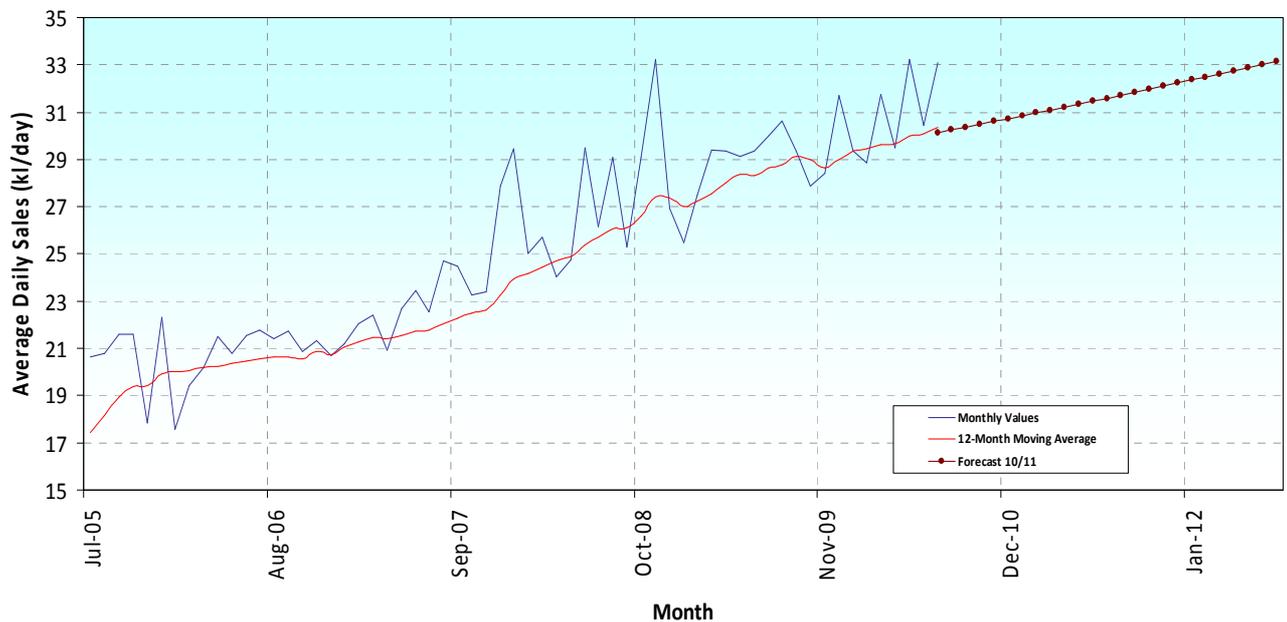


Figure 3.6 Umgungundlovu District Municipality Total Sales Volumes - Annual short-term forecast.

3.2.4 ILEMBE DISTRICT MUNICIPALITY (INCLUDING SIZA)

Sales to Ilembe District Municipality can be described as follows:

- Sales to the Coastal Area of Ilembe through Siza Water.
- Sales to the Coastal Area of Ilembe through Ilembe District Municipality.
- Sales to Ilembe District Municipality through schemes owned by the district municipality and managed by Umgeni Water.

Urban and peri-urban growth across Siza Water's concession area has caused a corresponding increase in water demand with the growth for 2010 being 7.1%. Further developments in this area are expected to increase the demand from 11.2MI/day in F'10 to 13.0 MI/day in F'11 and 13.9MI/day in F'12. This historical and future predicted increase in demand is presented in **Figure 3.7**.

