



SOUTH AFRICAN AGRI-PROCESSING RESOURCE EFFICIENCY

OPPORTUNITIES, CHALLENGES AND OUTLOOK



Schweizerische Eidgenossenschaft
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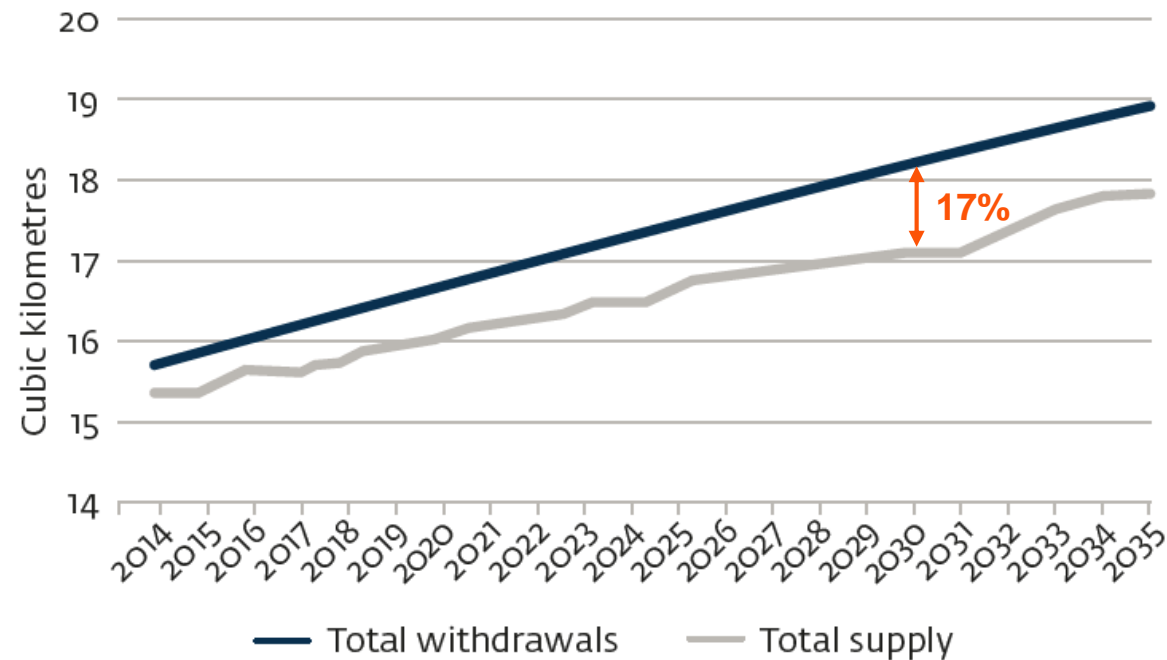
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Creating Markets, Creating Opportunities

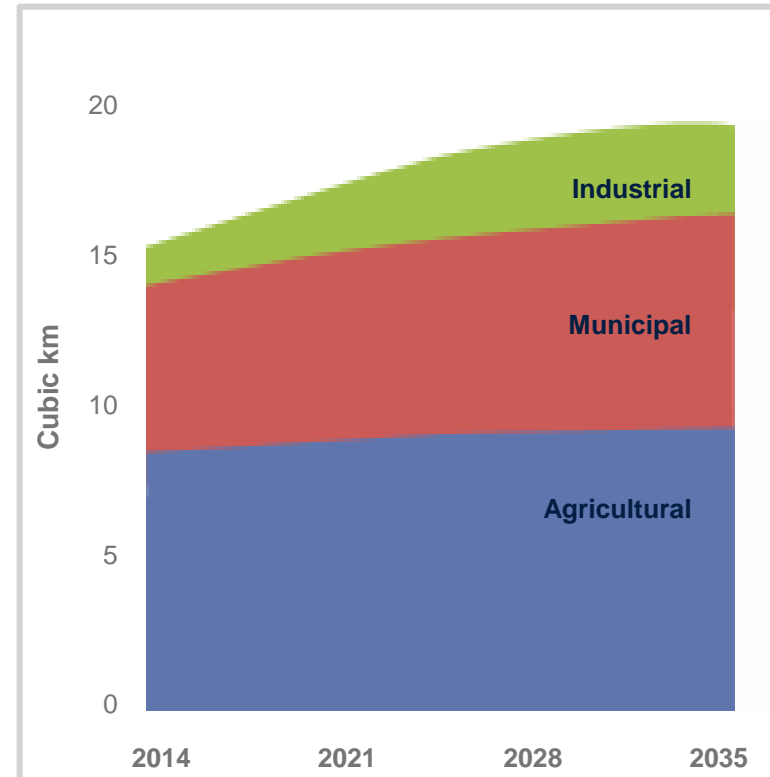
By 2030, water demand is expected to exceed supply by 17%

