

ANNEXURE A

PROJECT OUTCOMES AND DELIVERABLES

The overall purpose of the Product Life Cycle Assessments (LCA's) are as follows:

- To assist with quantifying the resource consumption and environmental impacts of the three (3) companies, and identifying major environmental and economical hotspots.
- Capacity building within the three (3) participating companies and main suppliers.
- To use the assessments as a tool to identify potential opportunities for the reduction and environmental footprint minimisation of the three (3) companies.
- To use the assessments as a tool to identify potential opportunities for the improvement and optimisation of products considering the ISO 14000 framework.
- To verify whether the resources used at the three (3) companies are efficient and that there are ongoing programs to monitor and improve costs associated.
- To establish an environmental footprint baseline with local data background for each of the three (3) participating companies.
- To collect quantitative data regarding facility operations of each participating company and main suppliers, and model the realities.
- To review the current practices of ISO 14000 implementation, maturity levels and implementation with a life cycle perspective.
- To provide detailed recommendations for efficiency improvements that will result in economic benefits and compliance with ISO 14000 relevant standards for each of the three (3) companies.
- To provide a standardised report of the life cycle assessment environmental and economical results compliant with ISO 14000 Standards.
- To ensure that the project team within the three (3) companies are well versed and understand the LCA software tools that will be handed over to the companies.

It is anticipated that the following **DELIVERABLES** will be key to the successful completion of the assessment:

- Development of project activity plan and schedule for the three (3) assessments to be undertaken.
- Determination to support the internal LCA champions at the three (3) facilities for the duration of the assessments and for any future projects.
- To include and assist with capacitating an NCPC-SA / CSIR Intern in at least one of the LCA's to be conducted, as to help with knowledge transfer and build internal capacity.
- Presentation of an overview of the intended assessments and projected outcomes at the three (3) facilities.
- Completion of the LCA Assessments at the three (3) facilities.
- Preparation and presentation of the assessments specific to the current level of implementation and maturity of EMS and LCA in conformity with ISO 14000 standards.
- Preparation and submission of a draft goal and scope report with clear future implementation according to ISO 14000 standards and linkage to Resource Efficiency and Cleaner Production philosophy.
- Engage and conduct one (1) session of at least two (2) hours with stakeholders and suppliers to establish goal and scope of the project.
- Conducting a two (2) hour Awareness Raising Session based on the assessment results on the day of the final feedback meetings with each of the three (3) companies, with key employees of the company relating to the assessment and specific topics.
- Presentation of the Final ISO compliant LCA reports to the three (3) companies, identifying cost and environmental opportunities to management and identifying the way forward on implementation of potential options as highlighted in the final reports.
- Submission of meeting minutes for the inception and feedback meetings.

APPROACH AND METHODOLOGY

The project scope must comprise the following activities as a minimum requirement:

Basic company information facility along with resources and utilities are presented below:

SECTOR	BUSINESS ACTIVITY	LOCATION	LCA FOCUS
Pharmaceutical	Food and Dairy Nutritionals	Olifantsfontein, Gauteng	Product Range
Textiles	Carpet, vinyl and artificial grass manufacturer	Reunion, Kwazulu Natal	Product
Textiles	Carpet, vinyl and artificial grass manufacturer	Pietermaritzburg, Kwazulu Natal	Product

Assessment Protocol and LCA Team

The assessment will focus on the aspects as highlighted in Section 2, and an LCA champion will be identified and nominated by management of the three (3) facilities, who will remain responsible for providing contact for the project. The LCA champions may be required to undertake tasks and investigations as part of the survey's investigations.

The project will be approached through the phases outlined below.

Project Inception and Planning

The Consultant will develop and draft LCA assessment plan and schedule outlining the proposed activities and visits to be undertaken at the three (3) facilities in a Gantt Chart, and a Pre-Visit Questionnaire (PVQ) will be forwarded to these facilities for completion prior to any site activities taking place. An in depth assessment of the current level of EMS and LCM will be carried out.

