

The 5th CSIR
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IDEAS THAT WORK

8-9 October 2015 | CSIR ICC

**Resource efficiency and
cleaner production:
Measurable advantages**

Ndivhuho Raphulu

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Overview

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- The NCPC-SA
- Resource Efficiency and Cleaner Production (RECP)
- Energy
- Waste
- Water
- Capacity and advocacy

The NCPC

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- Programme of **the dti**, hosted by the CSIR
- Member of global Resource Efficiency and Cleaner Production Network (UNIDO, UNEP)
- African Roundtable on Sustainable Production and Consumption
- Enhances competitiveness by helping industry do more with less



the dti

Department:
Trade and Industry
REPUBLIC OF SOUTH AFRICA



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Resource efficiency and cleaner production

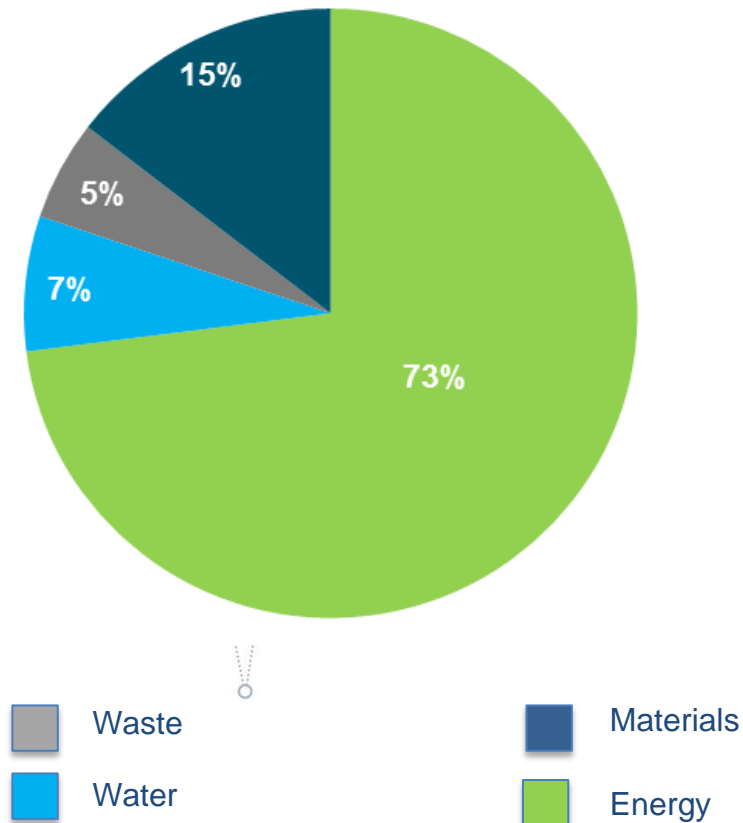


- RECP services currently subsidised
- In-plant assessments identify areas for improvement: energy, water, material consumption
- Recommendations: cost-saving options and improvements to become
 - Environmentally responsible,
 - Productive,
 - Low-carbon, and
 - Competitive businesses.

Resource efficiency and cleaner production

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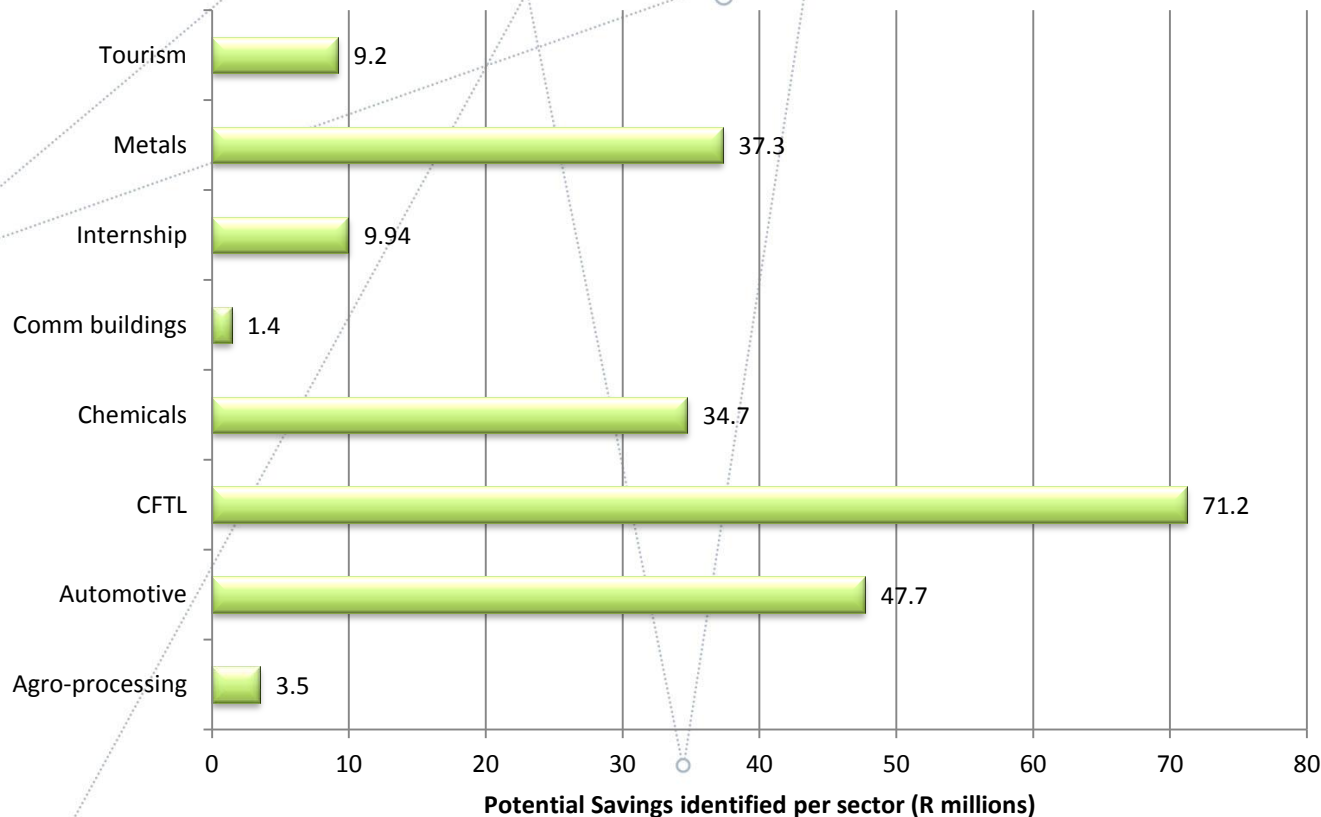
Potential savings identified through NCPA-SA assessments in 2014/15 by thematic area