Total water withdrawals for all sectors forecasted to 2035 and total water supply, including yield increases from all large-scale water reconciliation strategies

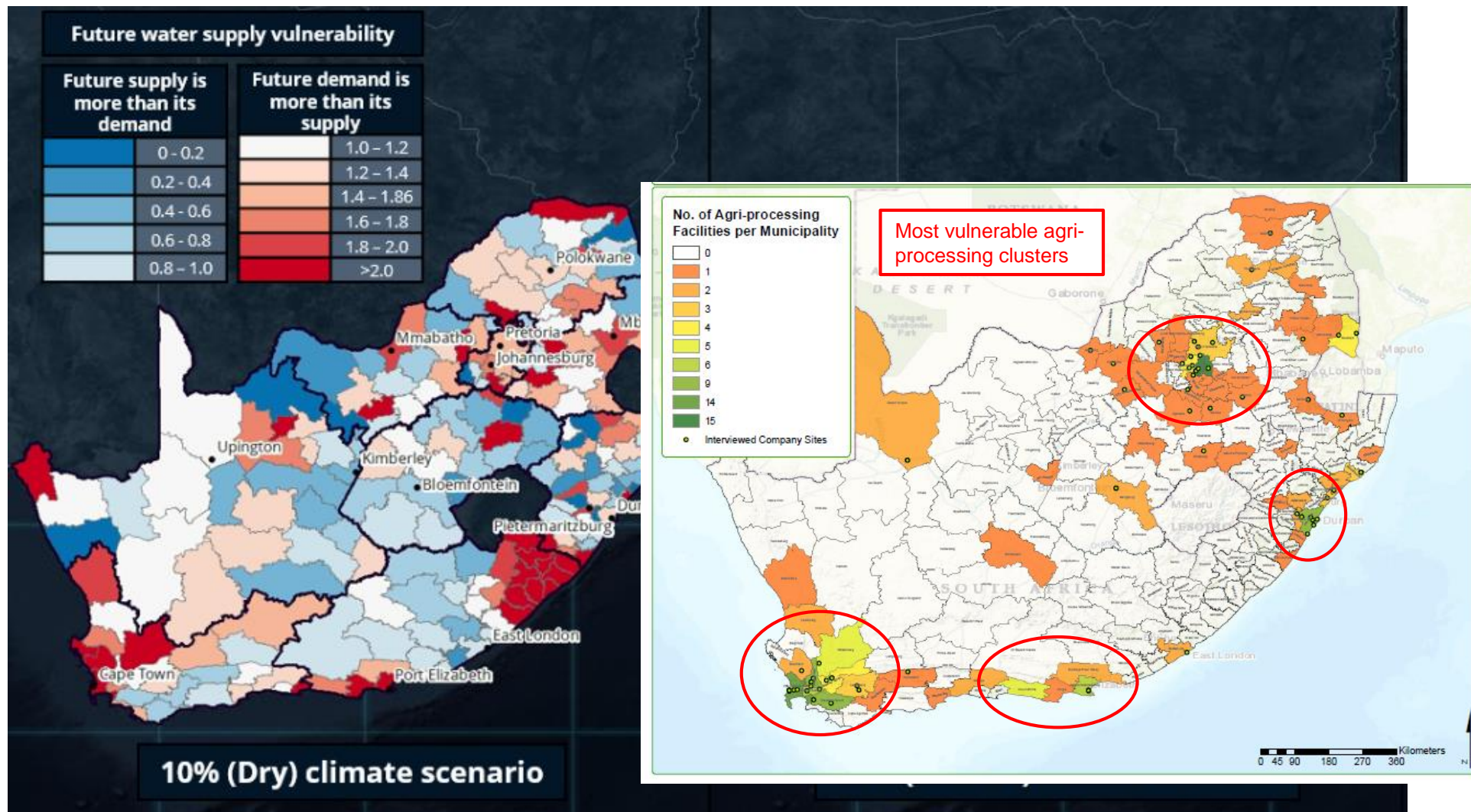


Source: Hedden 2016, Parched prospects II: A Revised Long-term Water Supply and Demand Forecast for South Africa.

