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A woman wearing a white hard hat and a high-visibility vest stands in front of a stack of colorful shipping containers (orange, blue, green) in an industrial setting. The image is used as a background for the title text.

Cooperation on Energy and Climate Change with the Government of Flanders

Achieved Milestones and Outlook



UNIDO's Energy and Climate Action

Energy access for industrial development

- Access to clean energy for high value-added industries in urban areas and rural productive uses
- Clean energy entrepreneurship, innovation in business models
- Regional market integration and quality infrastructure for clean energy products and services
- Climate finance for clean energy products, services and businesses
- International advocacy for a "fair", "accountable" and "inclusive" energy transition

Inclusive and sustainable industrial development.

Resilient supply chains for Clean Energy Technologies

- Green Energy Zones and Clusters
- Support local manufacturing of technology and components
- Quality assurance and skills

Low-carbon transformation of the industrial sector

- Accelerating the shift of industry away from fossil fuels
- Introducing Energy Management Systems and support Energy System Optimisation in Industries
- Enabling industrial decarbonization by creating a thriving market for low-carbon industrial products such as steel and cement
- Harmonizing global standards to allow for comparability and define low and near-zero emission steel, cement and concrete
- Supporting sustainable cities where industry and services use resilient infrastructure and low-carbon energy and mobility systems

An integrated approach for industrial policy planning, climate change, innovation and a Just Energy Transition



Background and rationale for SAIA project

- South Africa is particularly affected by **climate change hazards** such as recurring and extensive heat waves and dry spells, rainfall increase and storm surges
- The associated impacts of these extreme weather events have a bearing on **economic and social aspects** of the country's development
- As the country embarks on a just transition to a low-carbon, climate-resilient and environmentally sustainable economy, a **clear window of opportunity** exists to accelerate the shift to a domestic green economy
- Increased adoption of renewable energy, water, energy and resource efficiency can **enhance resilience and competitiveness of local industries**.





What is Climate resilience in the industrial context?

Climate resilience in industrial contexts means the capacity

1. to absorb stresses imposed by climate change and maintain productive functions, and
2. to adapt, renew, re-organize, and develop desirable pathways and more sustainable practices that help industries better prepare for future climate change impacts.

Adaptation to climate change helps to address environmental and health-related impacts, boosts development and is a prerequisite for a prosperous economy. It contributes to reducing strong negative impacts on the economy but also on inhabitants, especially on vulnerable communities.



Strengthening the Climate Change Adaptation Capacity of South African industries

Overall Objective

To accelerate the transition to a decarbonized industry, a green and inclusive economy and a vibrant job market in South Africa through strengthening the adaptation capacity of industries to the impacts of climate change.

Activities are addressing barriers for the adoption of climate technologies, enabling the environment to accelerate investments, promoting local innovations and supporting demonstration projects for the private sector to capitalize on the opportunities to shift towards a green economy.

Key Components

Application of renewable energy, energy and water use efficiency interventions in pilot enterprises, and showcasing impact and benefits

Acceleration of industrial innovation on climate adaptation

Scaling up and mainstreaming of climate-resilient services through strategic partnerships with academia, knowledge institutions and umbrella organisations

Cross-cutting themes: Gender mainstreaming / Agenda 2030 and the SDGs

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

Project set-up and Partnerships

The project is implemented by UNIDO, in collaboration with NCPC-SA and TIA

Focus: Energy and Water Nexus approaches in medium and large enterprises, Industrial Parks / Special Economic Zones

Demonstration projects are selected through Calls for Proposals

Partnerships between Flemish and South African companies and institutions are encouraged



Budget: 2.4 Mio EUR for a duration of three years (Jan 2022 – December 2024)

Funder: Government of Flanders

SOUTH AFRICAN INDUSTRY ADAPTATION (SAIA) PROJECT



Supporting industries to:

- Transition to more climate resilient operations
- Avoid negative impacts on the environment and people
- Better prepare for future climate change impacts





Key components of the SAIA project

Renewable energy, energy and water use efficiency interventions in pilot enterprises

- Support industry to improve management of energy and water services
- Implement demonstration projects
- Leverage funds for scale-up through linking with financing institutions

