Umgeni Water Drought Impacts and Interventions

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Manager: Planning Services

A journey from water for a few to water for all

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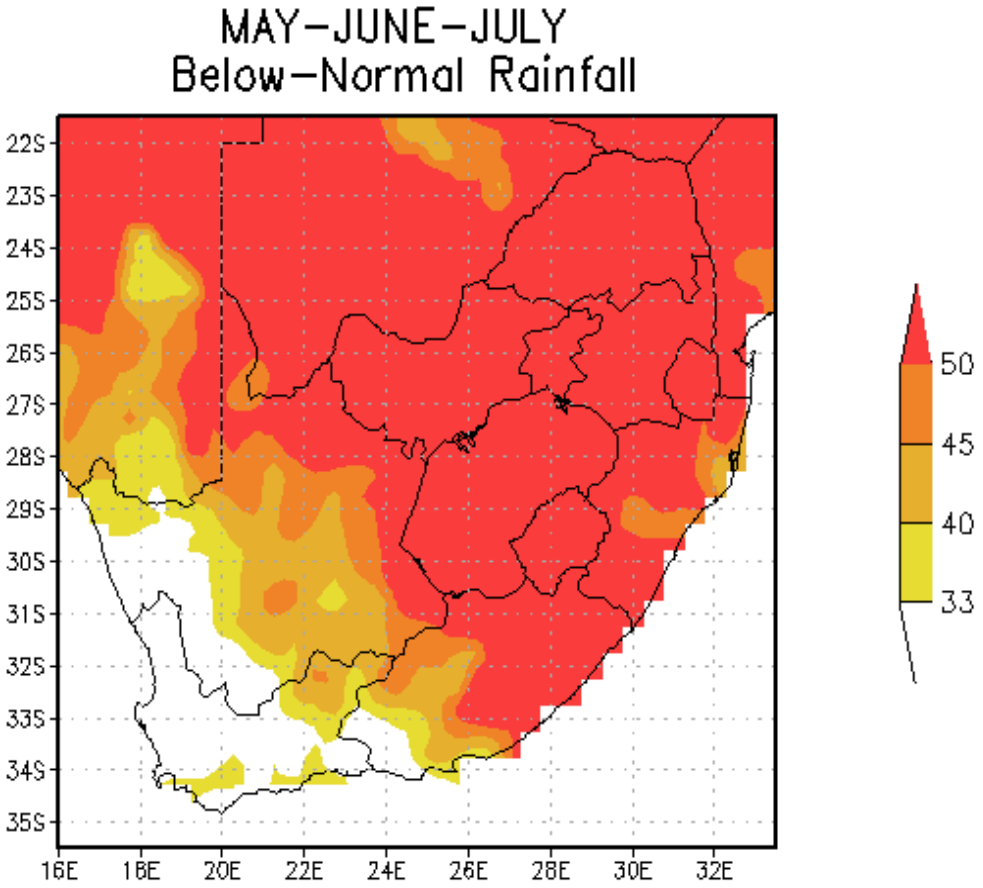
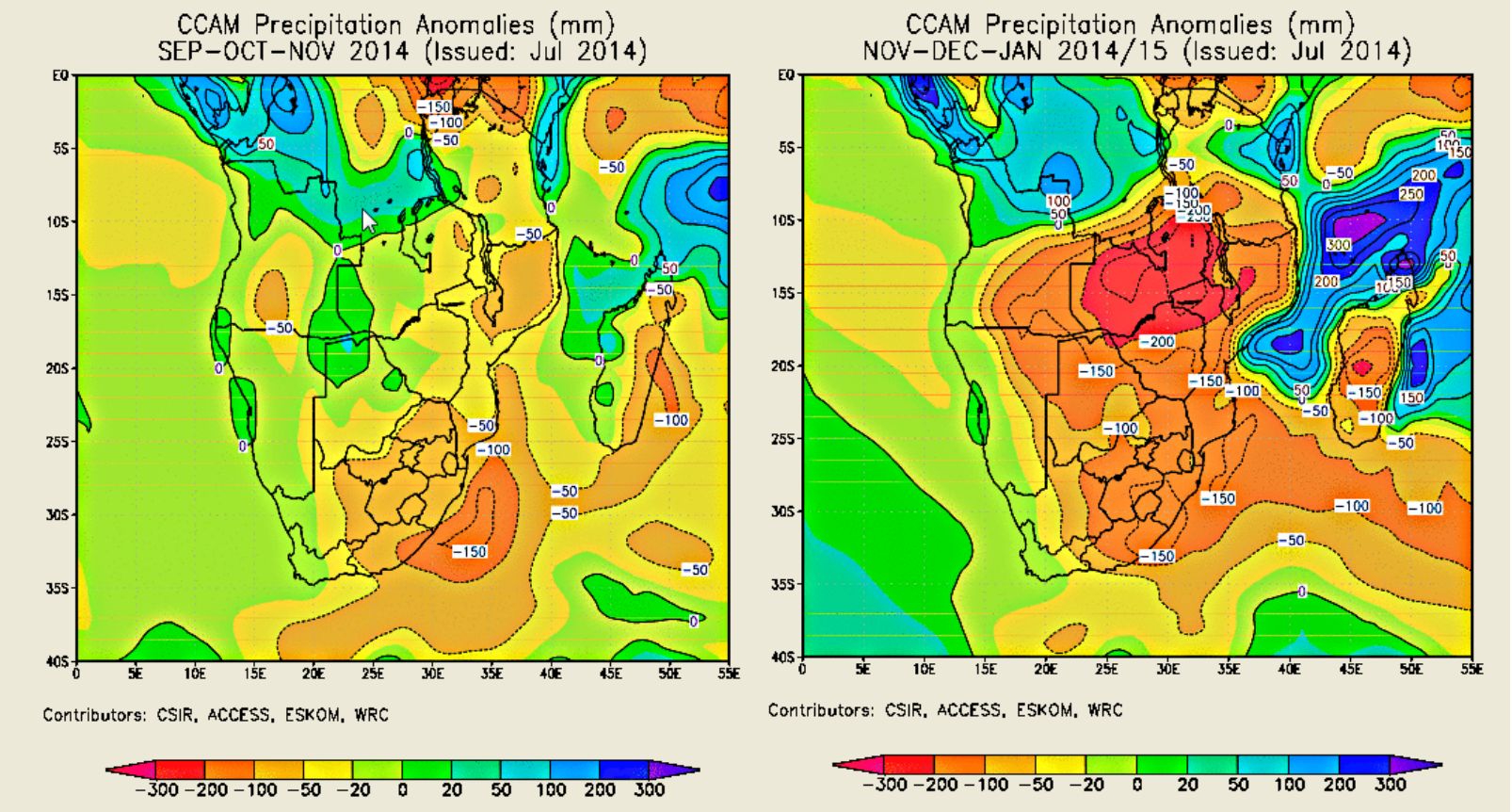
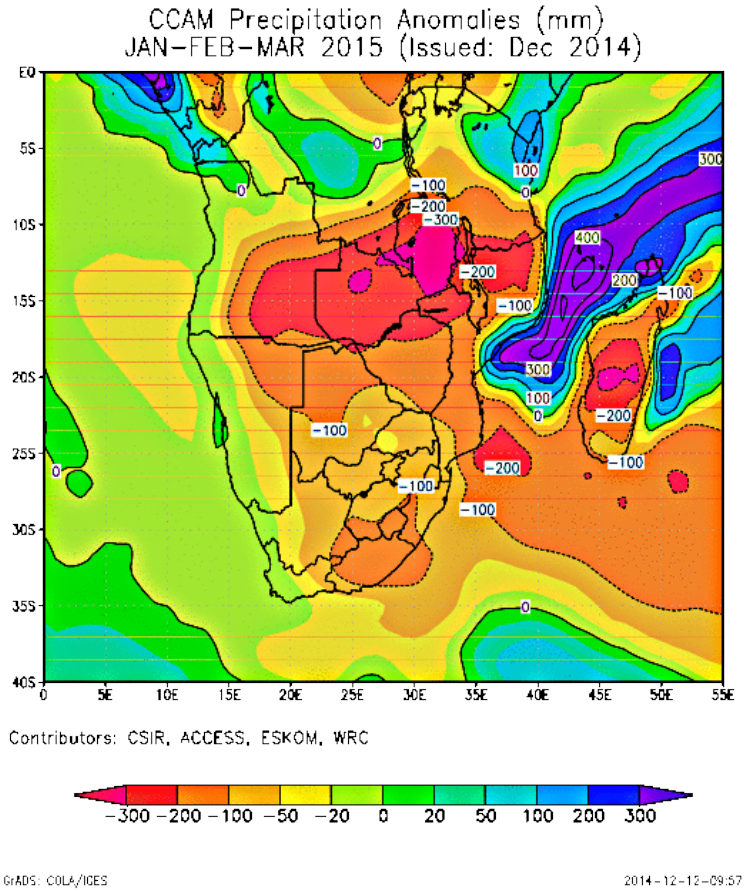
The 2014 / 15 Drought