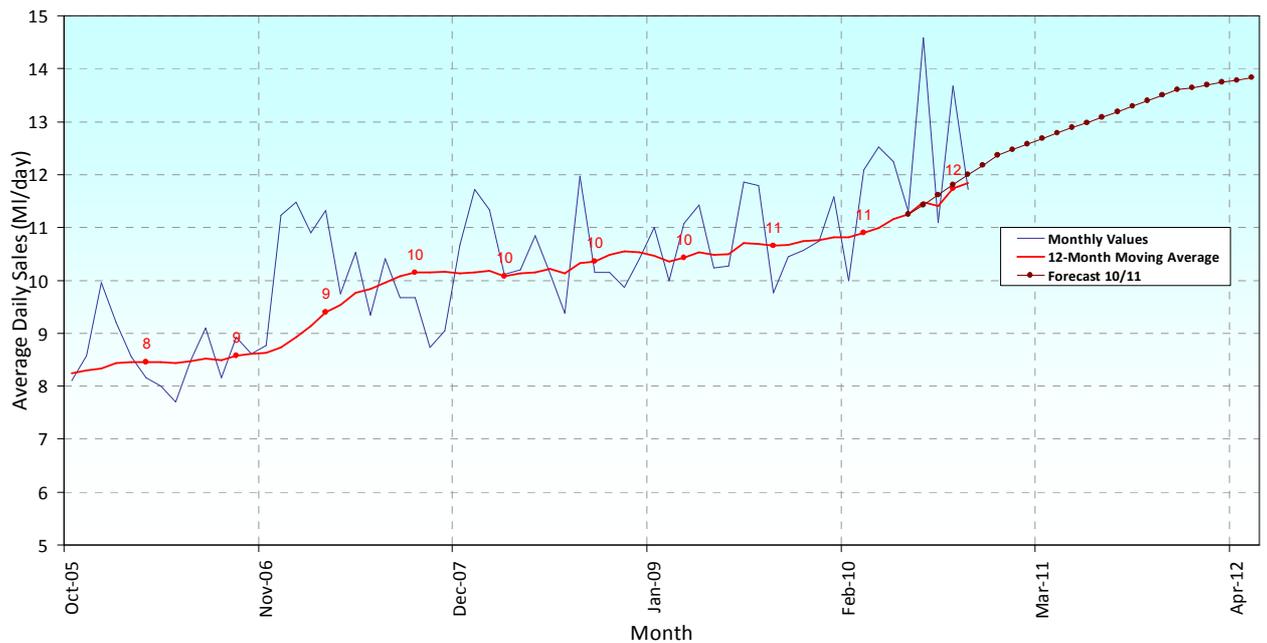


Figure 3.7 Siza Water Total Sales Volumes - Annual short-term forecast

The remaining water sales to Ilembe District Municipality include:

- approximately 8 MI/day sales to the coastal areas from Umgeni Water’s Hazelmere WTP;
- 16 MI/day sales to KwaDukuza (Stanger) from the Mvoti WTP. This plant is owned by Ilembe District Municipality and operated by Umgeni Water; and
- 8 MI/day sales to 36 inland rural schemes owned by Ilembe District Municipality and operated by Umgeni Water.

In July 2007 Umgeni Water became the bulk water provider to Ilembe District Municipality for the local municipal areas of Ndwedwe, KwaDukuza and Maphumulo. Initially, sales from the 36 schemes and the Mvoti WTP were based on a deemed volume. Since July 2009, sales from each of the schemes have been measured and sales are based on actual consumption. This has resulted in an increased sales volume and is evident in the stepped increase from July 2009 in **Figure 3.8**.

Ilembe District Municipality is implementing a number of water demand management initiatives within the town of KwaDukuza (Stanger) and they estimate that savings from these initiatives will offset the growth in sales for the area. The total sales to Ilembe District Municipality, over the next two years, are therefore assumed at a zero percent growth. Historical and predicted future sales to Ilembe District Municipality are presented in **Figure 3.8**.

