



INDUSTRIAL EFFICIENCY IN SOUTH AFRICA

Annual Highlights

2025/26

Delivering measurable impact towards a low carbon, circular economy.



the dtic

Department:
Trade, Industry and Competition
REPUBLIC OF SOUTH AFRICA



CSIR
Touching lives through innovation

About the NCPC

The National Cleaner Production Centre (NCPC) South Africa is a national industry support programme, which exists to promote the transition to a low-carbon and circular economy in South Africa by embedding the broad principles of resource efficient and cleaner production (RECP) to support sustainable industrial sectors, spaces and businesses.



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Consolidating Impact, Expanding Reach: NCPC Advances South Africa's Industrial Decarbonisation and Competitiveness Agenda



Ndivhuho Raphulu

The 2025/26 financial year reflects a period of consolidation and growing impact for the National Cleaner Production Centre (NCPC), characterised by responsive adaptation to evolving national priorities and increasing international engagement. The Centre strengthened its role as a key delivery mechanism for South Africa's industrial decarbonisation agenda, while advancing the Department of Trade, Industry and Competition (**the dtic**) industrial development priorities: **decarbonisation, digitalisation, and diversification** (3Ds) through targeted, industry-facing interventions.

Industry-level delivery saw **92 company** interventions completed, underpinned by a balanced portfolio of energy and water interventions, industrial symbiosis synergies and financial linkages - reinforcing climate mitigation and resource resilience in industry. Verified implementation across participating firms yielded **R12.2 million in realised savings**, demonstrating measurable progress towards lower-carbon, more competitive industrial operations.

Capability development remains a cornerstone of long-term impact. Training of **512 participants, 24 interns** and **18 new trainers**, alongside the formal recognition and academic integration of NCPC qualifications, is embedding scarce green skills within the national ecosystem and supporting a just industrial transition.

The NCPC's work in industrial spaces continues to expand, with four projects now active in partnership with the United Nations Industrial Development Organization (UNIDO) and our colleagues at the CSIR.

Strategic partnerships at provincial and international levels further position the NCPC within global sustainability frameworks, ensuring alignment with evolving climate and industrial competitiveness requirements. Overall, the year reflects a maturing, impactful programme, central to enabling South Africa's transition to a low-carbon, digitally enabled, and diversified industrial economy.

Ndivhuho Raphulu

NCPC Programme Manager

Savings by industry 2015 - 2025



475 GWh
of energy saved



9.5m tCO₂e
GHG emissions mitigated



R1.8 billion
cumulative cost savings

"The pathway for decarbonisation must focus on promoting clean technology investments, developing energy transition infrastructure, advancing low-carbon economy, and supporting sustainable industrial development. For South Africa to retain and grow its industrial base and export market share, it does not have a choice but to accelerate decarbonisation investments."

– the dtic, South Africa's Industrial Development Strategy 2026.



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NCPC Initiatives Drive National Decarbonisation Strategy

The NCPC is positioned to drive implementation of the country's industrial decarbonisation strategy and support government's climate commitments outlined in the National Determined Contributions (NDC's), the Climate Change Act and the resulting Sectoral Emissions Targets (SETs). This will be achieved, together with industry and other partners, through several key initiatives that aim to optimise industrial efficiency and collect much-needed data for evidence-based reporting.



Decarbonisation through Resource Efficiency

The NCPC continues to deliver valuable support to industrial and commercial companies through energy, water and general resource efficient and cleaner production (RECP) interventions. Through these initiatives, companies can reduce resource use and GHG emissions to actively progress towards decarbonisation targets.

Over the 2025/26 financial year, the NCPC completed 92 company level interventions, including assessments, financial linkages, technical assistance and implementation support and IS synergies.

RECP assessments identified saving opportunities amounting to R 27 million per annum.

Energy remained the dominant opportunity with the identified savings totalling approximately R16.2 million (9.4 million kWh), sufficient to power approximately 1 300 middle-income homes for a year.

In water-related interventions, saving opportunities of approximately R10.2 million were identified, through potential savings of 878 415 kL – a volume of water capable of sustaining approximately 2 900 middle-income South African homes for a year.

Through the financial support of the Gauteng Department of Environment, the NCPC supported five companies to implement resource efficiency projects identified in initial RECP assessments. In less than a year of implementation,

Gauteng sites Babcock, Viking Foundry, Adargh Glass, High Duty Casting and Extrupert collectively implemented projects worth over R5.6 million, with 798 tCO₂e of GHG emissions saved during the same period.