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Potential savings by sector



Resource efficiency and cleaner production

Potential savings since 2009 by thematic area



Energy

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- Industrial Energy Efficiency Project
- Sustainable transformation of energy use practices in industry
- Energy management systems & energy systems optimisation
- Building capacity in industry to implement methodologies
- ISO 50001

Energy

The numbers tell the energy efficiency story

153 companies part of IEE Project since mid-2010

1.2 m tonnes CO₂ mitigated

180 000 mid-income homes could be electrified for year with savings

2 600 trained in EMS and ESO advanced level

43 national EMS and ESO trainers certified

231 SME energy audits performed

R111.5 m/yr potential savings identified by audits

1 340 GWh energy saved

R1.1 b saved in energy costs

5700+ jobs created and preserved

101 experts qualified in EMS and ESO

Waste

- Industrial symbiosis
 - Programmes in WC (GreenCape), GP and KZN (both NCPC-SA)
 - Minimising waste in a way that makes environmental and business sense
 - Companies connected to identify synergies for ‘waste swapping’

Industrial symbiosis increases:

Profit
Sales
New business
Jobs
Utilisation of assets
Innovation
Inward investment
Learning
Knowledge transfer

Industrial symbiosis decreases:

CO₂ emissions
Landfill costs
Use of virgin resources
Industrial water usage
Hazardous waste
Pollution
Transport

Waste



- Industrial symbiosis case study: ComboTimber Structures (CTS), pallet manufacturer in Western Cape.

Opportunity:
recycle old,
discarded,
broken pallets



Synergy:
waste
management
companies



1 company
sent 30 ton
wood waste
to landfill
weekly



CTS removed this
waste, gaining
materials with only
labour & transport
costs



Input costs reduced by 60%; labour costs increased by 40% - new jobs created; business expanded by specialised machines developed to break down & manufacture recycled pallets. 2015: CTS diverted 500+ tonnes wood waste from landfill.

Water



Water efficiency

- Businesses increasingly committed to use scarce resource wisely
- Audits help identify areas of improvement and make recommendations
- Capacity building in water efficiency and management offered

Water

Water efficiency case study:

Sundale Free Range Dairy
(Eastern Cape) – 120 000
litres of milk per day



RECP audit assessed water and energy usage



Focus areas identified, ozonated water
filtration plant with UV installed



- Long-term potential reduction in municipal water supply of 75%
- Projected direct savings of R1.35 m/yr
- 50% steam reduction
- 50+% water reduction
- Investment in plant break-even in 18 months
- Next step: re-use of water without costly system

Water

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Water footprinting

- NCPC-SA is an implementer of UNEP's life cycle assessments
 - Provides a framework to **assess**, **compare** and **disclose** environmental performance of products and operations regarding freshwater use
 - Opportunity to improve water use in manufacturing and production



Water

Water footprinting

- Global water-use life cycle assessments determined hidden water use in the supply chain and found it takes:

120 litres of water to make one



140 litres for one



15 500 litres to produce 1 kg



Capacity and advocacy

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- Advocacy, skills and human capacity critical for sustained RECP and subsequent benefits
- NCPC-SA fulfils advocacy role with businesses and legislators regarding need for resource reduction through RECP

Capacity and advocacy

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- Training and capacity building:
 - Curriculum for an RECP training course finalised to add to current IEE training
 - Developing two occupational qualifications in energy efficiency with the Energy and Water SETA
 - Energy management advisor
 - Energy audit technician
 - Both qualifications address scarce and critical skills as listed in the Government Gazette
 - Professional body in support of RECP practitioners being developed

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Thank you

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