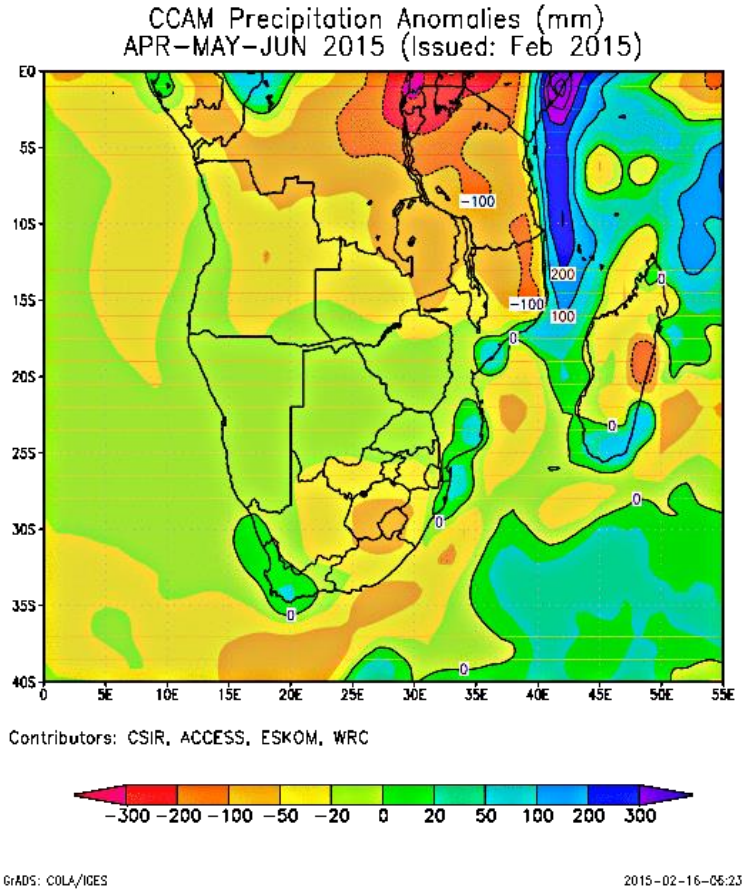


Umgeni Water Drought Interventions



Umgeni Water Drought Interventions





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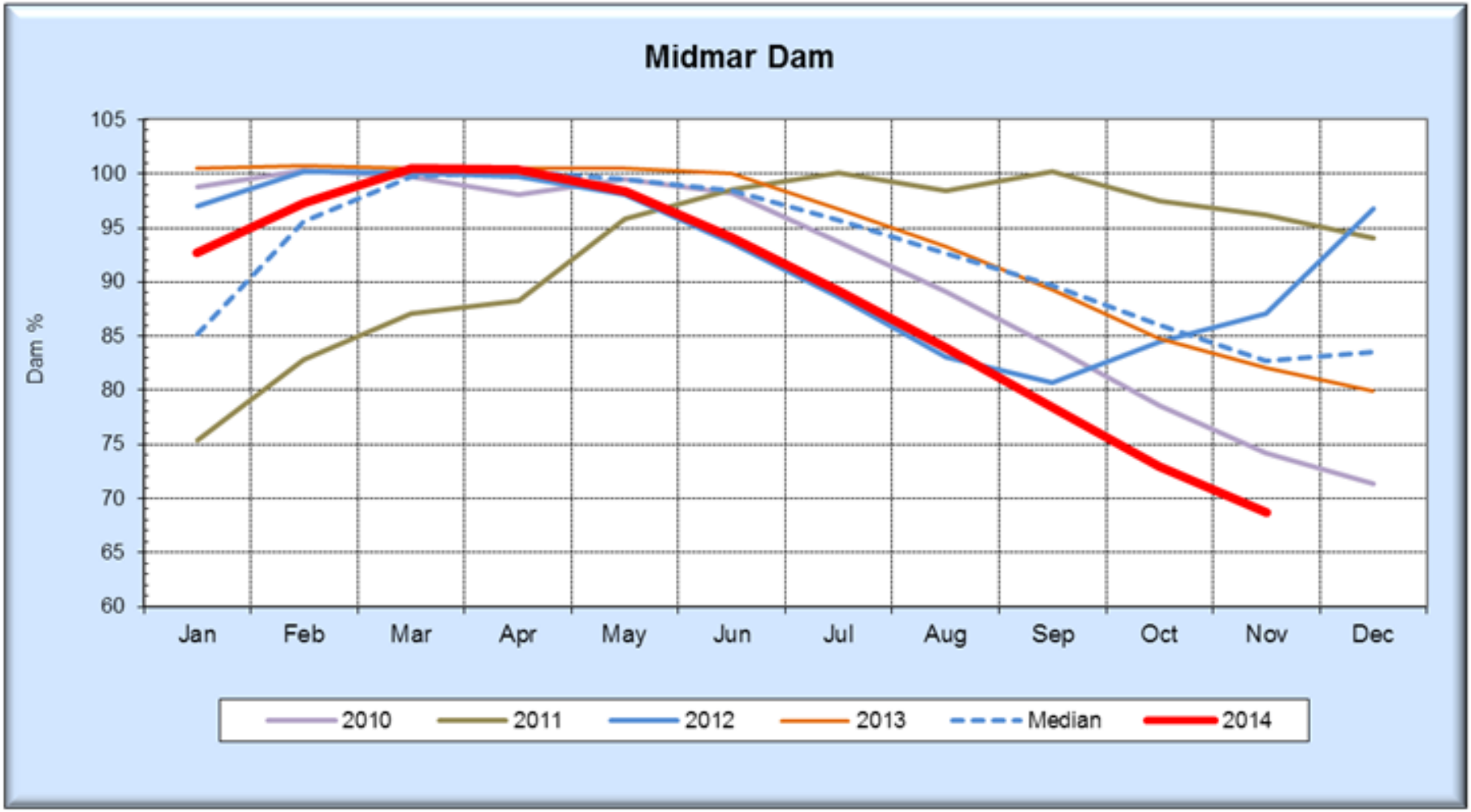

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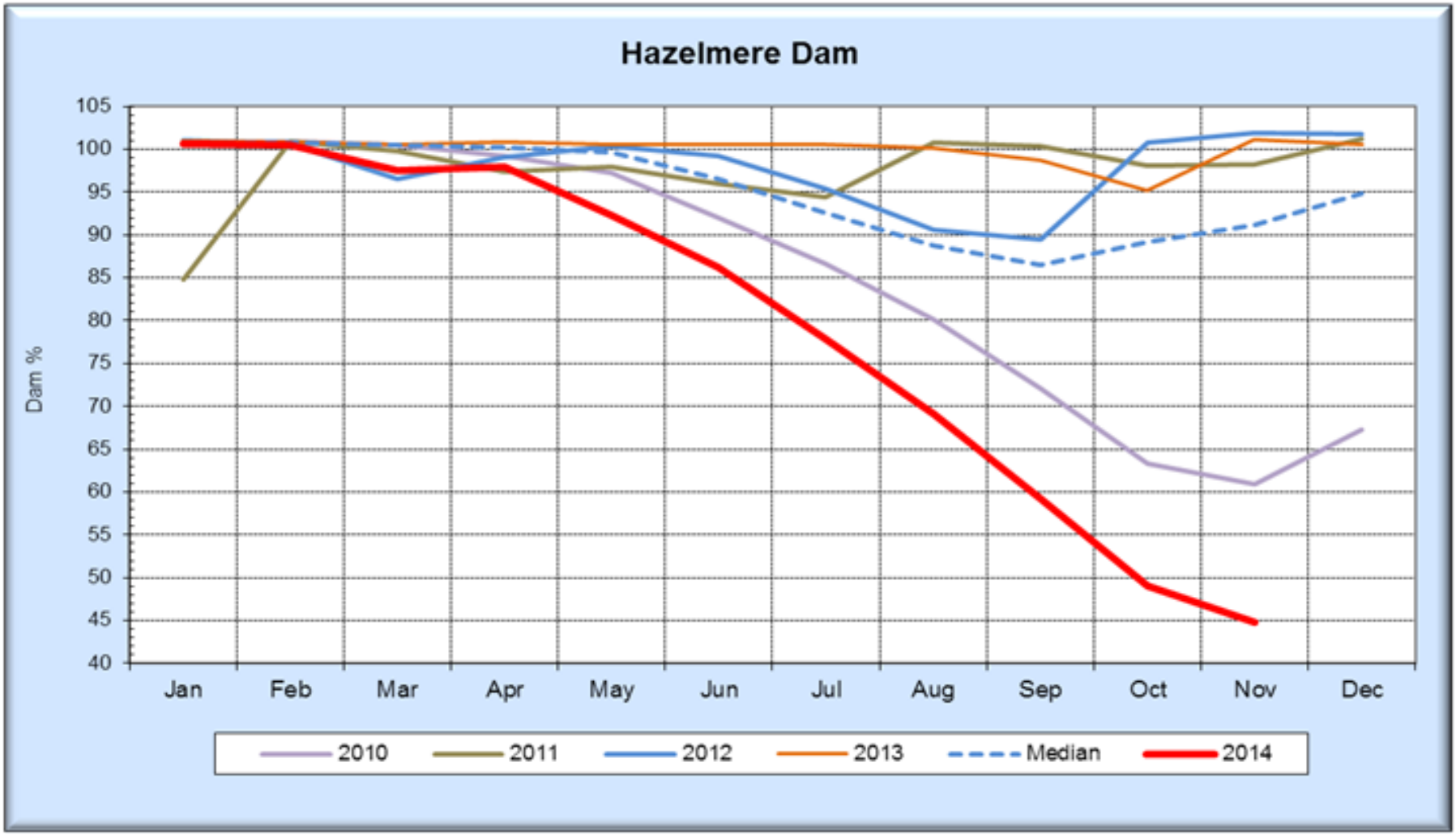

