Unlocking opportunities: The CEO Water Mandate approach
(18 March 2009 – Public session)

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**Introduction – Sasol endorsement of CEO Water Mandate**

**UN CEO Water Mandate endorsed by Sasol CEO – March 2008**

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International Rivers shared by South Africa

Vaal River Water Management Area

Sasol operations

Vaal River Water Management Area

SWAZILAND

NAMIBIA

BOTSWANA

ZIMBABWE

MOZAMBIQUE

NAMIBIA

BOTSWANA

ZIMBABWE

MOZAMBIQUE

Sasol operations

Selected Transfers

Orange
Inkomati
Maputo
Limpopo

Cape Town
George
Port Elizabeth
East London
Vaal River

Vaal Dam
2600 mil.m³

Katse Dam
1500 mil.m³

Mohale Dam
850 mil.m³

Lesotho Highlands Water Project
530 mil.m³/a

Sterkfontein Dam
2600 mil.m³

Grootdraai Dam
350 mil.m³

Tugela River

Woodstock Dam
370 mil.m³

Sasol operations

Rand Water potable supply

Eskom electricity generation
800 Mℓ/ℓ

Komati & Usutu transfer schemes

Heyshope & Zaaiohoek transfer schemes

Gauteng Province potable use
3700 Mℓ/ℓ

Water saving: Example 1

Water saving: Example 2

Integrated Vaal River system, South Africa

Sasol operations

Eskom electricity generation
800 Mℓ/ℓ

Komati & Usutu transfer schemes

Heyshope & Zaaiohoek transfer schemes

Water saving:
Example 2

Water saving:
Example 1

Gauteng Province potable use
3700 Mℓ/ℓ

Rand Water potable supply

Eskom electricity generation
800 Mℓ/ℓ

Komati & Usutu transfer schemes

Heyshope & Zaaiohoek transfer schemes

Sasol operations

Eskom electricity generation
800 Mℓ/ℓ

Komati & Usutu transfer schemes

Heyshope & Zaaiohoek transfer schemes

Woodstock Dam
370 mil.m³
Water saving – direct operations (Example 1)

Sasol Synfuels, Secunda, South Africa
160 000 barrels/day coal-to-fuels & chemicals facility

Water intake
260 Mℓ/d

Evaporation & losses
240 Mℓ/d

Treatment & re-use
200 Mℓ/d

Effluent discharge
20 Mℓ/d
**Cooling tower blow-down recovery plant:**

- Softening, ultra-filtration membranes, reverse-osmosis membranes, ion-exchange
- Capital cost: US$ 50 mil
- O&M cost: US$ 2.00/m$^3$
- Saving: 18 Mℓ/d
Water saving – catchment potable use (Example 2)

Sebokeng township, Gauteng province, South Africa

Population: > 500 000 people

Water use: ± 100 Mℓ/d
• Minimum night flow > ±60% daily maximum flow
• Widespread leaks in distribution system & home plumbing systems
Water saving – catchment potable use (Example 2)

Pressure management system on main Sebokeng water header

No leaks fixed, only pressure reduced during off-peak periods (same leaks - but lower volume)
Water saving – catchment potable use (Example 2)

Pressure management:
- Capital cost: US$ 0.5 mil
- O&M cost: US$ 0.014/m³ (US$ 0.5 mil/42 months)
- Avg water saving: 28 Mℓ/d
### Comparison between water savings initiatives

|                                          | **Direct operations saving (Sasol initiative) Example 1** | **Catchment saving (Private initiative – no Sasol involvement) Example 2** |
|                                          | Water savings from Vaal River system 18 Mℓ/d             | 28 Mℓ/d                                                              |
| Capital cost                             | US$ 50 mil                                              | US$ 0.5 mil                                                          |
| Unit capital cost                        | US$ 2.8 mil/Mℓ                                          | US$ 0.02 mil/Mℓ                                                      | < 1 % |
| Operating & Maintenance cost             | US$ 2.00/m³                                             | US$ 0.02/m³                                                          | < 1%  |
Conclusion

• The case study mentioned is a simplified example only - there are many social and environmental aspects to be considered when reducing water footprint - it goes beyond volume reduction only

• The CEO Water Mandate approach “outside the factory fence” could reveal cost efficient water savings opportunities in the same catchment

• Low technology “catchment solutions” could in some instances be up to 100 times more cost efficient than high technology “direct operations” solutions

• Significant potential exist for public-private partnerships in “catchment solutions”

Thank you