Through a process of monitoring and evaluation follow-ups during 2025/26, the NCPC measured actual implemented savings in 11 previously assessed companies, **totaling R12.2 million.**

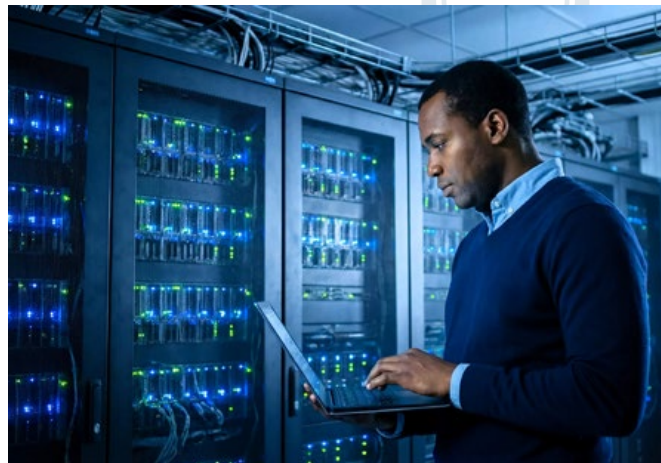


Data Management and Resource Reporting as a Foundation for Decarbonisation

Recognising that measurable data underpins effective decarbonisation, the NCPC strengthened its capability to assess energy and resource performance across industry. Electricity consumption and pricing analyses were successfully conducted, with data anonymised and interrogated to inform benchmarking and efficiency opportunities.

A second pilot focusing on measurement and metering was implemented at four sites, providing critical insights into operational, technical and behavioural constraints. Key learnings included the need for improved data logger security, enhanced familiarity with metering technologies, and better pre-planning for site-specific installation conditions.

The NCPC is working towards the establishment of a centralised data management system to support ongoing industry assessments. Collectively, these initiatives strengthen the NCPC's ability to support evidence-based interventions that drive energy, water and waste efficiency.



CASE STUDY

UNICA Iron & Steel: Advancing Energy Efficiency through RECP Interventions

UNICA Iron & Steel (Pty) Ltd, a medium-sized steel manufacturer located in Babelagi, Pretoria, partnered with the NCPC to implement resource efficiency interventions aimed at improving energy performance and reducing GHG emissions.

The facility operates continuous, energy-intensive processes, including smelting, casting and rolling, across a 24-hour production cycle. Increasing electricity demand, particularly following the introduction of an additional 10MVA furnace in 2023, necessitated targeted energy optimisation measures.

The primary intervention focused on the optimisation of the Fume Extraction System (FES) through the installation of Variable Speed Drives (VSDs) on induced draft (ID) fans. Implementation was completed over a two-month period, with performance monitored over an extended verification period to June 2025.

M&V at system level demonstrated energy savings of approximately **2.62 GWh per annum**, equivalent to a **46% reduction** in energy consumption within the intervention boundary.

At a facility-wide level, six RECP initiatives collectively yielded total savings of **538,908 kWh** and **R781 417**, with an overall payback period of eleven months and GHG emission reductions of **546 tonnes**.



Waste to Resource Initiative

The Industrial Symbiosis Programme (ISP) is a core circular economy intervention implemented by the NCPC to support waste-to-resource opportunities across multiple provinces. The programme facilitates collaboration between companies, municipalities and government to divert waste from landfill, reduce greenhouse gas emissions, stimulate green enterprise development, and support a just transition. Implementation is undertaken in partnership with provincial governments, with established partnerships in Gauteng and Limpopo, alongside more limited support in additional provinces.

In 2025, the Gauteng Department of Environment (GDEnv) and the NCPC celebrated a decade of successfully implementing the Gauteng Industrial Symbiosis Programme (GISP). To date, GISP has contributed to **R138.7 million in avoided landfill costs** and achieved a reduction of **1.54 million tonnes of greenhouse gas emissions**.

The year was marked by two major milestones, with the Gauteng ISP celebrating its ten-year anniversary and the Limpopo ISP marking five years of implementation. Both programmes have demonstrated sustained impact, strong government commitment, and continued expansion into complementary green economy initiatives.

Victor Manavhela, NCPC Principal Project Manager facilitating a Industrial Symbiosis Workshop at the CSIR ICC.



Founder of Dziphathu Green Surfacing, Mudau Phathutshedzo drying Hasha Mulilo Charcoal Eco Briquettes, that contain a combination of biomass (such as sawdust, wood chips, straw, etc.) and charcoal.