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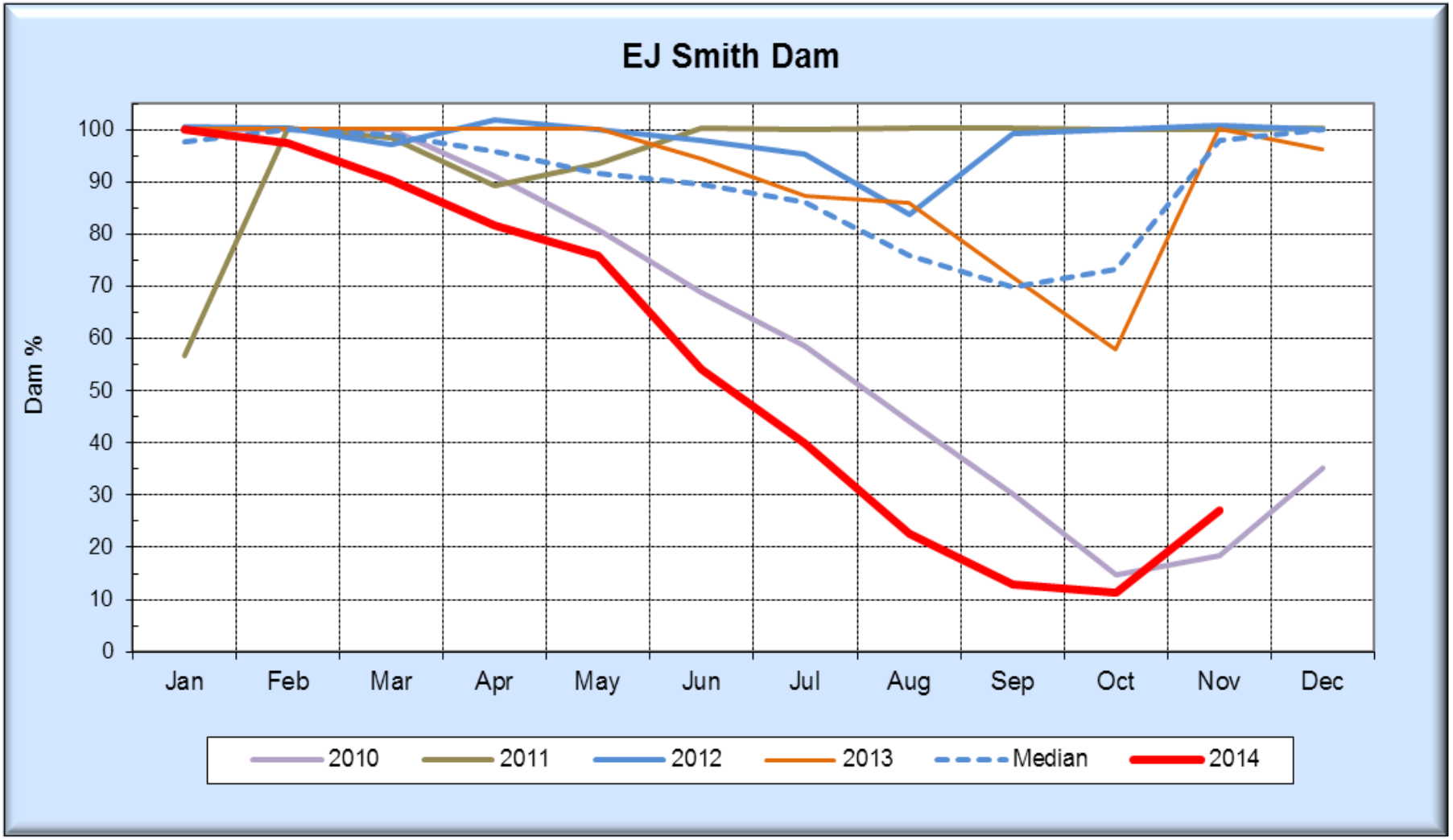

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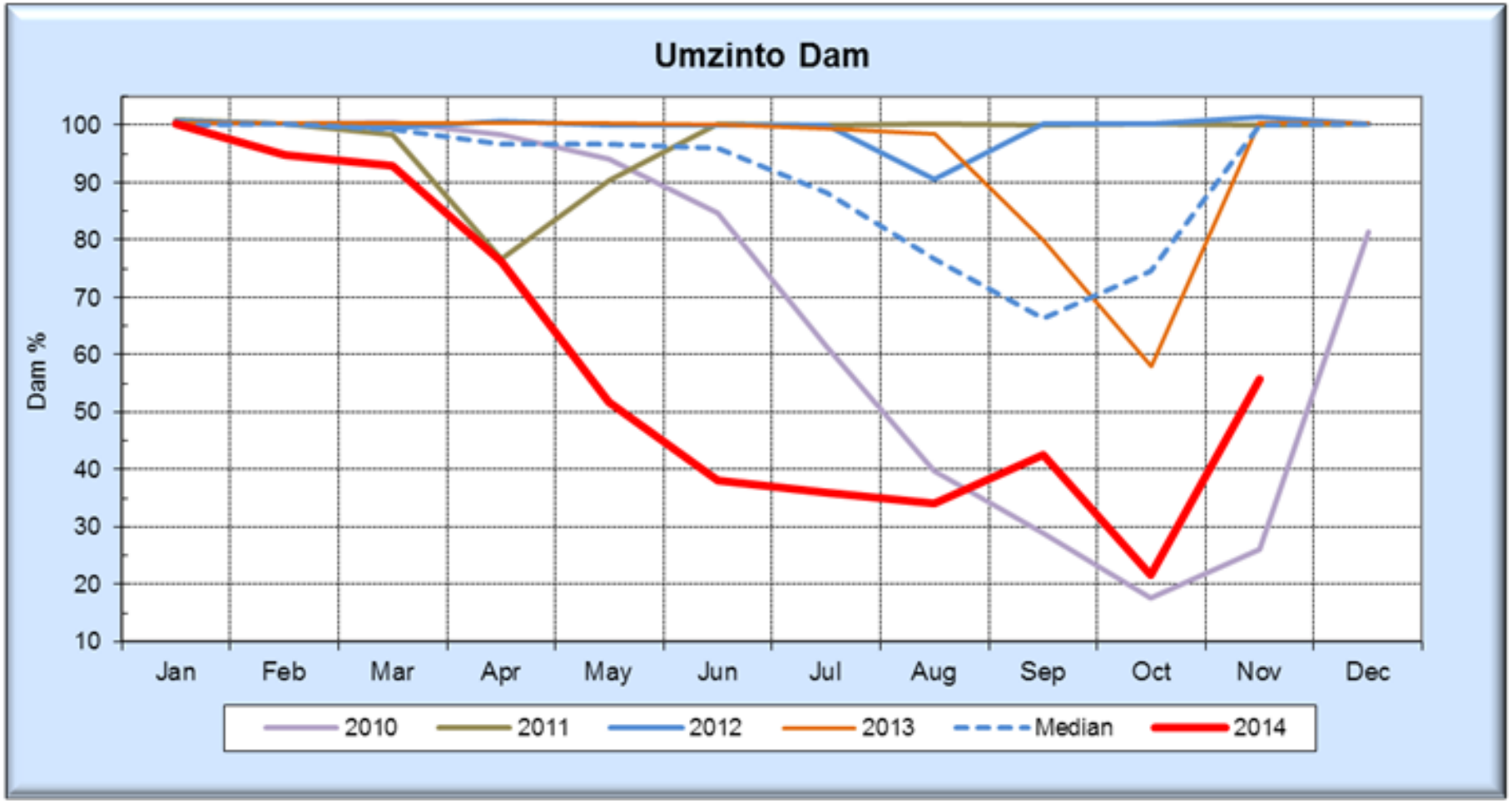

Emergency Schemes

Maphumulo Interventions

Maphumulo Bulk Water Supply Scheme

- Phase 1 – Temporary Abstraction from Imvutshane River and Water Treatment Plant with a capacity of 6 Ml/day. This project was commissioned in August 2013;

- Phase 2 – Construction of iMvutshane Dam. The dam is being constructed and is scheduled to be commissioned by early 2015;

- Phase 3 – Abstraction from Hlimbitwa River, rising main to iMvutshane Dam abstraction works and upgrade of Water Treatment Works capacity to 12 Ml/day. This is planned to be commissioned by the end of 2017.