Base case forecast of South African water demand by sector

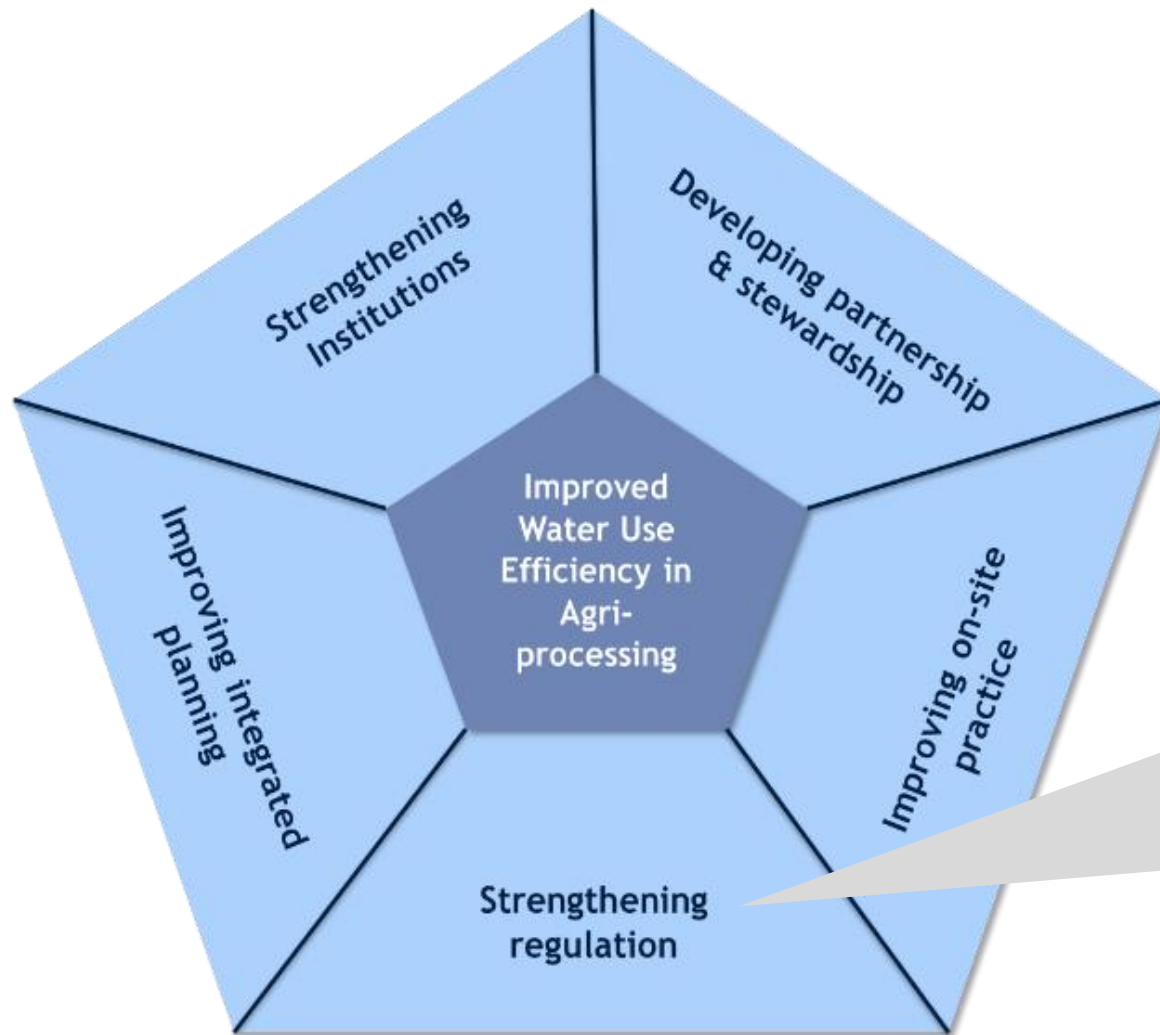


2050 water supply vulnerability for projected climate change and medium population growth