The NCPC facilitated 22 synergies during 2025/26. These interventions diverted 147 tons of resources from landfill, with associated GHG emission reductions of 891 tCO₂e.

In addition to synergy facilitation, the ISP expanded its contribution through waste resource analyses, undertaken in Gauteng and Mpumalanga to assess priority waste streams and demonstrate how industrial symbiosis can support a just transition through green enterprise development, waste minimisation and climate change mitigation.

Limpopo Department of Economic Development, Environment and Tourism (LEDET) and the NCPC celebrated five years of the implementation of the **Limpopo Industrial Symbiosis Programme (LIM-ISP)** in 2025.

Among these studies were feasibility studies in five Mpumalanga mining towns, undertaken to identify opportunities of circular economy to mitigate the potential loss of economic activity linked to coal mining. The resulting reports provides a business case and recommendations to inform provincial policy, planning and investment decisions.

To date, nearly **800** Gauteng-based companies have been introduced to the benefits of industrial symbiosis. Their participation has resulted in **303 478 tonnes** of waste diverted from landfill, **R138.7m** in avoided landfill costs, and a reduction of **1.54m tCO₂** of GHGs mitigated.

READ: GISP: A decade of turning waste into a resource

Improvement of Chemical and Waste Management in the Clothing and Textile Sector

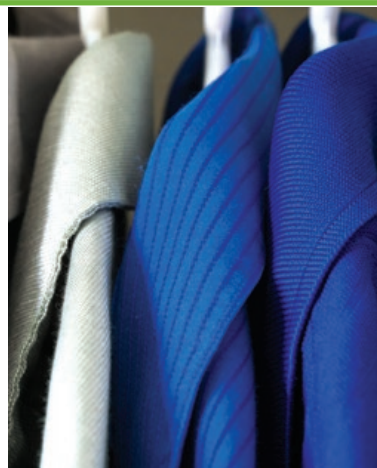


UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Progress by innovation

The NCPC and the United Nations Industrial Development Organization (UNIDO) implemented the Clothing and Textile Circular Economy Project during 2025/26 - a multi-country initiative supporting the transition of the textile and garment sector towards a circular economy through improved chemical and waste management, alignment with the Stockholm Convention on Persistent Organic Pollutants, and adoption of international best practices.

During the 2025/26 financial year, the project advanced into its second year of implementation, with a focus on capacity building through the delivery of an expert-level 'train-the-trainer' programme facilitated by international project partners, ZDHC and BluWin. Additional online chemistry sessions and examinations strengthened competencies in chemical risk identification, with eight delegates successfully qualifying as part of the national taskforce.



Building on this capacity, company-level chemical management system assessments were completed at five beneficiary companies. Energy and wastewater assessments were conducted at two pilot companies supported by Woolworths and Mr Price Group, to support their textile supply chain work towards the compliance levels that will be required by 2028. These assessments were conducted by the local taskforce as part of their practical training.

Significant progress was also made on the policy and enabling environment component of the project. This work will directly inform capacity building, policy alignment and the development of a national circular economy strategy for textiles.

New project promotes Circular Economy as a social and economic opportunity for South Africa

Team members from the NCPC, UNIDO and adelphi at the inception workshop for CB-ACES in February 2026



The NCPC successfully completed the preparatory phase of the South African component of the Climate and Biodiversity Action through Circular Economy Solutions (CB-ACES) project. The project is funded by the German Government through its International Climate Initiative (IKI) and implemented in three countries by the United Nations Industrial Development Organization (UNIDO) and adelphi Global.

The five-year project will support the transition to a socially-just circular economy that contributes to climate action, biodiversity conservation and sustainable industrial development. Activities will focus on policy development and implementation; capacity building and knowledge management; technical cooperation with businesses; and financial mechanisms and investment promotion.

In South Africa, the project will target three key industry sectors: food and beverage manufacturing, textiles, and machinery and equipment. As the South African implementing partner, the NCPC led the development of baseline assessments and stakeholder consultations to refine interventions and align implementation with national priorities, laying the groundwork for rollout across South Africa's manufacturing sectors. With the preparatory phase complete, project implementation will commence in late 2026.