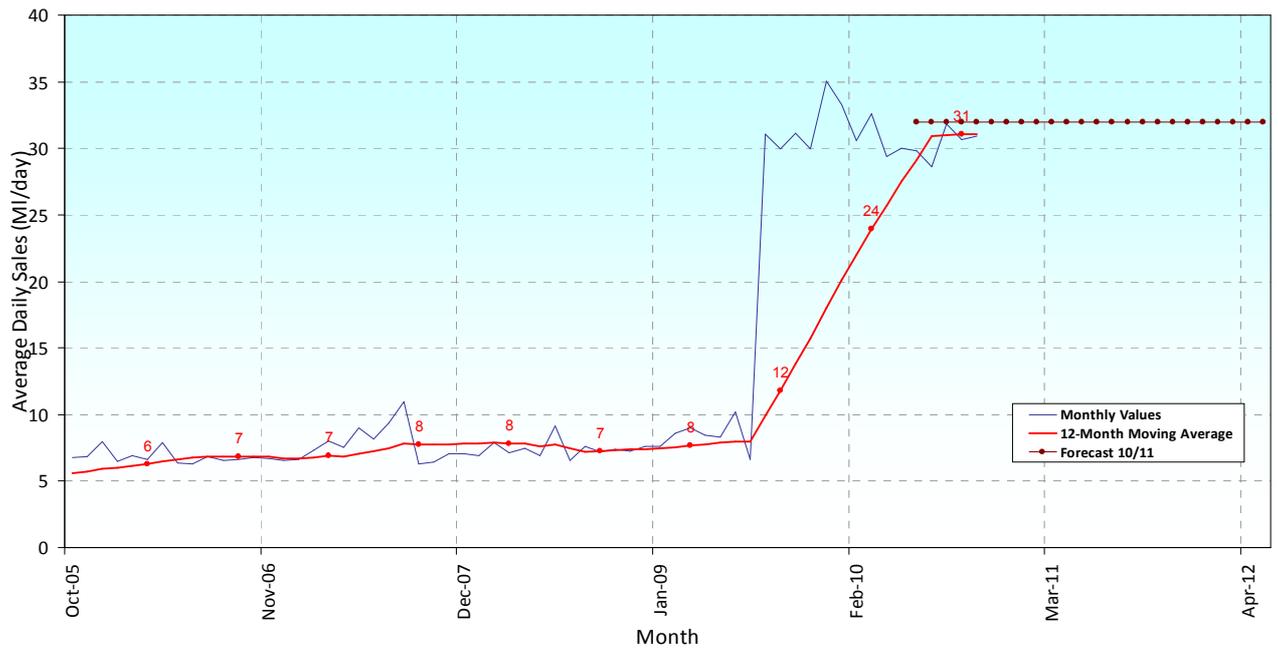


Figure 3.8 Ilembe District Municipality Total Sales Volumes - Annual short-term forecast.

3.2.5 UGU DISTRICT MUNICIPALITY

Total sales to the Ugu District Municipality increased by 30.78% from 6 019 MI in F'09 to 7 871 MI in F'10. Ugu District Municipality officials claim that this steep growth was due to the immediate uptake once the capacity of Mtwalume WTP had been upgraded from 4.5 MI/day to 7.5 MI/day. This growth is not expected to be maintained within the short-term forecast period. However, the projected growth in sales is still expected to be reasonably high, at 11.29% in F'11 and 8.33% in F'12. This equates to total sales for F'11 and F'12 of 8 760 MI and 9490 MI respectively (**Figure 3.9**).

This expected growth is as a result of the Ugu District Municipality proposed initiatives towards the reduction of backlogs and the rapid growth in water sales in the inland rural areas of Ugu District Municipality, specifically in the Ifafa and Mathulini areas. There are no water loss reduction initiatives currently planned, or being undertaken in Ugu District Municipality.