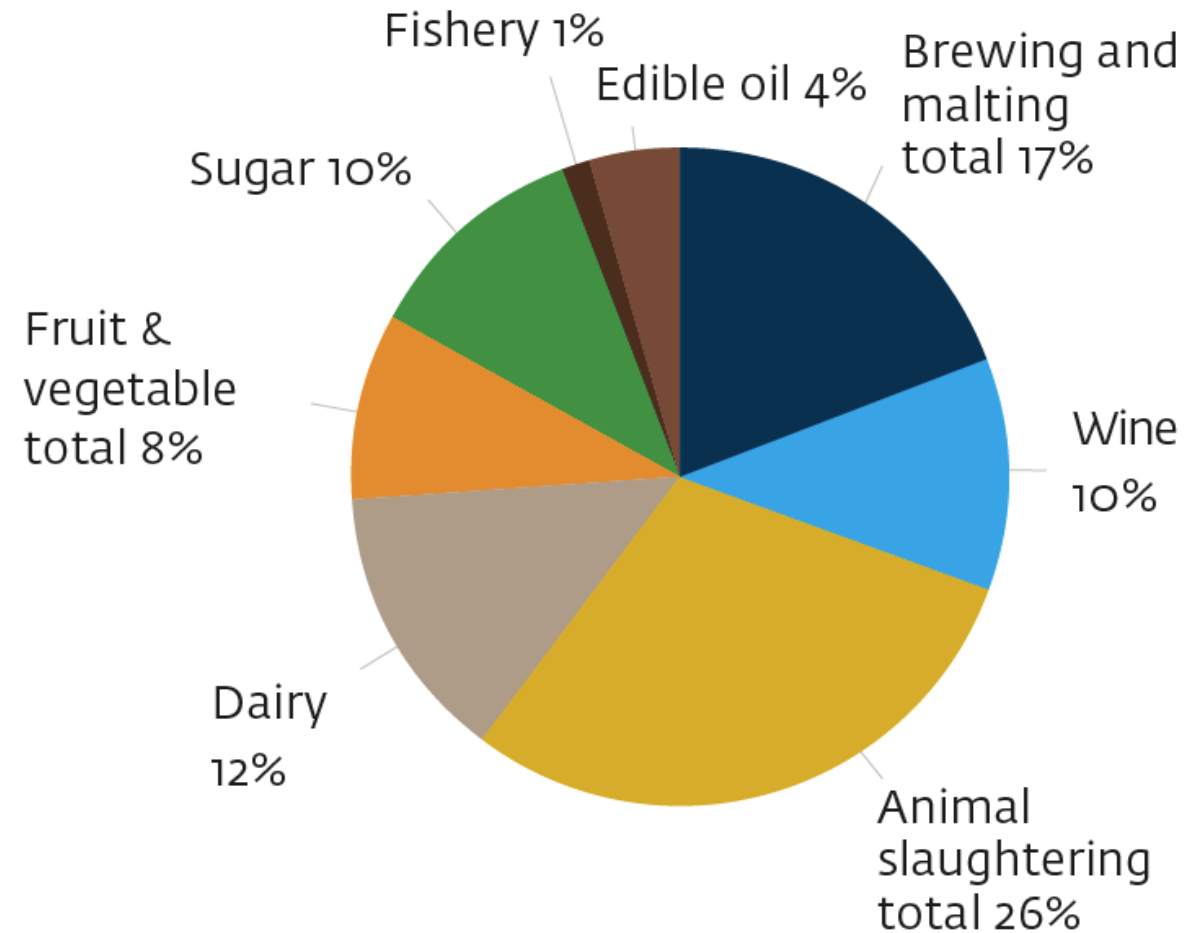