Acceleration of industrial innovation on climate adaptation

- Nurturing enabling conditions for a continuous innovation dynamic for cc adaptation services for industry
- Foster & develop cleantech innovations focused on climate change adaptation in industry
- Establish a network of industrial accelerators to drive new business models for climate change adaptation

Scaling-up and mainstreaming of climate-resilient services through partnerships

- Establish a public-private sector forum to drive the dialogue on climate resilience
- Capacitate research, training and umbrella organizations to mainstream adaptation programmes

Gender mainstreaming in all activities
Partnerships between Flemish and SA companies/institutions are encouraged



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Achieved Milestones

- **Multi-Stakeholder Working Groups** established for key areas
- **Gap analysis** and assessment of innovation for adaptation ecosystem completed, also addressing gender dimensions
- Two **calls for proposals** launched to identify a pipeline of demonstration projects to demonstrate climate resilient energy and water services
- **Four Industry Demonstration Projects** supported with catalytic co-financing
- 15 Industrial Enterprises supported with Water/Energy Audits
- **Enterprise Development Support Programme** for innovators established at TIA and direct support to innovators provided (TA and finance)
- **Multiple capacity building and awareness** raising activities held (i.e. multi-stakeholder event at the African Energy Indaba)
- **Training and capacity building** initiatives for knowledge institutions, training centres and private sector organised
- **Study Tour to Flanders** for South African Experts (6 – 10 November 2023) organised.



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Progress by innovation



Flanders
State of the Art

SOUTH AFRICAN INDUSTRY ADAPTATION (SAIA) PROJECT



Supporting industries to:

- Transition to more **climate resilient operations**
- Avoid **negative impacts** on the environment and people
- Better prepare for **future climate change impacts**





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Energy and Water Baseline and Guideline

- Developed an Energy and Water Baseline and Best Practice Guidelines for the Agro-processing Industry, in co-operation with the NCPC-SA
 - Brewery, fruit and vegetable, poultry and sugar cane sectors
 - Decarbonisation Roadmap for the Agro-processing Sector



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Progress by innovation



Flanders
State of the Art

Energy and Water Baseline and Best Practice Guidelines for the Agro-processing Industry: An Executive Summary

Brewery sector | Fruit and vegetable sector | Poultry sector | Sugar cane sector



SA-Flemish Technology Cooperation supported through SAIA – Project Imifino

- **Innovative effluent treatment** and agricultural system implemented at **AB InBev's Ibhayi brewery**,
- developed by **TaylorMade Water Solutions (SA)** using Flemish technology from **Waterleau**.
- System uses integrated constructed wetlands and raised beds to treat up to 250 m³/day of brewery effluent, **producing reusable water** after further ultra-filtration processing and **converting the effluent's nutrients into food crops (spinach)**
- **Enhance energy efficiency**

The SAIA-supported plant was commissioned in September 2024 and is fully operational. Launch taking place on 4 December 2024!





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Examples of SAIA co-funded Demonstration Projects in Industries



Afrimat Hemp

Containerized Decortication Plant

Installation and optimization of fibre processing line.

African Data Technologies will monitor the carbon and water footprints of hemp buildings.



Thiele Holdings Pty Ltd

Biogas Plant

160 kW biogas plant based on agricultural waste.

Electricity is used to enhance agricultural production, with the surplus being fed into the grid.



Reyneke Wines Pty Ltd

Integrated Sustainable Solutions

Implementation of technology transition including switch to EVs, water treatment facilities linked to a bioreactor and enhanced precision agriculture through application of innovative agricultural technology. Integration of solar system.