Maphumulo Bulk Water Supply Scheme

Maphumulo Bulk Water Supply Scheme

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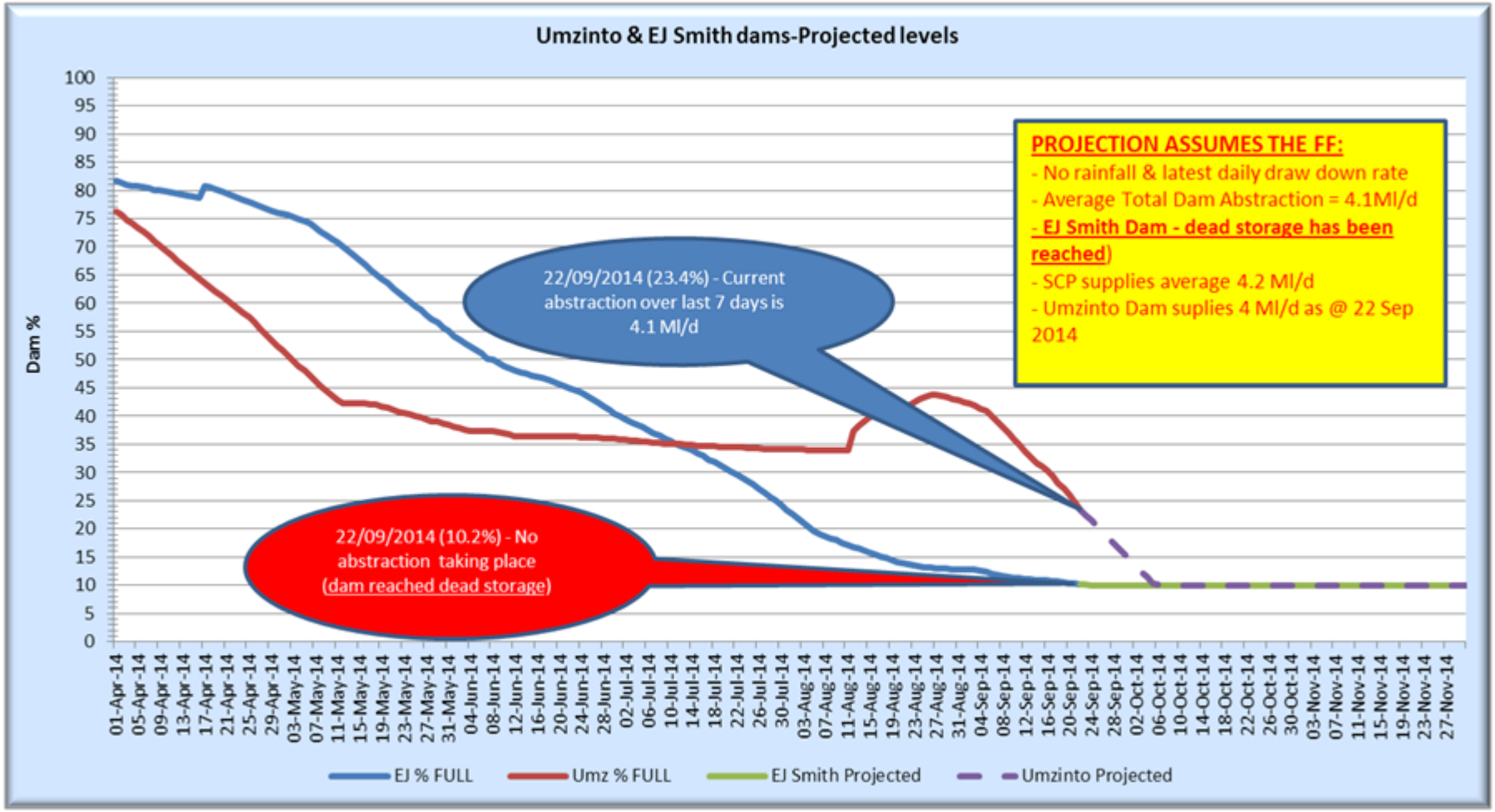
Emergency Schemes

South Coast Interventions

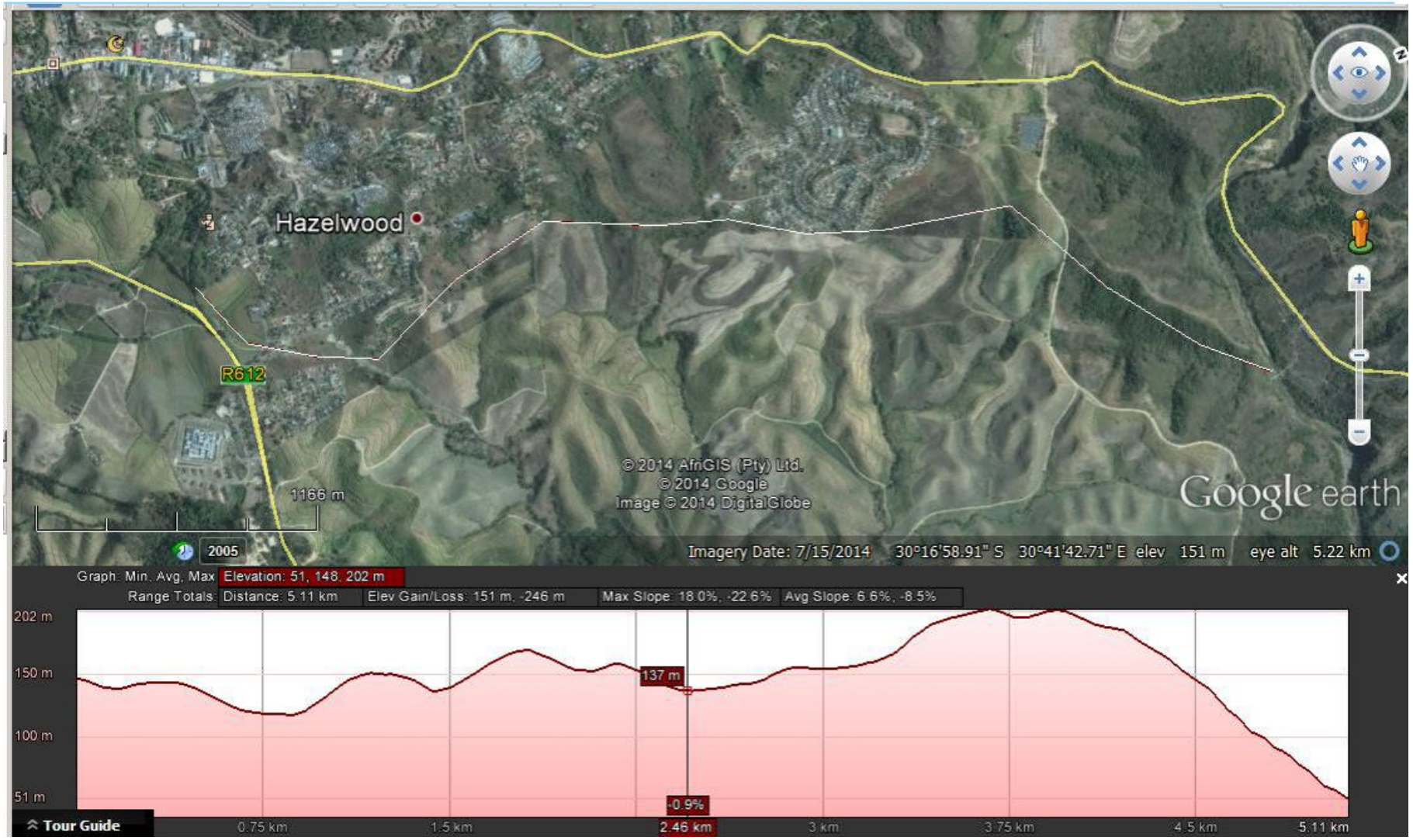
Umzinto Drought Planning – Sept 2014



Umzinto Drought Relief

- Water Demand Management (No real savings)
- Reduction of Water Use (No real savings)
- Alternative Potable Water Supply (Load shed from Ellingham Link and eThekwini system (3Ml/d)
- Emergency Raw Water Augmentation (8Ml/d)
  - R17 million
  - 6 weeks construction for 5km pipeline and abstraction works