Impact Highlights: 2025/26 impact and 10 year summaries



475 GWh of
energy saved



9.5m tCO₂e GHG
emissions mitigated

**10-year
Savings by
industry**

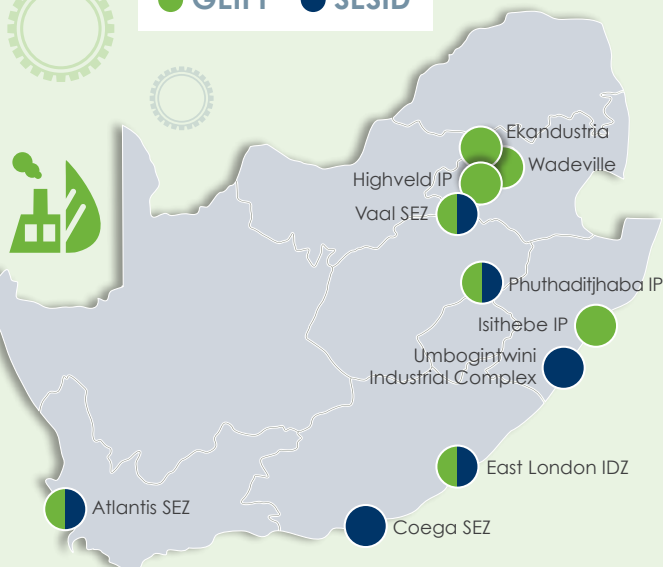
R1.8 billion
cumulative
cost savings



Industrial spaces

10 industrial parks, special economic zones (SEZs) and Industrial development zones (IDZs) were supported in their journeys to becoming sustainable industrial spaces, through the eco-industrial park model implementation, and sustainable energy projects.

● GEIPP ● SESID



Industry interventions

Company interventions 2025-26



92 plant-level interventions



45 RECP assessments identified
R 27 m potential savings



R16.2 million per annum in potential
savings in energy = 9.4 million kWh



878 415 kL per annum of potential
water savings identified – enough to
sustain 2 900 middle income South African
homes for a year (valued at R10.2 million)



Skills Development

2025-26 Highlights

 **512** trained through 35 training events

 **18** new trainers developed

 **7** Energy Advisor qualifications registered as NQF Level 8 postgraduate specialised occupational diplomas

 RECP End-User Training as a Short Learning Programme at UJ

 **21** interns at **18** SANBI and SANParks

2010 – 2025 Impact

 **10 200** professionals trained

 **325** local trainers

 **37** original training courses

 **420** experts

 **CLICK** to do the RECP end-user online course [here](#)

NCPC-SA's critical role in decarbonising SA

MCA talks to the director of the CSIR's National Cleaner Production Centre South Africa (NCPC-SA) about the role it plays in supporting industrial production facilities in mitigating climate change.



Industrial spaces have significant potential to produce energy for their own consumption and to serve nearby communities, as well as to provide greener infrastructure for industrial companies of all sizes.

With a mission to facilitate the transition of South African industry to a low-carbon, climate-resilient economy, the National Cleaner Production Centre South Africa (NCPC-SA) undertakes projects to help industrial facilities adapt and mitigate against climate change by adopting circular economy principles; establishing sustainable industrial parks with tenants that are energy-efficient, resource-efficient and competitive; developing the skills and resources needed to implement renewable energy and green hydrogen projects; helping production facilities with the development of viable business cases for off-grid and local renewable energy plants; and encouraging industrial symbiosis, where companies identify and exchange each other's waste as alternative and circular raw-material resources.

"While I think people in industry are exhausted by the complex set of decisions they are being asked to make to comply with environmental legislation and global developments such as trade tariffs and carbon taxes, the uncertainty also presents opportunities to make a positive impact for the future. We exist to help companies

navigate compliance and take advantage of greener opportunities," begins Ndivhuho Raphulu, the Director of the NCPC-SA.

"The US tariffs, for example, have made industry realise we have a market at our back door, as well as significant unexploited opportunities in the Asian and the South American markets. Our industry and manufacturing clusters are now reaching out to these communities to foster stronger ties," he tells MCA.

Ndivhuho Raphulu has been involved with the NCPC-SA since 2006, having initially been brought in following an enquiry during Thabo Mbeki's time as President into the challenges to industrial growth in South Africa. "The key issues that emerged were industrial efficiency, competitiveness and environmental challenges. This programme was established as the Council for Scientific and Industrial Research (CSIR) to enable industry to address these challenges, with an initial mandate to raise awareness of regulations and opportunities that lie in cleaner production, introducing international best practices in South Africa.

"We quickly realised there was a critical skills and capacity problem, so we started

introducing what we now call green skills. Then, from an efficiency perspective, we began to do significant work in industrial energy efficiency, initially driven by constrained energy supplies and load shedding. Today, we have divided our efficiency offering into three specific thematic areas: energy efficiency, water efficiency and resource efficiency," he explains.