Examples of supported Innovators through SAIA in cooperation with TIA

Phambili Energy

Biomass-to-energy using AIPs as feedstock

- Removal of AIPs that drain the water table and out-compete indigenous plant species
- Use of pyrolysis reactor to convert biomass to energy and biofertilizer
- Co-financed equipment for compliance
- Samples were produced and submitted for assessment
- Supported field trials for carbon-based bio-fertilisers



Imbali Success Foods

Optimization of energy and water efficiency in the butternut value chain

- Improve water use efficiency at primary and secondary level
- RE/EE integration at agro-processing level
- Irrigation system for butternut primary production
- Designed water/energy-efficient agro-processing plant
- Enabled market access through processing of samples of puree and pasta



Kulu Eco Services

Facility for handling the disposal and valorisation of liquid waste

- Diversion of oil from contamination of water through incorrect disposal methods
- Production of biofuels from liquid waste
- Supported the EIA process and implementation of early stage phases of their Masterplan





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Testimonial of Innovation Support through SAIA - AvoEcoPower

“The SAIA accelerator program has had a transformative impact on Grandstage Trading. It has provided us with critical resources, mentorship, and industry expertise, enabling us to refine our business model, improve operational efficiency, and enhance our product offerings.”

Ms. Christine Masaiti, CEO: Grandstage Trading

The project was selected as a finalist in the BRICS Women in Business Competition.



Ms. Christine Masaiti explains Grandstage’s work to Mr. Gerhard Fourie, Chief Director of the Green Industries Unit at the dtic and Dr. Diego Masera, UNIDO Regional Representative for Southern Africa, with UNIDO’s Mr. Nokwazi Moyo looking on.



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Examples of SAIA training and capacity building activities

- Capacity building workshop on **Climate Adaptation in Industries at Energyville in Flanders**, in partnership with VITO, 6 November 2023
- SAIA Energy Efficiency Trainings on **18-19 November 2024**, in partnership with SANEDI – focusing on ESCO opportunities.
- Capacity building workshop on **Climate Adaptation and Resilience in Agriculture and Agroprocessing**, in partnership with VITO, 3 December 2024 in Gqeberha



Study Tour to Flanders: 6-11 November 2023

Key **stakeholders from the public and private sectors, academia and knowledge institutions in South Africa** undertook a study tour to enhance knowledge and **strengthen partnerships** between industry and knowledge institutions from South Africa and Flanders. The study tour was organised in collaboration with VITO and also included a **workshop hosted by Government of Flanders at Errera House**, Brussels. Industries visited include: ABInBev in Leuven, AquaSPICE H2020 project in Antwerp, Port of Antwerp/Brugge Authority, F2Agri project at Ardo, City of Bruges, on decentralised drinking water production services (BOSAQ),





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SAIA project closing event: 23 – 24 October 2024

Climate Adaptation as a Catalyst for Innovation and Growth in Industry -
Organised jointly with SANEDI's annual energy conference





Examples of partnerships between South Africa and Flanders supported through the SAIA project

- **Government and research cooperation**

- **VITO – CSIR:** The SAIA project supported the implementation of the MoU signed between the Government of Flanders and the CSIR. SAIA jointly implemented capacity and awareness raising activities with CSIR and VITO.

Private sector partnerships

- **Technical Assistance and grant support to the Imifino project:** Partnership between ABInBev Flemish company Waterleau (technology provider) and the South African project implementer Taylormade Water Solutions
- Initiated **partnerships with potential off-takers** in Flanders for SAIA supported innovators.

Media and social media exposure



STRENGTHENING THE CLIMATE RESILIENCE OF SOUTH AFRICA INDUSTRIES



South Africa's economy is increasingly threatened by climate change, resulting in scarcity of important natural resources. Climate risk is high.

To respond to these challenges, industries need to increase their efforts to manage competition, ensure secure natural resources, protect the environment and be prepared for the future. As the country embarks on a just transition to a low-carbon, climate-resilient and environmentally sustainable economy, there is a clear window of opportunity for industries to make critical water and energy services more climate-resilient.



The Industry Climate Change Adaptation (SIAU) Project supports industries in addressing the barriers that are currently hampering an accelerated adoption of measures and technologies, and assist in the development of dedicated pathways and more sustainable practices to transition to climate-resilient operations.

The project is implemented by the United Nations Industrial Development Organization (UNIDO), in collaboration with the National Cleaner Production Centre South Africa (NCPC-SA) and the Technology Innovation Agency (TIA). It is funded by the Government of Flanders.

By embracing green technologies and sustainable practices, industries can enhance their competitiveness in both local and international markets, reduce their environmental footprint and create green jobs.