Mpambanyoni Emergency Scheme



Mpambanyoni Emergency Scheme Photos

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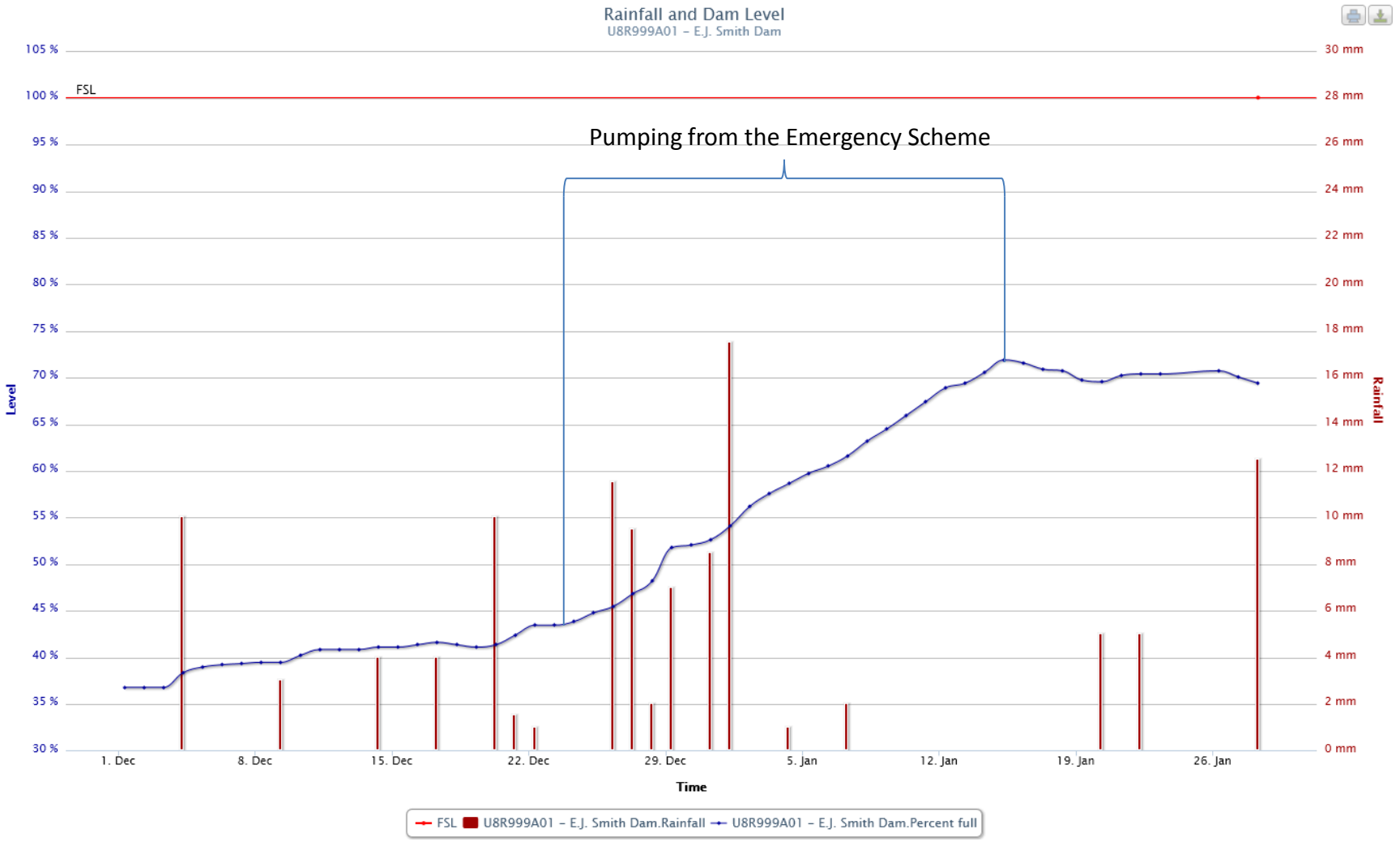
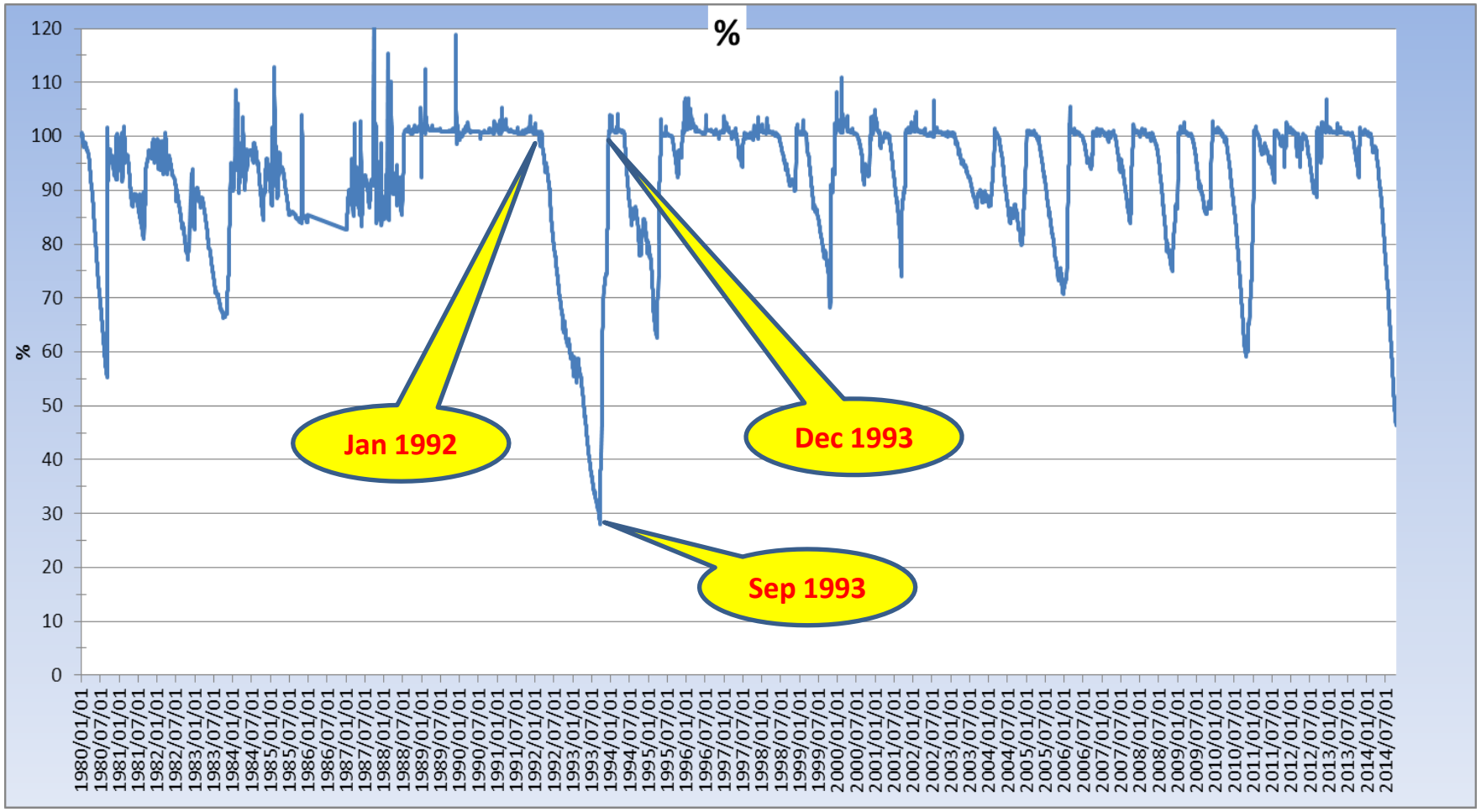
Plot | Table | Statistics