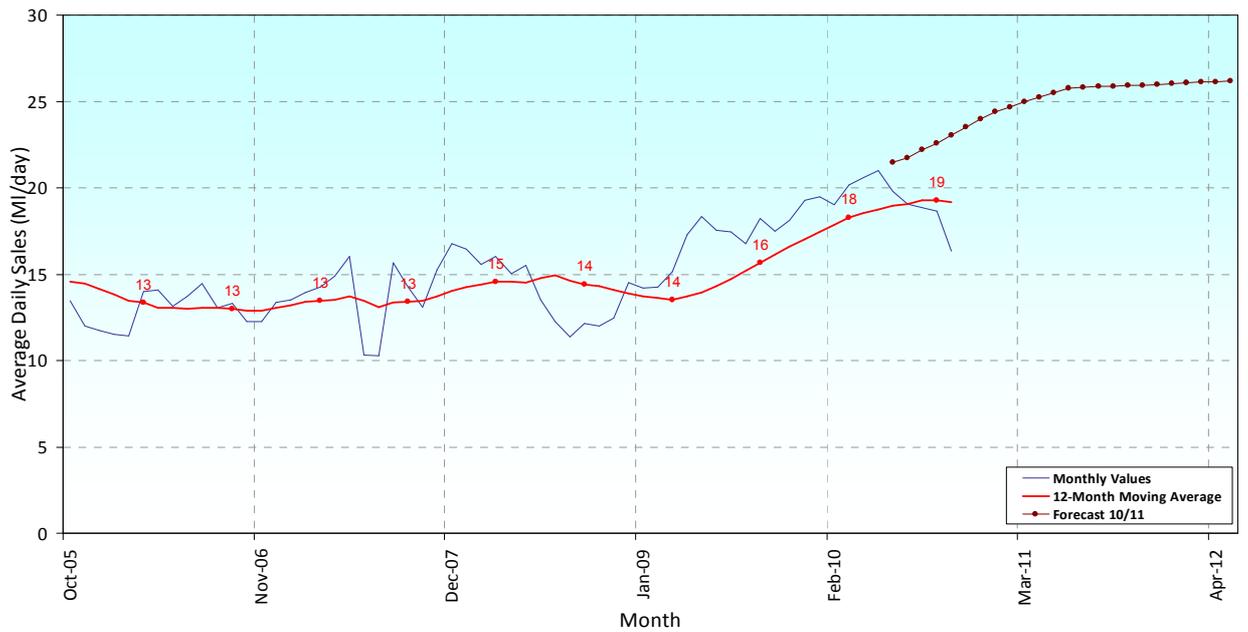


Figure 3.9 Ugu District Municipality Total Sales Volumes - Annual short-term forecast

3.2.6 SISONKE DISTRICT MUNICIPALITY

The Ixopo WTP supplies the greater Ixopo area. Average daily sales from the WTP currently amount to 2.4 MI/day, having increased at a rate of 7% year-on-year. It is projected that sales from the WTP will increase to 2.5 MI/day in F'11 and 2.55 MI/day in F'12.

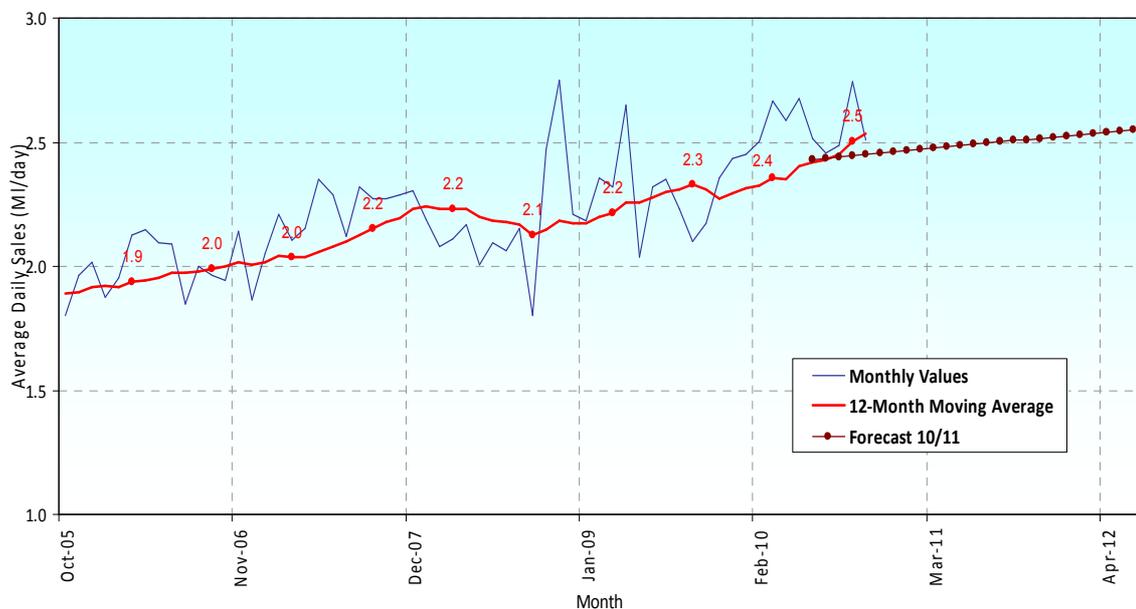


Figure 3.10 Sisonke District Municipality Total Sales Volumes - Annual short-term forecast