Carbon Border Adjustment Mechanisms (CBAM)

"CBAM is a policy tool, currently in place in the European Union (EU), that puts a carbon price on imported goods from countries with lower carbon pricing policies. It is designed to prevent 'carbon leakage', which occurs when companies move production out of their home country to avoid paying carbon-emissions-related costs. CBAM ensures that imported carbon-intensive products have similar carbon costs to domestically produced ones," Raphulu explains.

"This policy is influencing industry to adopt and use production methods and mechanisms that foster urgency in mitigating carbon emissions and the adoption of climate adaptation technologies," he explains. "It also supports localisation, research and development, innovation, skills development and capacity building in our country," he adds.

In addition to this EU mechanism, the UK will introduce a CBAM from January 2027, and other importing countries are likely to follow suit. "Following COP 30, I believe several more countries will be committing to a CBAM policy," he predicts.

Identifying and reporting on carbon emissions to comply with schemes such as CBAM can highlight the most effective ways to systematically reduce emissions associated with specific production paths, thereby leading to cleaner production, improved energy and resource efficiency, and increased productivity.

South Africa's decarbonisation mandate

"South Africa has committed and is facilitating industry to comply with global decarbonisation goals in several ways, including the funding and support of NCPC-SA projects to help industry with resource efficiency and the use of clean production methodologies and tools. We have the Carbon Tax, the Climate Change Act, and



Left: The NCPC-SA recently hosted a two-day hybrid event to advance the drive for sustainability and competitiveness in industrial spaces. Right: NCPC-SA Sustainable Industrial Spaces delegates highlighted the success of two flagship initiatives: the Sustainable Energy Systems for Urban-Industrial Development (SESID), to accelerate the uptake of renewable energy; and the Global Eco Industrial Parks Programme (GEIPP), which fosters efficient resource use, industrial symbiosis and cleaner production.

the Air Quality Act, which all incentivise industry while encouraging industrial compliance and investment in technologies that lower carbon emissions," Ndivhuho Raphulu points out.

"There is notable progress with regards to national awareness, capacity, skills and investment in climate resilience projects by industry, including independent power producer (IPP) industry development. We have developed basic and strategic regulations, and we are now well placed to accelerate our path to decarbonisation through facilities that encourage industry to invest in green and climate-resilient technology and business development," he notes.

He adds that while some saw these regulations as making South African industry less competitive, many now see the long-term advantages. "If a company in the UK, a company in Kenya, and a company in South Africa are all making a similar product, the competitive nature of that product would traditionally be related only to the direct cost of production and the selling price. Today, quality and the impact of that product on people's health and the environment are additional factors to consider. The traceability of the additional quality, health and environmental factors is now a key aspect to competitiveness, particularly in international markets," he argues.

Achieving decarbonisation

Any production facility or industry that consumes energy, uses water and material resources, and produces waste can benefit from decarbonisation and a focus on how a plant performs against specific measures to determine and report the sources and levels of emissions. A decarbonisation path requires a strategic and focused national capacity, skills development and investment initiatives, which all contribute to strong and sustainable economic growth.

"Improving access and reducing the costs of greener technologies is a long-term process, though. The hydrogen economy is set to play a positive role in our future decarbonisation strategy, supporting renewable energy and sustainability. Now, the costs

of green hydrogen and the technology and infrastructure required to support projects are limiting factors for project implementation and viability.

"Still, our government's approach is to attract private investment, leverage international partnerships, and identify strategic applications for green hydrogen as a catalyst for re-industrialisation and economic transformation. This is not just a response to the climate crisis," he notes, adding that tax deductions on investments in electric and hydrogen-powered vehicle production are likely sometime after 2026.

Hard-to-abate sectors, such as steel, fertiliser, cement and heavy-duty mobility, can all benefit from adopting green hydrogen. "Our national target is to produce one million tonnes of green hydrogen annually by 2030, and seven million tonnes by 2050, which would boost the economy significantly and create jobs," he says.

The NCPC-SA's extended offering

The NCPC-SA support is one way the government provides tangible assistance to industry in navigating the challenges of decarbonisation. The NCPC-SA makes use of its funding from the Department of Trade, Industry and Competition (DTIC) to assign specialists to collaborate with a production facility's technical and maintenance teams, identifying opportunities to reduce emissions through energy management and waste reduction.

"In addition, when we have identified an opportunity that requires investment, we can help develop bankable proposals on how to implement some of the recommendations and how to manage the transition to cleaner production. This approach helps to remove uncertainty and ensures that the interventions deliver all the compliance and productivity results identified," assures Raphulu.