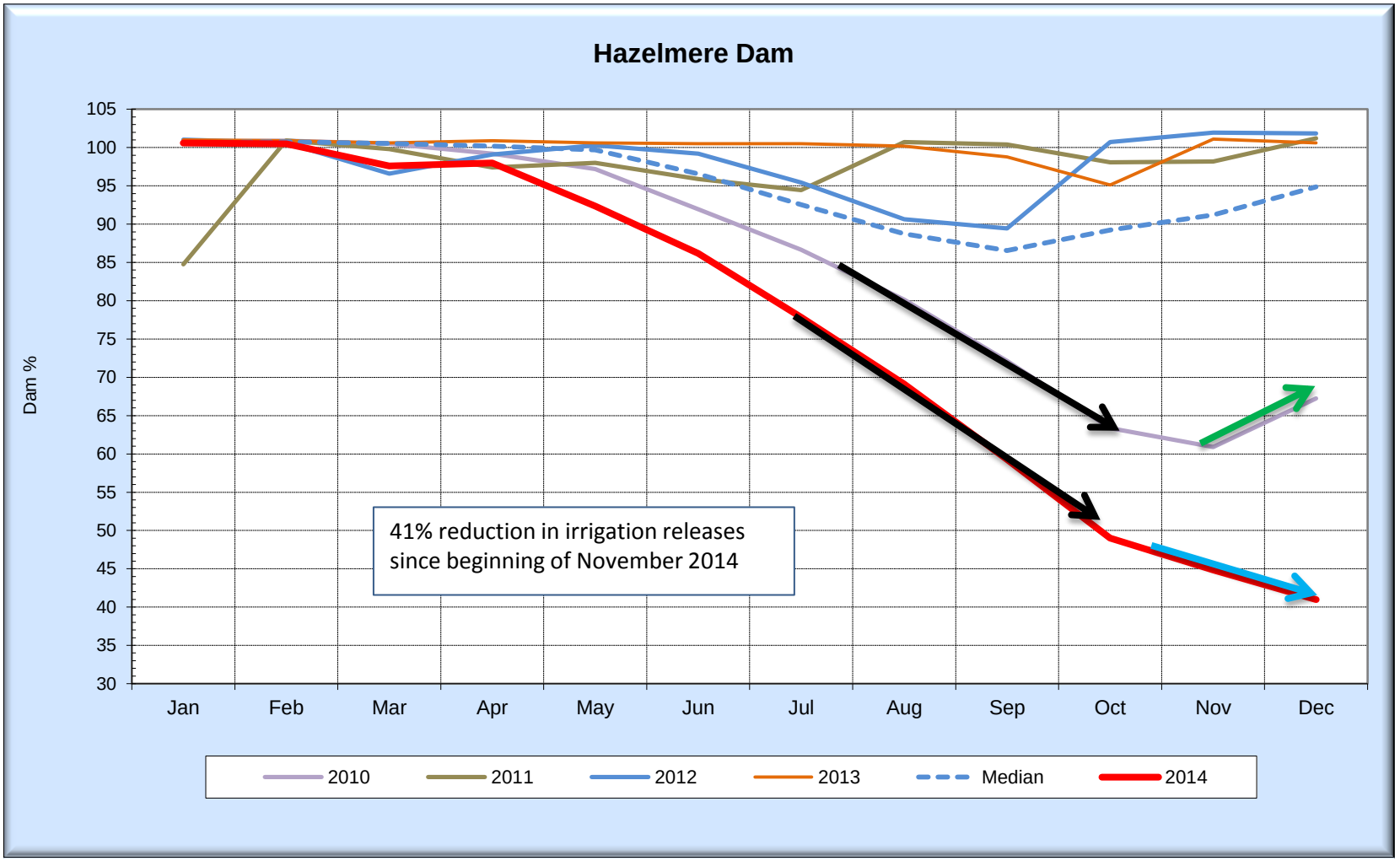
Emergency Schemes

North Coast Interventions

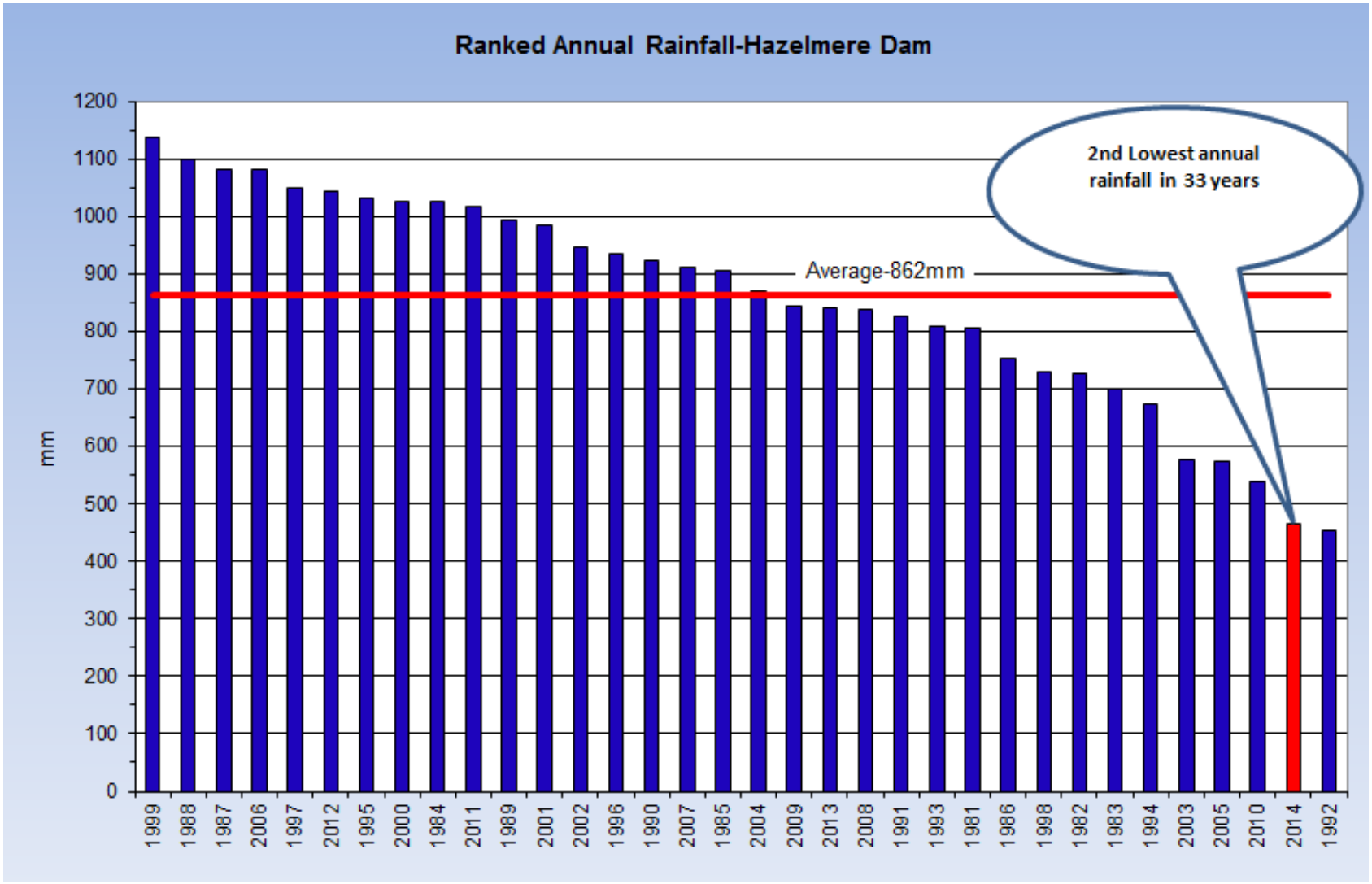
Hazelmere Historical Storage



Hazelmere Historical Storage



Historical Rainfall Pattern



Hazelmere Dam Drought Indices

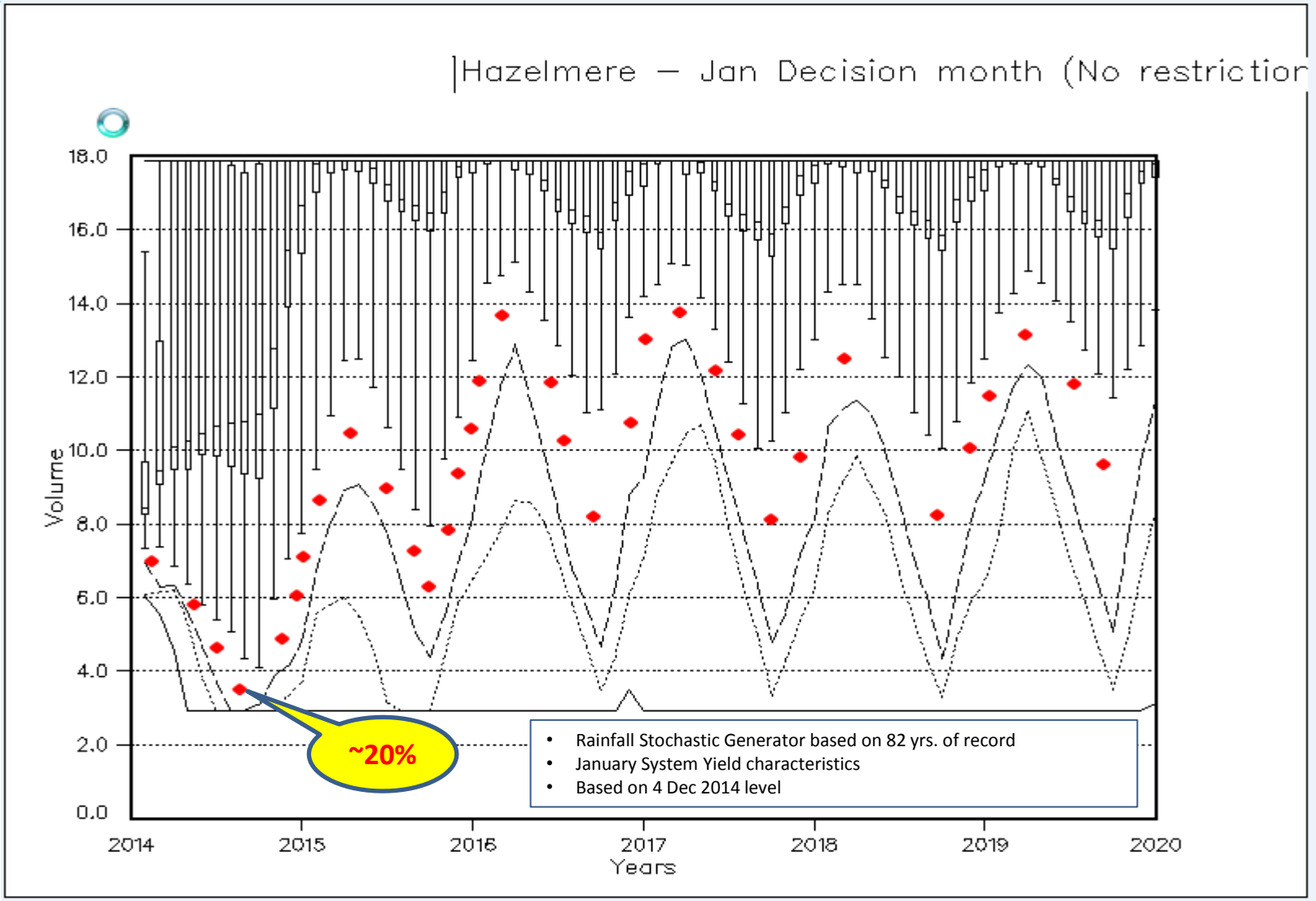
Before the rainfall season (End September)]

