

#### water affairs

Department: Water Affairs REPUBLIC OF SOUTH AFRICA

Continuation of the Reconciliation Strategy of the KZN Coastal Metro Areas – Phase 2

### UMNGENI SYSTEM OPERATIONS FORUM

JULY 2014



# Umgeni Water Supply System

- No concerns in the main system, maintain pumping from Inanda and current abstractions from Hazelmere Dam
- Rainfall received is between 50-100% normal
- System storage is above the 50<sup>th</sup> Percentile
- Major concerns within the South Coast system

# South Coast System

# **System configuration**



### Water requirements and operating scenarios

Recent water supply/requirement and dam level records obtained to monitor system status and performance:

- 1. Average of past 6 months water supply figures 12.6 ML/d.
- 2. Currently only intermittent supply from South Coast pipeline averaging around 0.5 ML/d over a month period.
- 3. Dam levels as of beginning of May 2014 :
  - Umzinto Dam 50 %,
  - EJ Smith Dam 75 %
  - Combined 66%

### Possible outcome if current trend continues



# **Box Plot Definition**



## Projected Combined Dam Storage with Model

**COMBINED DAM STORAGE** 



Percentage (%)

#### Drought operating rules (curtailment curves) for Middle South Coast WSS - 2014 curve (Combined Umzinto and EJ Smith dams)

#### **Decision month: May**

	100 -							
	90 - 80 -	IMPLEMENTATION         Step 1: Monitor the water level and storage state of         Umzinto and EJ Smith Dams         Step 2: Measure and store information on water         abstractions .         Step 3: Store all measured data in a reliable databank.         Step 4: At the end of April of each year determine the total         water abstracted from Umzinto and EJ Smith dams , as well						
_	70 -	as the water deleivered from the South coast pipeline and						
level (%)	60 -	<ul> <li>Step 5: Select the storage level (%) on the Y-axis</li> <li>corresponding to the actual combined measured dam level</li> <li>(%) at the 1<sup>st</sup> of May on the curtailment curve.</li> </ul>						
age	ГО	<b>Step 6</b> : Follow this line horizontally until it intersects with the curtailment curve corresponding with the annual water						
ior.	50 -	requirement (in $M\ell/day$ ) for the WSS calculated in <b>Step 4</b> .						
S		The line colours are explained in the legend.						
	40 -	Step 7: Draw a vertical line to the X-axis and find the total						
		Step 8: Continue to monitor and plot dam levels and record						
	20	actual water supply to determine the effect of curtailments						
	30 -	imposed.						
	20 -							
	10							
	10 -							
	0 -							
	0	0.0 1.0 2.0 3.0	4.0	5.0	6.0	7.0	8.0	9.0
			Allocation vol	ume (MI/d)		771	MI /d	

COMBINED DAM STORAGE



WATER IS LIFE - RESPECT IT, CONSERVE IT, ENJOY IT.

# **Scenario results: Conclusions**

The revised analysis shows the following:

- Currently Umzinto and EJ Smith dams are over abstracted due to increased water demand and limited availability from the SCP.
- The May dam storage volumes highlighted a need for reduced water abstractions from Umzinto and EJ Smith Dams.
- The additional 2.5 to 3 ML/d augmentation planned for September will be too late to meaningfully reduce the need for short term water curtailments.
- To keep the risk of system failure within acceptable criteria and maintain high priority basic water supply, it is recommended that abstractions from the dam be reduced from 12 ML/d to 8ML/d, i.e. a 33% reduction.
- To be reviewed once the augmentation comes on line

# **Recommendations from the SOF**

### South Coast System

- 33% Mandatory restrictions for Umzinto & EJ Smith dams must be implemented
- Fast tracking following projects that augment Mzinto System:
  - ✓ Singh's Reservoir Off-Take Link
  - ✓ Optimisation of Willowglen Pump Station
  - ✓ Scottburgh to Ellingham Link-Phase 2.
- Assist Ugu in reducing leaks in their reticulation systems
- Raise awareness & support Ugu with implementation of restrictions
- Next meeting in August to review the water resource status

# **Recommendations from the SOF**

### Mgeni System

- Pump from Mooi River as soon as October 2014 after refurbishments on the Mearns Pumps and Mpofana Outfall are completed
- Maintain full pumping from Inanda Dam (200Ml/day)

### Progress as reported by Umgeni Water

- Abstraction from the Dams reduced by 42%
- Slower decline in dams levels
- Projects to augment Umzinto system are being fast tracked
- Continuous monitoring is taking place

# Thank you