



TERMS OF REFERENCE FOR A DIRECTED WRC PROJECT

KEY STRATEGIC AREA	KSA 3: Water Use and Waste Management
THRUST	4&5: Integrated Industrial and Mine Water Management
PROGRAMME	3: Quantification of Water Use and Waste Production
TITLE	Natsurv 4: Water and wastewater management in the dairy industry (Edition 2)

Objectives:

General:

To review and document water and wastewater management within the dairy industry as part of the first stage of revisions of the Natsurv series.

Specific Aims:

1. Provide a detailed overview of the dairy industry in South Africa, its changes since edition 1 was published, and its projected change(s). It is important that representative samples of the respective industries are used as case studies.
2. Critically evaluate and document the “generic” dairy industrial processes in terms of current practice, best practice and cleaner production.
3. Determine the water consumption and specific water consumption (local and global indicators, targets; benchmarks, diurnal trends) and recommend targets for use, reuse, recycling and technology adoption.
4. Determine wastewater generation, and typical pollutant loads (diurnal trends) and best practice technology adoption.
5. Determine local electricity, water, and effluent prices and by-laws within which these industries function and critically evaluate if the trends and indicators are in line with water conservation demand management and environmental imperatives.
6. Critically evaluate the dairy industry water (including wastewater) management processes adopted and provide appropriate recommendations
7. Evaluate the industry adoption of the following concepts: cleaner production, water pinch, energy pinch, life cycle assessments, water footprints, wastewater treatment and reuse, best available technology and ISO 14 000 to name a few.
8. Provide recommendations on the best practice for this industry.

Rationale:

In the 1980s the Water Research Commission and Department of Water and Sanitation embarked on a series of national surveys. These reports were referred to as Natsurv documents. The review of the first four Natsurv projects was launched in 2012/2013 and to date 13 Natsurv have been reviewed with 3 currently under review. This Terms of Reference aims to launch revision of the outstanding Natsurv 4 focusing on the dairy industry.

The Natsurv reports for different industries have been well used since they were developed by the sector. However, South Africa and its industrial sectors have either grown or in some cases shrunk considerably since the 1980s. Thus, the landscape has changed. New technologies and systems have been adopted by some of the industries, and therefore, certain information contained in the national surveys can be regarded as obsolete. Furthermore, initiatives like the UN CEO mandate, water stewardship, water allocation and equity dialogues, amongst others suggests growing awareness related to: water use, water security, and waste production. Thus, it is considered an opportune time to review the water and wastewater management practices of the different industrial sectors and make firm recommendations. This project will revise and update Natsurv 4: Water and Wastewater Management in the dairy Industry.

Note:

Successful applicants need to demonstrate a strong ability for capacity building by supporting Masters degree/s in the project.

Deliverables:

1. Reports on key aspects researched as per specific objectives
2. Workshop/s with key stakeholders
3. Draft Final Report
4. Print Ready Final Report

Lighthouse:

- Water Energy Food Nexus

Impact Areas:

- Water and the Economy; Water and the Environment; Water and Society

Knowledge Tree

- Sustainable Development Solutions

Time Frame: 2 years

Total Funds Available: R 1,500,000 inclusive of VAT (R 650,000 available in year 1).