

Sasol, GiZ, Emfuleni Boloka Metsi water conservation project – Lessons Learnt

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SASOL
reaching new frontiers

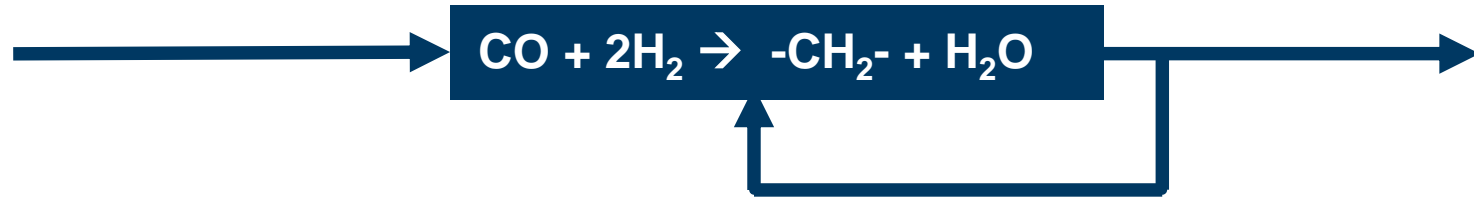


Agenda

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- 2. Risk facing the Integrated Vaal River System (IVRS)**
- 3. Sasol's Water Stewardship Framework**
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1. Sasol's main need for water

- this feedstock is required to cool processes, to generate steam and make hydrogen



water resource: access and security

water is required at a very high assurance

Sasol's total water demand is 150 million m³ (80% of which is sourced from the Vaal)