The Sustainable Industrial Spaces Conference 2025

Industrial spaces, such as industrial development zones (IDZs), special economic zones (SEZs) and industrial parks, offer strategic opportunities for decarbonisation and energy

security due to their integrated infrastructure and key locations. The NCPC-SA is currently implementing four multi-year projects with the United Nations Industrial Development Organization (UNIDO) to drive sustainability, particularly in the area of sustainable energy.

The Sustainable Energy Systems for Industrial Development (SESID) project is accelerating the uptake of renewable energy in industrial spaces through integrated planning and pilot projects. At the same time, the Low Carbon and Positive Energy Project promotes the optimisation of energy consumption and the generation of distributed renewable energy in industrial spaces. The Global Eco-Industrial Parks Programme (GEIPP), which has been operational for five years, promotes efficient resource utilisation, industrial symbiosis, and cleaner production. Additionally, the Global Clean Hydrogen Programme is set to launch in South Africa in early 2026.

Industrial spaces have significant potential to produce energy for their own consumption and to serve nearby communities, as well as to provide greener infrastructure for industrial companies of all sizes. Together with the DTIC and international project funders, these initiatives are collaborating with selected industrial sectors, all of which are at varying levels of readiness and adoption of sustainable industrial development models.

The NCPC-SA recently hosted a two-day hybrid event to advance this drive for sustainability and competitiveness in industrial



Growing Green Skills for a Sustainable Future

The NCPC's Skills Development Programme continued to strengthen the capacity required to support South Africa's transition to a green economy. During the financial year, a total of 512 participants were trained through 35 training interventions, while 18 new trainers were developed across disciplines including energy management, wastewater management and resource efficiency.

A major milestone was achieved with the formal registration of the seven Energy Advisor qualifications with the South African Qualifications Authority (SAQA). Originally initiated in 2015, the qualifications are now recognised on the National Qualifications Framework (NQF) as Level 8 postgraduate specialised occupational diplomas.

Efforts to mainstream RECP training reached a significant milestone with the adoption of the RECP End-User Training Programme as a Short Learning Programme at the University of Johannesburg (UJ). The programme has subsequently been integrated into the university's Environmental Management curriculum, providing students with practical resource efficiency knowledge and skills.

Industry demand for NCPC training remained strong throughout the year. Thirteen in-house training interventions were delivered for companies and organisations, further extending the reach of green economy skills across South African industry.

Long-term impact highlights

- **7 Energy Advisor qualifications** registered as NQF Level 8 postgraduate specialised occupational diplomas
- **RECP End-User Training** approved as a University of Johannesburg Short Learning Programme



Developing the Next Generation of Green Economy Practitioners



RECP interns, mentors and the Skills Development team

The RECP Internship Programme implemented on behalf of the Department of Tourism continued to create opportunities for young professionals while delivering measurable sustainability benefits for host institutions.

The 24-month programme placed interns across South African National Parks (SANParks) and South African National Biodiversity Institute (SANBI) sites, with 21 interns active across 18 host sites during the year. Through expert-level training and practical workplace experience, interns developed skills in energy management, water efficiency, waste management and carbon management.



The programme produced a range of valuable outputs, including tariff analyses, waste management strategies, resource measurement approaches and financial feasibility studies, all demonstrating potential for resource and cost savings.

The programme also strengthened institutional commitment to resource efficiency, with assessment feedback sessions receiving positive support from management teams across SANBI and SANParks. This included the publication of a SANParks tender

for energy and water efficiency interventions across various parks, including the Kruger National Park, informed directly by recommendations generated through the internship programme.

Other notable impacts included financial savings realised through the identification of municipal electricity billing discrepancies, and presentations by interns of the benefits of RECP to SANParks and SANBI executive committees.



CASE STUDY

SANParks Strengthens Energy Efficiency

The NCPC internship programme assisted SANParks to improve energy efficiency at its Groenkloof head office in Pretoria.

SANParks joined the programme in 2024 and included its head office as one of the host sites for the two-year internship initiative. RECP interns, under the guidance of NCPC technical experts, conducted a comprehensive energy review of the Groenkloof site to better understand energy consumption patterns and identify opportunities for improvement.

The assessment revealed that heating, ventilation and air conditioning (HVAC) systems, office appliances and lighting accounted for most of the facility's electricity consumption. A range of low-cost and no-cost interventions were recommended, focusing on lighting system optimisation, HVAC system optimisation and energy management practices.

The recommended interventions were implemented by SANParks with ongoing technical support from the NCPC team.