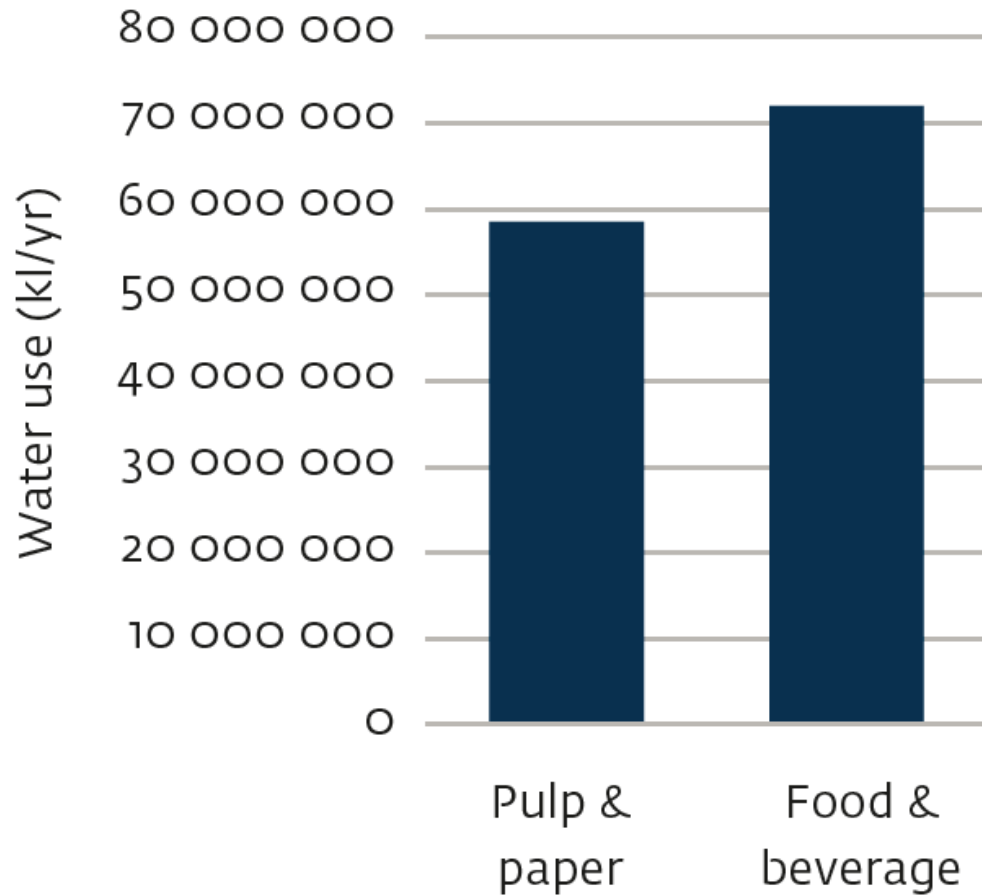
Source: GreenBook