fair and secure allocation

water technology: use, recycling, treatment

water footprints vary in size and significance

12 Tons water/ Ton CTL fuel;
GTL can be configured to be a net water producer

robust and efficient processes

water resource: ecosystem protection

impacts have to be responsibly managed

limited permitted effluent discharge but other risks too

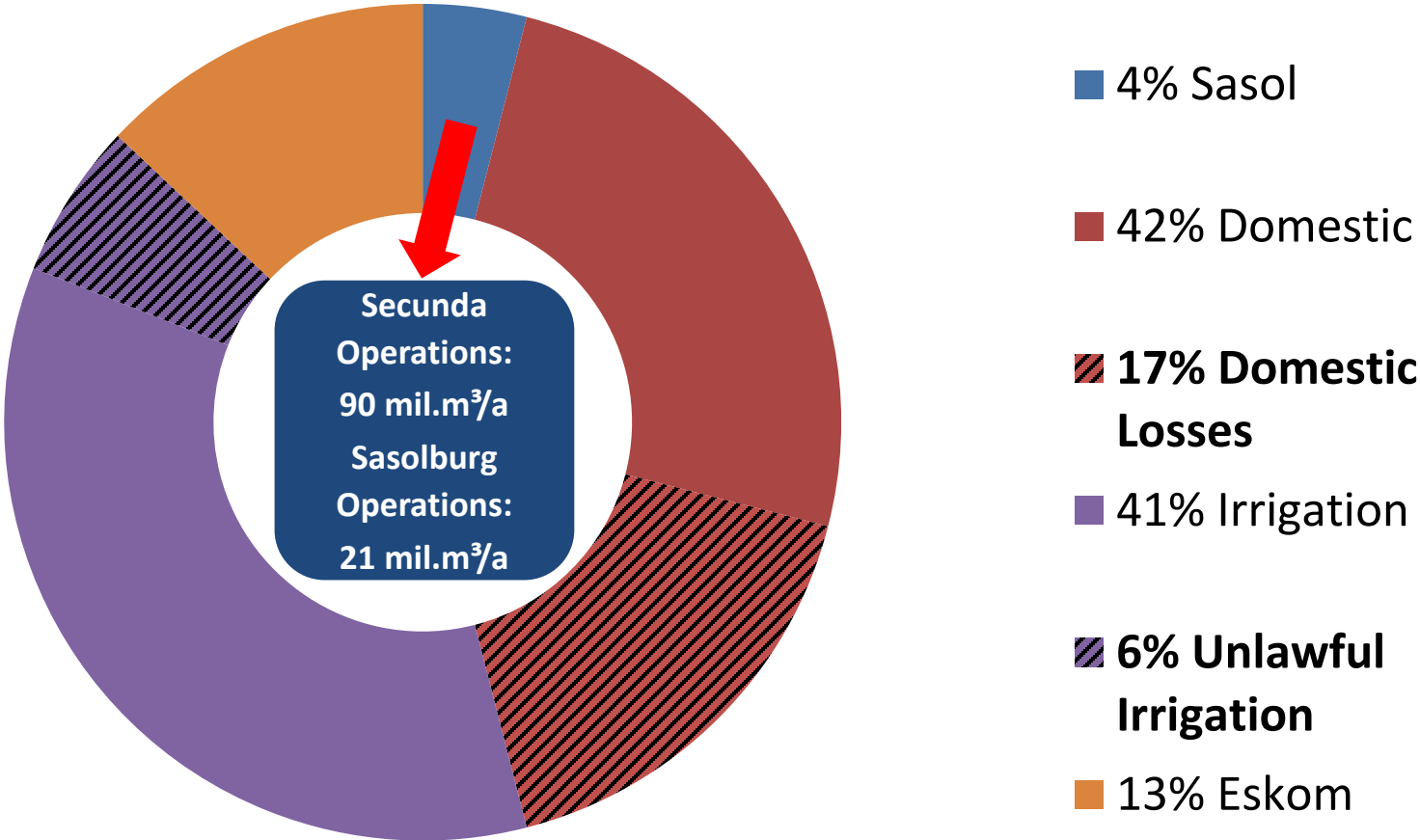
responsible water stewards

2.1 Risk facing the Integrated Vaal River System (IVRS)



Sasol is the largest Private sector user from the (IVRS)

Vaal system water demand per sector (total demand 2900 mil.m³/a)



2.2 Risks of Water Supply to Sasol

Physical Risks

- Infrastructure maintenance planning and scheduling.
- Delay in Treatment of Acid Mine Drainage (AMD).
- Delay in Lesotho Highlands Water Project (LHWP) Phase 2.
- Unlawful withdrawals.
- Inefficiencies in Waste Water Treatment Plants (WWTP).
- Municipalities not achieving water loss targets.

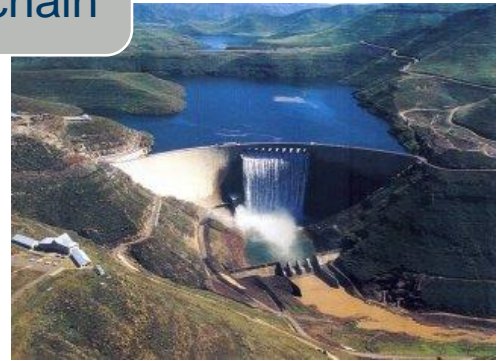
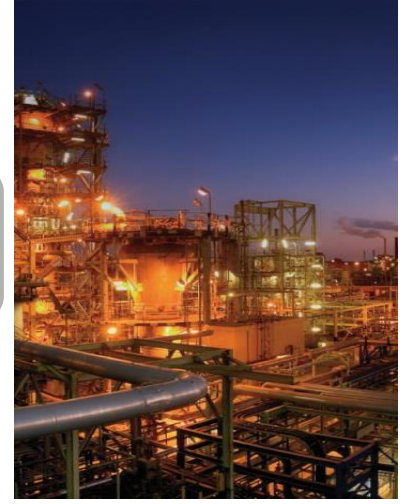
Regulatory Risks

- Stringent Water Use License (WUL) conditions.
- Department setting targets per catchment.
- National Development Plan (NDP) targets of reducing water losses by 15% by 2030.

Reputational Risks

- Community protests on water related service delivery around Sasol Operations.
- Investor and NGO opinion on Sasol's water management program.