The PVQ will be made available to the successful consultant, as to gain an insight into the major resource users at the three (3) plants and further adaptation needs to be done for the life cycle phases considered in the projects. The inception phases will also involve planning, coordination

and review of the activities to be carried out by the project team, and the timelines will also be reviewed at this stage.

The project launch phases will include meetings and presentations at the three (3) facilities including main suppliers, to give an outline of the intended project programmes and requirements of the assessment team.

Topics to be addressed at the inception meetings to be held with management of the three (3) companies may include but will not be limited to:

- Project outline and projected time schedules,
- The role of the LCA Champions / Teams,
- Initial findings from the Pre-Visit Questionnaires,
- Initial findings of the EMS and Life Cycle Management level using the Life Cycle Management Capability Maturity Model
- Existing interventions based on the PVQ information provided, and
- Information relating to the resources at the facilities at product level
- Information relating to the resource at the supplier facilities at product level

LCA Survey and Life Cycle Inventory

Key activities to be undertaken will include:

- ***Collation and interpretation of the Pre-Site Visit Questionnaire data for the facility / product / suppliers***, including historical data analysis, identification of existing measurement points.
- ***Conducting the assessment at the facility***, using the following steps:
 - i. Walk-through & survey
 - ii. Establish assessment scope
 - iii. Analyse individual (company and suppliers) resource consumption, emissions and costs
 - iv. Life cycle Inventory of product resource use and costs
 - v. Awareness Raising Sessions for employees and suppliers

vi. Report for action and implementation

The life cycle inventories used as background data need to ensure the local context of SA in at least 60% of data used. This will also support the CSIR's NCPC-SA in meeting the objectives in life cycle standard setting.

Life Cycle Impact Assessment (LCIA) and recommendations:

The information will be compiled from the detailed assessment conducted at the facility and the life cycle inventory exercise, and this will be used to identify areas where there is potential for the reduction of the environmental impacts and costs. The selected LCIA methodology should include as a minimum, carbon, water and toxicity footprint according to ISO 14000 standards and those relevant to the sectors and SA.

The information will be analysed according to the following criteria:

- Identification of the potential for reduction of these environmental impacts and costs
- Prioritise saving options

The summary of recommendations should be reported in the Executive Summary of the report, focusing on specific impact, cost and resource optimization opportunities, considering estimated impact minimizations, savings. These should focus in the product, suppliers and the facility levels and provide clear EMS and RECP indicators.

Reporting and Company Feedback

A presentation along with the draft LCA reports will be presented upon completion at each of the three (3) participating companies, and this be presented at a formal feedback session with management of each facility. A plan of action with the way forward will then be agreed upon with management of the facilities. Final reports inclusive of all the information related to the project (spreadsheets and word documents) will be required to be submitted to the Project Manager at the end of the project.

COMMENCEMENT AND COMPLETION DATES

It is anticipated that the work will commence upon acceptance and signing of a contract with an appropriate LCA specialist appointed by the CSIR's NCPC-SA, and it is expected that the assessment be completed within six (6) months of commencement of the project, depending on the extent of the project at each facility.

The Consultant will provide the CSIR's NCPC-SA with projected schedules of the proposed activities with projected times scales and reporting deadlines to keep the CSIR's NCPC-SA informed of progress. The CSIR's NCPC-SA is to be informed of all meetings scheduled with the companies and all the necessary arrangements should be made to ensure that the CSIR's NCPC-SA is present during the assessment visits and feedback sessions.

All reports issued and presented to the company will be completed under the CSIR's NCPC-SA brand.

ALLOCATE BUDGET FOR THE CONTRACTED SERVICES

This project will be managed by the CSIR's NCPC-SA and staffed by the appointed LCA specialist. The cost of the assessment will be subsidised through the CSIR's NCPC-SA's Life Cycle Management Programme.