3.3 LONG-TERM FORECAST

The 30-year long-term sales forecast for Umgeni Water’s supply area (**Figure 3.11**) has been based on the anticipated natural growth, from the existing supply system, as well as for natural growth plus bulk sales from new supply infrastructure that would extend the area supplied. This new infrastructure and the timing of its implementation are taken from Umgeni Water’s latest 30-year CAPEX programme. The base projection (i.e. for natural growth only) has been developed from the short-term forecasts described in **Section 3.2** of this report and then extended at a compounded 1.5% per annum growth rate until F’41. This growth rate is considered acceptable for this long-term forecast as it closely matches the forecast that was independently derived as part of the “Water Reconciliation Strategy Study for the KwaZulu-Natal Coastal Metropolitan Areas” recently completed by DWA, which used a population projection technique to estimate demand forecasts.

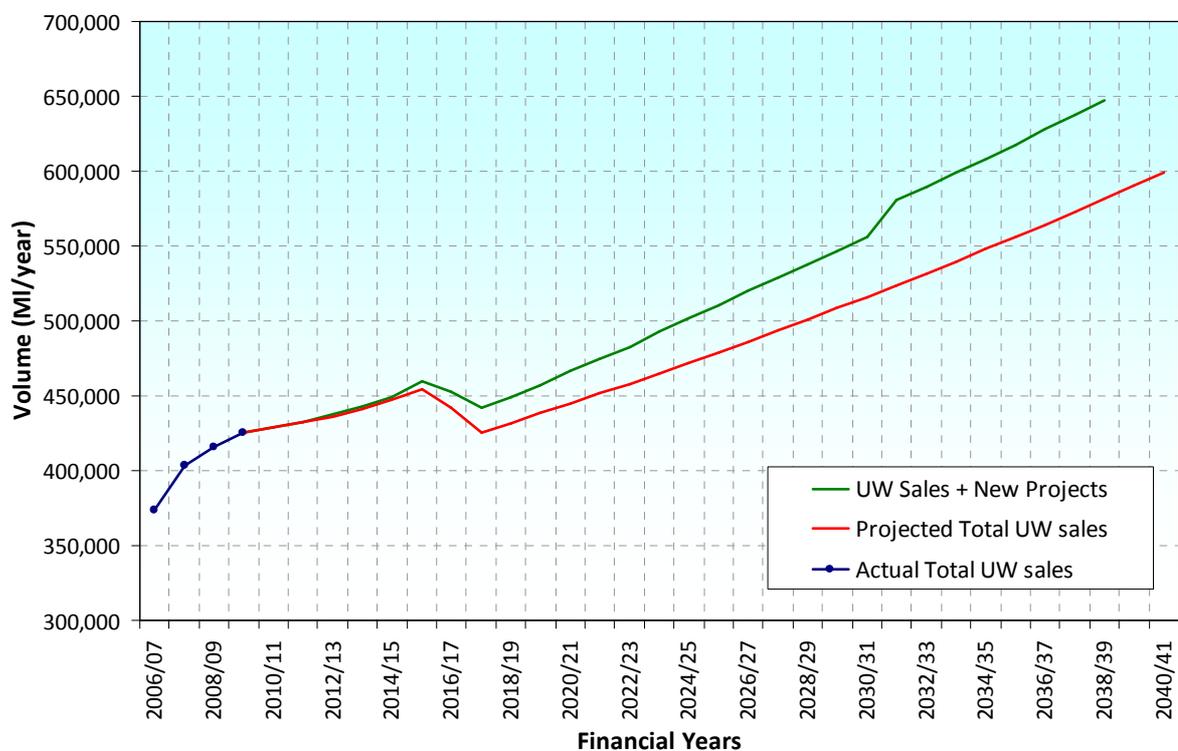


Figure 3.11 Umgeni Water Long-Term Bulk Water Sales Forecast

The drop in sales in F’17 and F’18, as shown in **Figure 3.11**, is as a result of the anticipated commissioning by eThekweni Municipality of their Northern and KwaMashu wastewater re-use plants which are anticipated to produce 51 MI/day and 65 MI/day respectively. These plants intend to feed potable water directly into their bulk supply network, thereby reducing the requirement from Umgeni Water.