3. Water Stewardship Framework



4. Background to Sasol's Role in the Emfuleni Project (Boloka Metsi)



- **Sasol believes that water security for its operations can be improved in a more meaningful way by saving water beyond our factory fence line to advance water security for all water users on the catchment :**
 - Sasol invested in Boloka Metsi to demonstrate the principle of Water offsetting.
 - Replicating this at scale requires some recognition for these beyond fence-line initiatives in law i.e. a water offsetting policy.
- **The development of a water offsetting framework as an emerging policy in SA is included in:**
 - ✓ - National Water Resource Strategy (2) Chapter 16 (DWS; 2012c);
 - ✓ - Water Policy Review (DWS; 2013).

5. Case Study: Emfuleni Local Municipality (ELM) WC/WDM Project



The project name “Project Boloka Metsi” translates as “save water” in Southern seSotho.

The key stakeholders for Project Boloka Metsi comprised of:

- ✓ Emfuleni Local Municipality: as project beneficiary (R16.5 million)
- ✓ Sasol: as project sponsor (R5 million)
- ✓ GIZ: as project sponsor (R5 million)
- ✓ Orange-Senqu River Commission (*ORASECOM*): as interested and affected party
- ✓ DWS: as regulator.

A twenty seven month contract which ran from April 2012 to June 2014. project focussed more on the Evaton, Palm Springs and Sebokeng hostel areas as these were characterised by particularly high leakage.



5.1 ELM Background

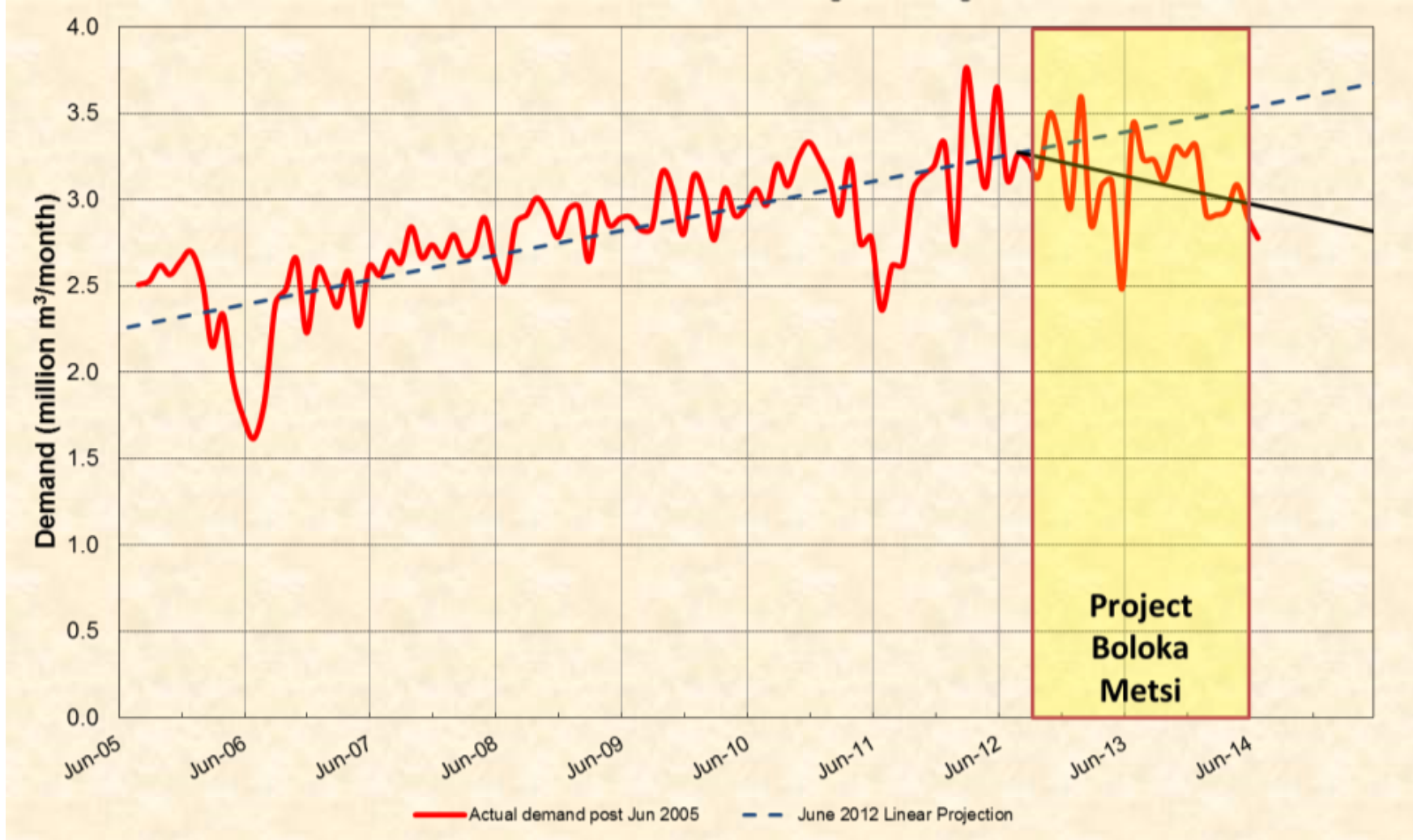
- **Largest local municipality in SA with a population of 721 000 (Census 2011)**
- **Unemployment rate = 34.7%**
- **Water purchases = 93million m³/ annum @ cost of R 536million**
- **NRW / Water losses = 48%**
- **Cost recovery <5% in certain areas**
- **Should be major contributor to Project 15% in Integrated Vaal River System**