- ≥ 80% of full supply capacity (**Normal**)
- < 80% ≥ 70% of full supply capacity (**Incipient**)
- < 70% ≥ 45% of full supply capacity (**Drought Advisory**)
- < 45% ≥ 30% of full supply capacity (**Action**)
- < 30% of full supply capacity (**Emergency**)

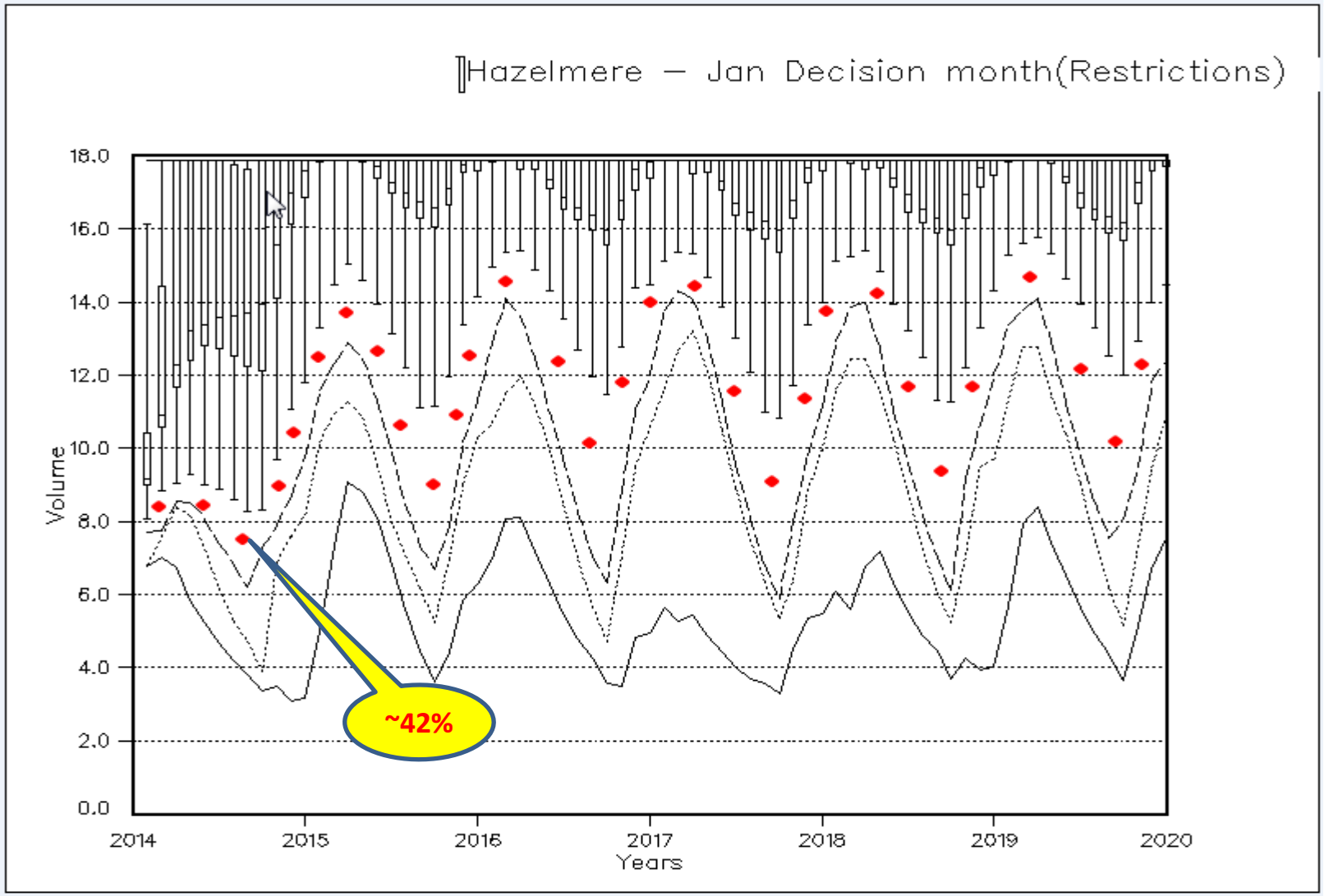
[After the rainfall season (End April)]

- ≥ 90% of full supply capacity (**Normal**)
- < 90% ≥ 80% of full supply capacity (**Incipient**)
- < 80% ≥ 60% of full supply capacity (**Drought Advisory**)
- < 60% ≥ 45% of full supply capacity (**Action**)
- < 45% of full supply capacity (**Emergency**)

Planning Model – No Restrictions



Planning Model – Restrictions



Dam Photos – 21 Jan 2015

Hazelmere Drought Relief

- Drought Committee Formed September 2014
- Water Demand Management (No real Savings)
- Reduction of Water Use (Initially minor savings, currently 5Ml/d)
- Load Shedding of Grange to Durban Heights (10Ml/d)
- Emergency Raw Water Augmentation (8 – 12 Ml/d)
  - R37 million
  - 6 weeks construction for 7.5km pipeline, abstraction works and two pump stations

Level monitoring and Predictions

Hazelmere Dam Storage Forecast		
Volume of Utilisable Storage Remaining in ML	3445Ml	Date: 28 Jan 2015
ie.		45.2 Ml/d

Scenario 1	
a. Hazelemere Production remains Normal as of today ie.	45.2 Ml/d
b. No of days Storage remaining at (0 % Curtailment)	162 days
c. Date on which Dam will run out of water	Second week of July 2015

Scenario 2	
a. Hazelmere Production reduced as per Level 1 Curtailment (10 %)	40.7 Ml/d
b. No of days Storage remaining at (10 % Curtailment)	191 days
c. Date on which Dam will run out of water	First week of August 2015