5 focus areas to drive improvements in water management frameworks

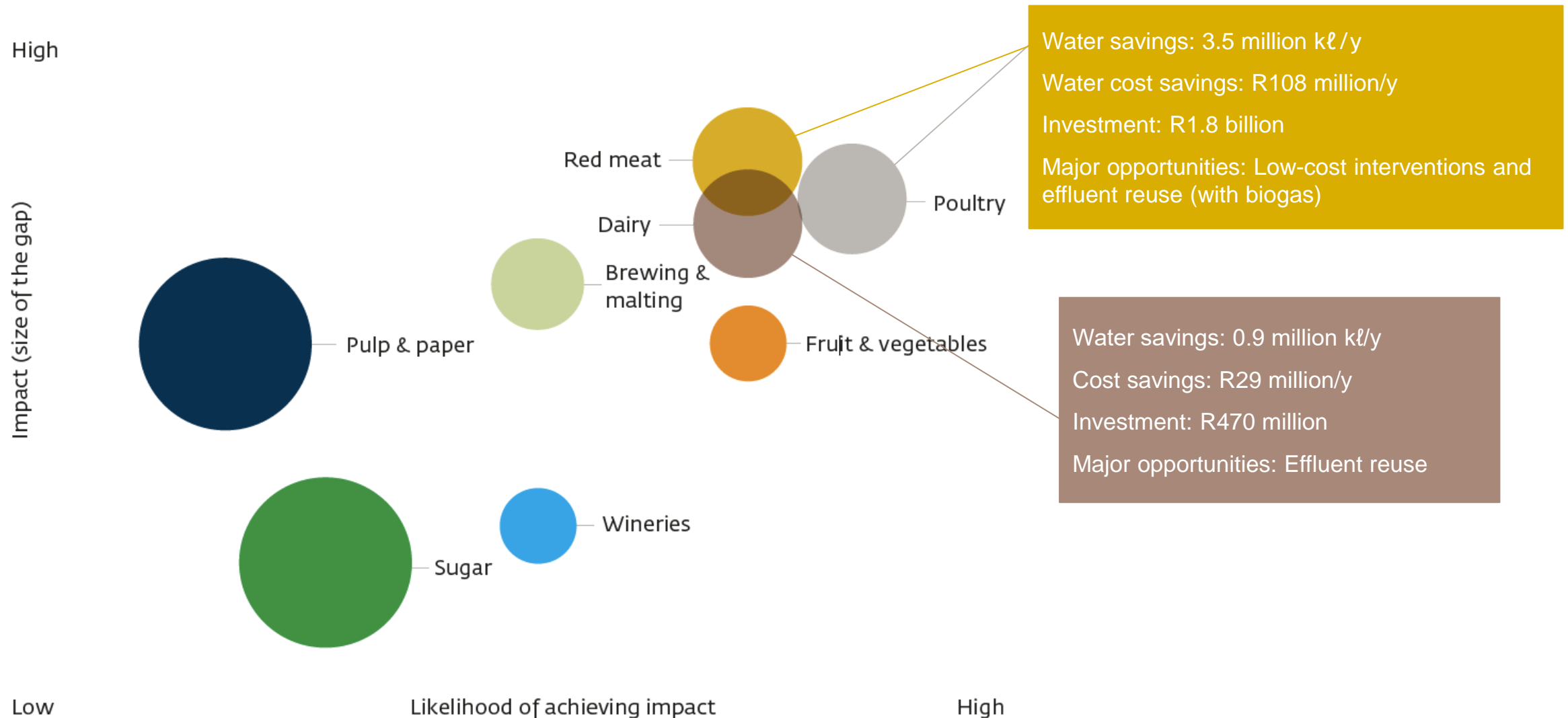


- Water use authorisation policies and processes
- **Improvement of water reuse and recycling regulations**
- Tariffs, surcharge and fees review

Agri-processing sector uses ~130 million kℓ water pa



Sub-sector strategic positioning for short/medium term improvement



A photograph of a water treatment facility. A large, grey metal pipe runs horizontally across the top of the frame. Below it, a concrete structure features a waterfall-like opening where water is cascading down into a pool of brownish water. The background shows a concrete wall with some metal brackets and bolts. The overall scene is brightly lit, suggesting an outdoor or well-lit industrial environment.

Drivers for water efficiency

Business continuity

CSR

Wastewater regulations

High water / wastewater tariffs

Restrictions

Expansion projects

Barriers to water efficiency

A row of dark glass beer bottles is shown on a metal conveyor belt in a brewery. The bottles are in the foreground, and the background is slightly blurred, showing industrial equipment and a person in a white cap. The lighting is bright, highlighting the metallic surfaces and the dark glass of the bottles.

Poor business case

Access to info on best practices

Complex licensing

Lack of info on future tariffs /
restrictions

Public perception

Engaging with government

Operational complexity

Case Study: Biogas in Poultry



- **Treat and re-use wastewater** from poultry abattoir that processes 250,000 birds / day
- Processes 3,000 m³ /day of effluent to produce biogas
- **Capex: R120 million**
- Produces 1.6 MW of thermal energy
- **Generates 1.5 MW of electricity**
- Plan to build a second plant to double energy production

Case Study: “Zero Water” in Dairy

- Nestlé’s Mossel Bay plant is their primary dairy processing facility in SA
- Initiated a water-saving program in 2009 after a severe drought
- **Water savings of 65% or 14,000m³/month**
- Measures include:
 - Low cost interventions (e.g. staff awareness)
 - Recovery and reuse of water evaporated from milk
 - AD and membrane filtration to treat effluent to potable standards and produce biogas
- **Capex: R84 million**



Immediate next steps: Resource efficiency benchmarking study for red meat abattoir sector



- **Benchmarking of water, energy and resource use in red meat abattoir sector**
- Include **up to 30** beef, pork and lamb abattoirs
- **15 KPIs**
- Compare with **international best practices**
- Identify **opportunities for improvement**
- Develop **best practice guideline and self-assessment tool**
- Engage with selected abattoirs to assist with development of specific projects
- Disseminate materials to the sector



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