The improvements resulted in electricity savings of 1.97 GWh and financial savings of more than R3.8 million.

The energy savings resulted in the reduction of approximately 331 tCO₂e of GHG emissions, supporting national decarbonisation efforts and SANParks' sustainability objectives.

What is more, the savings were realised without the need for capital investment, demonstrating how operational improvements and behavioural changes can unlock significant resource efficiency gains.

Looking ahead, SANParks plans to build on the success of the intervention through additional initiatives, including electric geyser optimisation, lighting performance assessments and enhanced energy management controls across the facility.



tourism

Department:
Tourism
REPUBLIC OF SOUTH AFRICA



Sustainable Industrial Spaces as Hubs for Scaling Decarbonisation

The 2025/26 financial year marked another milestone in the NCPC's efforts to advance sustainable industrial development - by integrating outputs of four significant projects in a total of ten industrial spaces across South Africa.

The Sustainable Industrial Spaces projects are implemented in partnership with the United Nations Industrial Development Organization (UNIDO). UNIDO also played a central role in supporting South Africa's G20 Presidency work in this area, specifically in the launching of the Sustainable Industrialisation Hubs (SIH) Coalition, unveiled during the G20 Energy Transitions Ministerial Meeting in October 2026.



The dtic, CSIR, SECCO and NCPC leadership engaging at Sustainable Industries Conference 2025.

The four partnership projects of the NCPC and UNIDO include the **Global Eco-Industrial Parks Programme (GEIPP)**, the **Sustainable Energy Systems for Industrial Development (SESID) Project**, the newly launched **Low Carbon and Positive Energy in Industrial Spaces project** and the South African child project of the **Global Clean Hydrogen Programme**, which was in the final planning stages, due to commence in May 2026. Each is delivered in partnership with UNIDO, with the latter two involving key partners GreenCape and the CSIR Energy Centre, respectively.

Positioning Industrial Spaces as Sustainable Energy Hubs

Completing its third year in 2025/26, the SESID Project is aimed at supporting the transition of industrial spaces towards cleaner, more resilient energy systems. The project reached a major milestone in early 2026, by successfully established investment-ready pilot demonstrations across three industrial parks:

- East London Industrial Development Zone (ELIDZ): 15 MW rooftop solar PV system and 4 MW / 8-hour Battery Energy Storage System (BESS)
- Coega Special Economic Zone (SEZ): 10 MW solar PV farm
- Phuthaditjhaba Industrial Park: 4 MW solar PV farm

Sustainable energy models are a cornerstone of **the dtic**, NCPC and UNIDO's work in industrial spaces. The critical role of these geographical hubs in South Africa's energy mix, and the potential for their contribution was discussed at a dedicated side event at the Africa Energy Indaba in March 2026. Ongoing collaboration with all key role-players will be essential for the success of these efforts, including Sanedi, Department of Electricity and Energy and the Industrial Development Corporation (IDC).

Industrial Spaces as Sustainable Energy Hubs Side Event at the 2026 Africa Energy Indaba



 **WATCH** the NCPC Industrial Spaces Initiatives video [here](#)

The integrated approach of the NCPC Sustainable Industrial Spaces programme has resulted in the expansion of the original EIP hub launched in 2023 to an online industrial spaces portal. The NCPC Sustainable Industrial Spaces portal includes resources to provide industrial parks, SEZs and IDZs with a central access point for information, tools and matchmaking to support the transition to eco-industrial parks and sustainable energy hubs. (www.sustainableindustrialspaces.co.za)





GEIPP: From Concept to Action

The second phase of the **Global Eco-Industrial Parks Programme (GEIPP)**, funded by Switzerland: State Secretariat of Economic Affairs (SECO), focuses on accelerating EIP and RECP implementation in industrial spaces. During 2025, progress was made in advancing the policy environment for eco-industrial parks. The completion of the Component-wise EIP Analysis Study identified regulatory and practical barriers affecting the implementation of EIP principles across key areas, including energy, water, land use, infrastructure and materials management.

At park level, technical support to tenants included eleven RECP assessments and support was also extended to two additional pilot industrial parks, Perseverance Industrial Park in Gqeberha and Rosslyn Industrial Area in Tshwane.

The NCPC also completed an EIP Skills Development Framework aimed at addressing critical human capital constraints affecting the transition of industrial parks towards sustainability. The framework identified significant skills gaps across energy management, water stewardship, waste and circular economy practices, leadership, stakeholder engagement and research capabilities. It provides a structured roadmap for the



development of both foundational and specialised green skills required to support future industrial transformation and the Just Energy Transition.