The SIAU project focuses on the following key areas:

- Implementing and scaling up enterprises
- Strengthening supply chains
- Supporting business institutions

The project will also be a catalyst for innovation, as part of shaping a new industrial landscape.

"By embracing green technologies and sustainable practices, we can unlock new opportunities, particularly in the context of the Minister of Planning Mr. Enoch Dlamini's vision for a climate-resilient South Africa."

Get in touch – get involved

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Increasing Climate Adaptation and Resilience in Agriculture and Agroprocessing



With South African industries increasingly recognizing the need to better prepare for the impact of climate change on their operations and their overall sustainable strategies, the economic of industry climate resilience is becoming more critical.

The South African Industry Adaptation (SIAU) Project aims to strengthen the climate resilience of the country's industries by assisting them to address emerging challenges for the development of climate-resilient measures and technologies, and to develop sustainable pathways towards climate-resilient operations.

The project will also be a catalyst for innovation, as part of shaping a new industrial landscape.



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Extensive media exposure and awareness raising activities. Visit the project website:

<https://saia-project.co.za/>



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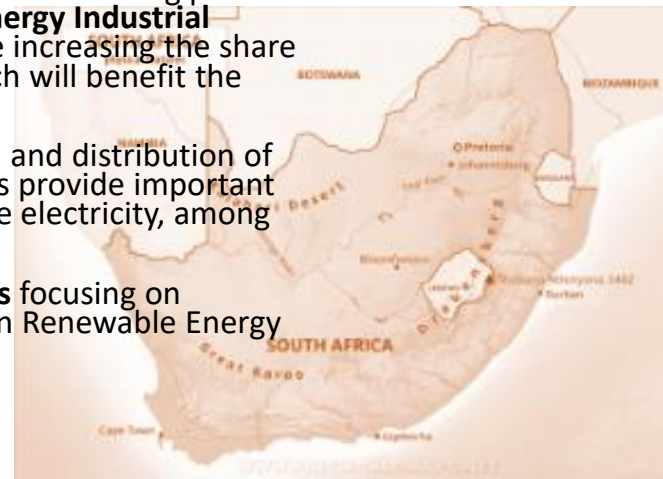
Outlook and follow-up project: **Fostering Low Carbon and Positive Energy Industrial Spaces in South Africa**





Background and rationale for the new project, focusing on Industrial Spaces and Green Energy Zones

- South Africa is one of the **most carbon-intensive developing economies in the world** and one of the largest carbon emitters in Africa, driving a staggering 33% of the continent's total emissions.
- The industrial sector is among the **biggest contributors to the high energy intensity** and increasing GHG emissions - but it is also highly affected by the current energy crisis.
- There are over **400 industrial spaces** in which most of the industrial activities are taking place. An integrated energy approach that promotes **Low-Carbon and Positive Energy Industrial Spaces** is essential to optimise energy consumption while at the same time increasing the share of distributed renewable energy generation from the industrial sector which will benefit the energy security of the country as a whole.
- It requires **minimizing energy demands, and smart systems for generation** and distribution of energy. In view of a Just Energy Transition, Positive Energy Industrial Spaces provide important jobs and also provide the nearby communities with sustainable and reliable electricity, among multiple other co-benefits.
- Industrial Spaces have a very high potential to become **Green Energy Zones** focusing on manufacturing of Clean Energy Technologies – supporting the South African Renewable Energy Masterplan (SAREM)





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Fostering Low Carbon and Positive Energy Industrial Spaces to accelerate the Just Energy Transition in South Africa

Objective: To support the Just Energy Transition in South Africa by fostering Low Carbon and Positive Energy Industrial Spaces which will increase renewable energy production and energy efficiency

The project supports the following:

- Strengthened policy framework, capacity and partnerships create an enabling environment for Low-Carbon and Positive Energy Industrial Spaces(LC-PEIS)
- Demonstration of LC-PEIS business models to accelerate the uptake of decentralized renewable energy solutions and energy efficiency in industrial spaces
- Strengthening partnerships between Flanders and South Africa

➤ **Duration:** 4 years

➤ **Potential Funder:** Government of Flanders

➤ **Budget:** EUR 2 million

➤ **Estimated start date :** Jan 2025





THANK YOU!

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