5.2 Boloka Metsi Results

- Repaired leaks to 108000 households and 70 schools. (taps and cistern washers);
- Over 90 local people were employed (Water Conservation Warriors, plumbers and technicians employed);
- community training, education and awareness;
- Repairs to municipal reticulation network;
- Pressure Management and Pressure zone optimisation.
- During baseline assessment water loss problems were identified in 42% of households when reassessed water loss problems were identified in only 3% of households.
- ELM demand reduced from 82 million m³ to 75 million m³ (6.8 million m³ total savings = R37 million)



5.3 Sebokeng/Evaton Actual vs Projected Demand



5.4 Business Case for Water Offsetting for Sasolburg Operations – Boloka Metsi Case Study



•Sasolburg Operations is authorised to take a maximum of 21 million m³/a of raw water from the Vaal River. To facilitate the issuing of their WULA, it would be in Sasol’s interest to show that saving is being achieved and further savings are planned. The offset can thus be used as water saved against actual use.

•NWRS2 indicates that the Vaal System’s WC/WDM targets (% volume reduction and date) needs to achieve a 7% reduction in demand by the year 2015 .

Table 1: Annual Reported savings against Sasolburg Operation’s demand

Financial Year	Sasolburg Operations current demand (million m ³ /a)	Savings achieved in the Sebokeng/ Evaton areas through partnership forming Offset (million m ³ /a)	% Saved against Sasolburg Operation’s demand:
Year 1: 2012/13	21	2.0	10 %
Year 2: 2013/14	21	4.8	23%
Average	21	3.5	17%

6. Lessons Learnt on implementing Water Offsetting Projects

- Leak reduction projects should be done on a large enough scale to see savings on bulk purchases.
- A proper baseline needs to be established in order for losses to be measured. Municipalities should only invest once savings are realised.
- Be careful that one partner does not dominate the process. One has to be sensitive in communicating with the municipality and the community.
- Education and awareness on water conservation needs to be ongoing and part of the municipalities business model for sustainability of such a project.
- Proper Project Governance
- Focus Stakeholder management
- Assess municipalities capabilities to ensure sustainability.

7. Conclusion

- Boloka Metsi demonstrated that water savings can be realised beyond our factory fence-line - it is worth pursuing this type of water offset opportunity.
- Sasol will continue as responsible Water Stewards in investing in water conservation projects beyond the fence line but believes that in order to attract more meaningful investment from the private sector incentives like Water Offsetting should be recognised in law.