The framework highlighted the need for targeted investment in emerging areas such as green hydrogen, battery storage technologies, advanced water efficiency and circular economy systems. The findings will make a significant contribution to the implementation of the new LC-PEIS and Green Hydrogen projects.

The GEIPP further advanced the social sustainability dimension of EIPs through the introduction of the Gender Self-Assessment Tool for industrial parks and tenant companies. Delivered through dedicated workshops, the tool enables organisations to evaluate their performance across key gender equality indicators, including recruitment, remuneration, workplace culture, occupational health and safety, training opportunities and leadership representation. The tool is a practical mechanism for identifying gaps, strengthening inclusivity and supporting compliance with international sustainability standards.

New Low Carbon & Positive Energy Industrial Spaces project funded by the Government of Flanders

The NCPC began implementation of the latest industrial spaces project in late 2025. Funded by the Government of Flanders, the Low Carbon & Positive Energy Industrial Spaces project is implemented by UNIDO, with the NCPC, GreenCape, and the Flemish research institution VITO as technical partners.

The project aims to transform industrial spaces into hubs of sustainable energy. This will be achieved by strengthening the policy and regulatory framework, enhancing the capacity of key stakeholders, promoting investment in low-carbon solutions, and demonstrating the business case through pilot projects and building an investment-ready pipeline.

Thus far, a central achievement of LC-PEIS has been the generation of credible, application-ready technical



outputs that directly support downstream implementation programmes. By reducing information asymmetries and project uncertainty, the initiative has played a critical role in informing the prioritisation and design of demonstration and investment projects under other UNIDO-NCPC initiatives such as the SESID Project and GEIPP.



A Strong Start for Sustainable Change

The NCPC achieved a significant milestone during 2025/26 as the South African executing agency of the **Global Elimination of Mercury in Non-Ferrous Metals Initiative (GEMINI-SA)** preparatory phase. The appointment followed endorsement by the Department of Forestry, Fisheries and Environment (DFFE) and subsequent approval by the Global Environment Facility (GEF) in June 2025.

A key achievement by the NCPC during this reporting period was the engagement of approximately **25 non-ferrous metal production facilities** across South Africa. This enabled the collection and verification of critical emissions data, supporting the development of a comprehensive national mercury baseline and validating findings against South Africa's previous Minamata Initial Assessment.

Gender Mainstreaming steps up a gear at the NCPC



During 2025/26, the NCPC developed gender baselines for the GEMINI and Climate Biodiversity Action through Circular Economy Solutions (CB-ACES) projects. These baselines provided a snapshot of gender dynamics and challenges within South African industrial sectors and will inform gender mainstreaming interventions under both projects in the years ahead.

In addition, gender mainstreaming plans were finalised for the Sustainable Industrial Spaces projects. A Gender Mainstreaming Working Group was also established to oversee and coordinate gender mainstreaming activities across NCPC and UNIDO projects, ensuring a more structured and consistent approach to the integration of gender considerations.



CASE STUDY

RECP intervention improves air emissions performance at High Duty Castings

High Duty Castings (HDC), a manufacturer of grey iron and spheroidal graphite iron castings for industrial and agricultural components, has strengthened its environmental performance by installing an upgraded air emissions abatement system.

The intervention stemmed from a Resource Efficient and Cleaner Production (RECP) assessment conducted by the NCPC-SA in 2019. Following the successful implementation of several RECP recommendations, HDC was selected to participate in the Gauteng Department of Environment (GDEn) Implementation Programme, which supported the upgrade of the company's air emissions abatement system.

Although HDC had an existing emissions control system, it was not operating optimally, which reduced its effectiveness in controlling emissions and posed potential environmental compliance challenges. The upgraded system captures, neutralises and removes

harmful gases and particulate matter before they are released into the atmosphere, improving both environmental performance and workplace air quality.

Air emissions testing in 2026 demonstrates a positive impact of the intervention. Before implementation, the lowest recorded emissions in 2023 were 7.56 mg/Nm³ for particulate matter and 5.12 mg/Nm³ for sulphur dioxide. Following implementation, substantial improvements were recorded in January 2026, with particulate matter reduced to 3.58 mg/Nm³ and sulphur dioxide to 0.32 mg/Nm³, highlighting the effectiveness of the upgraded system in improving air quality and reducing atmospheric emissions.

The intervention is expected to significantly reduce smoke, fumes, and toxic particulate emissions generated during furnace and casting operations, reduce the company's carbon footprint and benefit employees and neighbouring communities in the Boksburg industrial area.

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