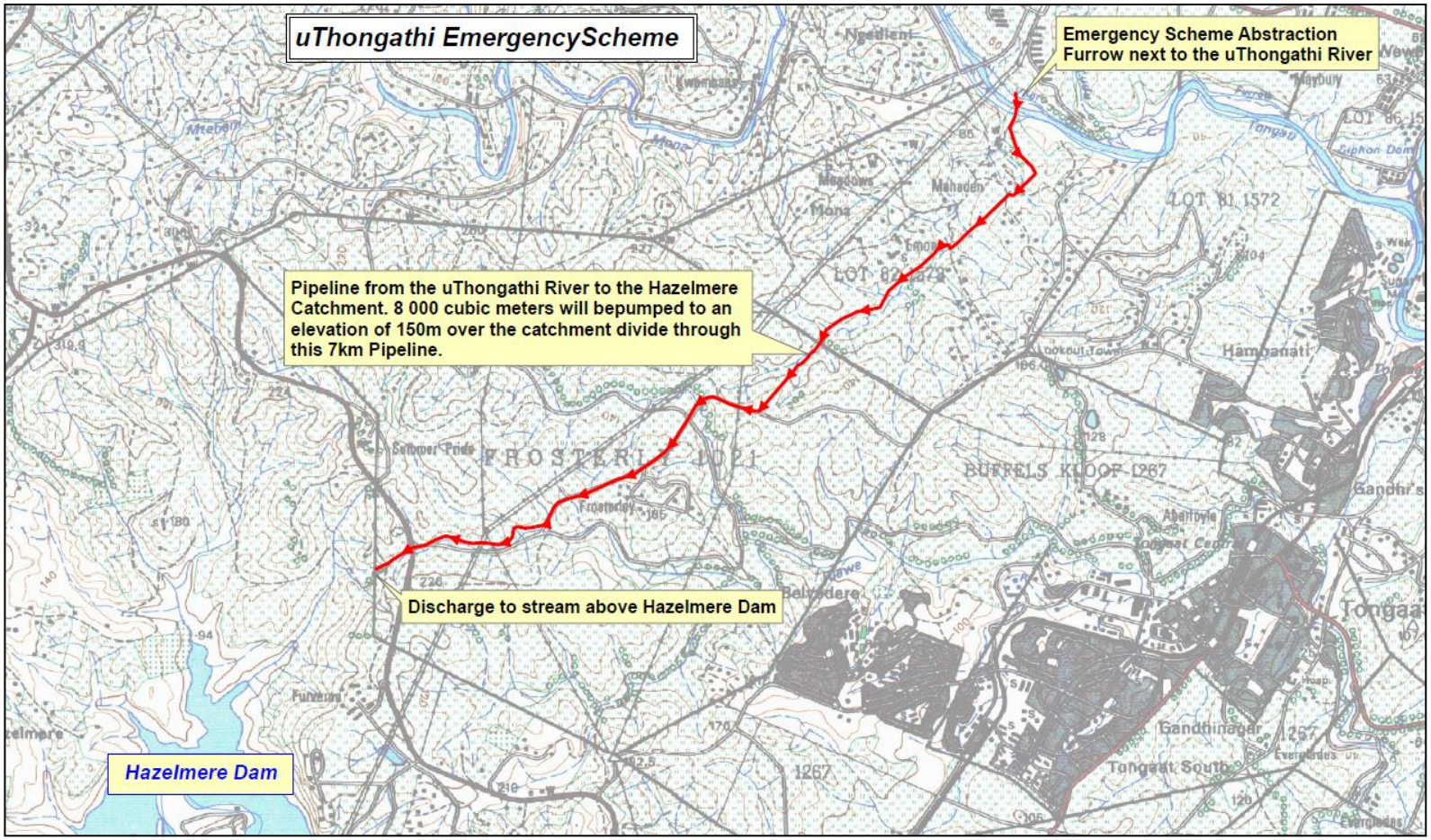
Scenario 3	
a. Hazelmere Production reduced as per Level 2 Curtailment (20 %)	36.2 Ml/d
b. No of days Storage remaining at (20 % Curtailment)	231 days
c. Date on which Dam will run out of water	Third week of September 2015

Scenario 4	
a. Hazelmere Production reduced as per Curtailment (30 %)	31.6 Ml/d
b. No of days Storage remaining at (50 % Curtailment)	N/A
c. Date on which Dam will run out of water	No Failure

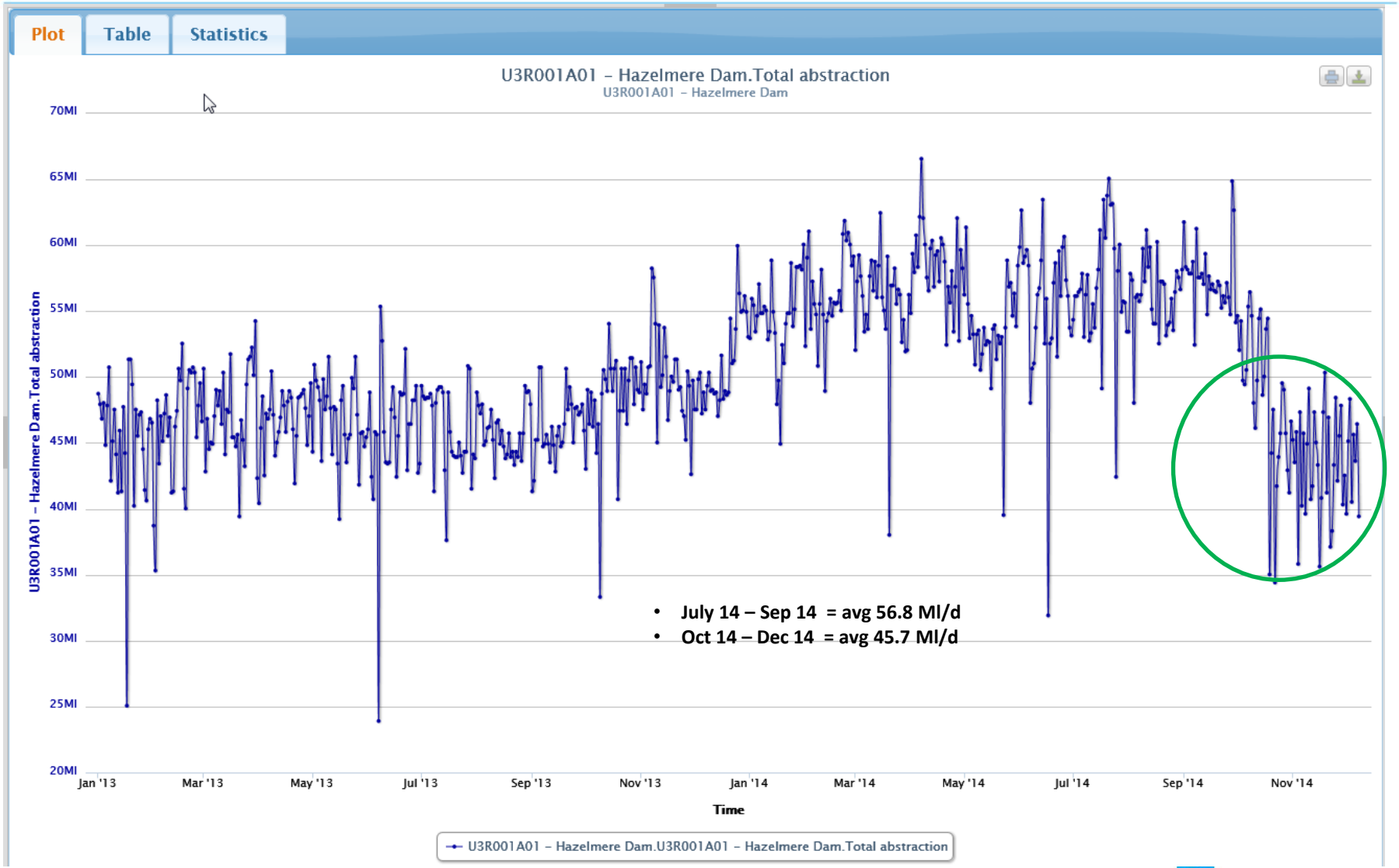
Scenario 5	
a. Hazelmere Production reduced as per Curtailment (50 %)	22.6Ml/d
b. No of days Storage remaining at (50 % Curtailment)	N/A
c. Date on which Dam will run out of water	No Failure

	Baseline ADD for period June to Aug 2014	ADD Achieved for Reporting Period 26 from 12 Jan 2015 - 19 Jan 2015	Target Saving (Level 3) 30%	ADD Curtailment to be achieved for Period to Date	Curtailment Volume Achieved Level 2	Percentage Achieved	Comment
	Ml/d	Ml/d	Ml/d	Ml/d			
IDM	12328	13204	3698	8630	876	7%	Curtailment under achieved by 137%
EWS	14002	14570	4201	9801	568	4%	Curtailment under achieved by 134%
SS	13746	9578	4124	9622	-4168	-30%	Curtailment achieved 100%

uThongathi Emergency Scheme



Raw Water Abstraction 2013/14



- **July 14 – Sep 14 = avg 56.8 Ml/d**
- **Oct 14 – Dec 14 = avg 45.7 Ml/d**

Current Level monitoring and Predictions

Hazelmere Dam Storage Forecast			
Volume of Utilisable Storage Remaining in ML	5793Ml		Date: 16 Feb 2015
Assumption that worst drought Experienced in 30yrs and the Production at Haz WW remains at last 7 days average ie.			42.6 Ml/d
Scenario 1			
a. Hazelemere Production remains Normal as of today ie.		57Ml/d	42.6 Ml/d
b. No of days Storage remaining at (0 % Curtailment)		153 days	N/A
c. Date on which Dam will run out of water		Week 3 July 2015	No Failure
Scenario 2			
a. Hazelmere Production reduced as per Level 1 Curtailment (10 %)			38.3 Ml/d
b. No of days Storage remaining at (10 % Curtailment)			N/A
c. Date on which Dam will run out of water			No Failure
Scenario 3			
a. Hazelmere Production reduced as per Level 2 Curtailment (20 %)			34.1 Ml/d
b. No of days Storage remaining at (20 % Curtailment)			N/A
c. Date on which Dam will run out of water			No Failure
Scenario 4			
a. Hazelmere Production reduced as per Curtailment (30 %)			29.8 Ml/d
b. No of days Storage remaining at (50 % Curtailment)			N/A
c. Date on which Dam will run out of water			No Failure
Scenario 5			
a. Hazelmere Production reduced as per Curtailment (50 %)			21.3 Ml/d
b. No of days Storage remaining at (50 % Curtailment)			N/A
c. Date on which Dam will run out of water			No Failure

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Thank you.

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