



A MORE RESILIENT, EFFICIENT AND SUFFICIENT SOUTH AFRICAN ECONOMY

Context for the Textile and Garment Sector

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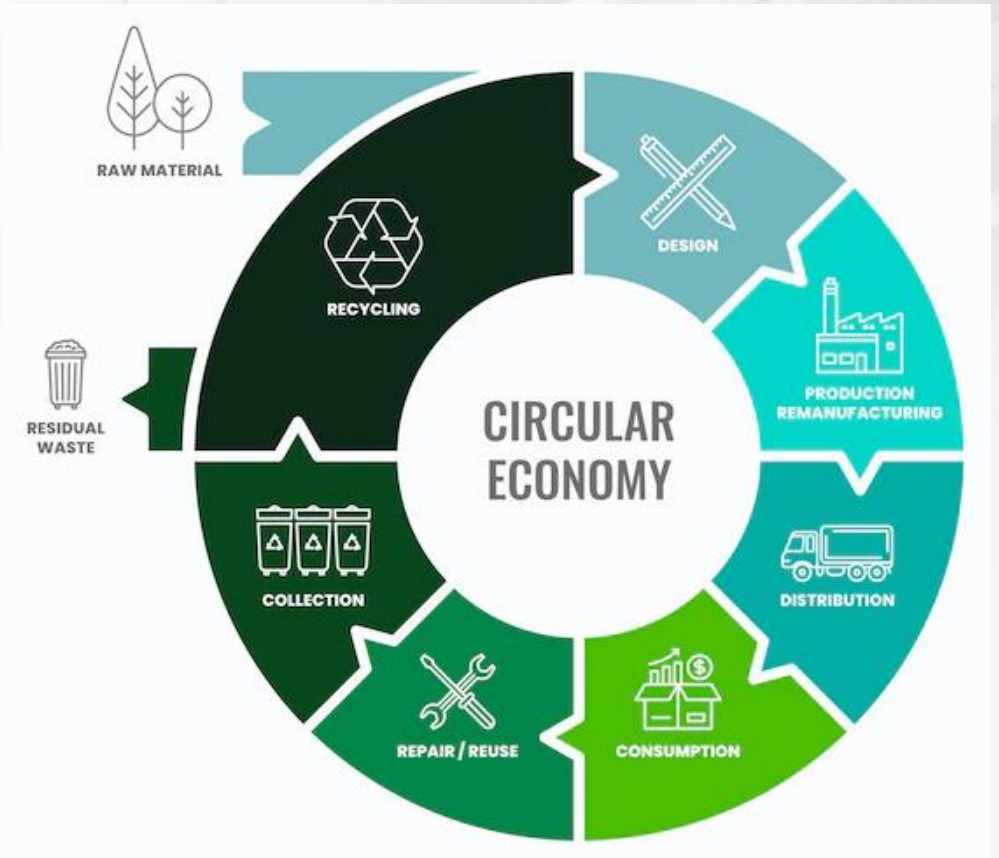
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What is the circular economy?

- The circular economy is not about waste, and it's not a synonym for recycling
- The circular economy is about **sustainable resource management**
- The circular economy is about national **resource-security** in support of socio-economic development – through sustainable resource utilization

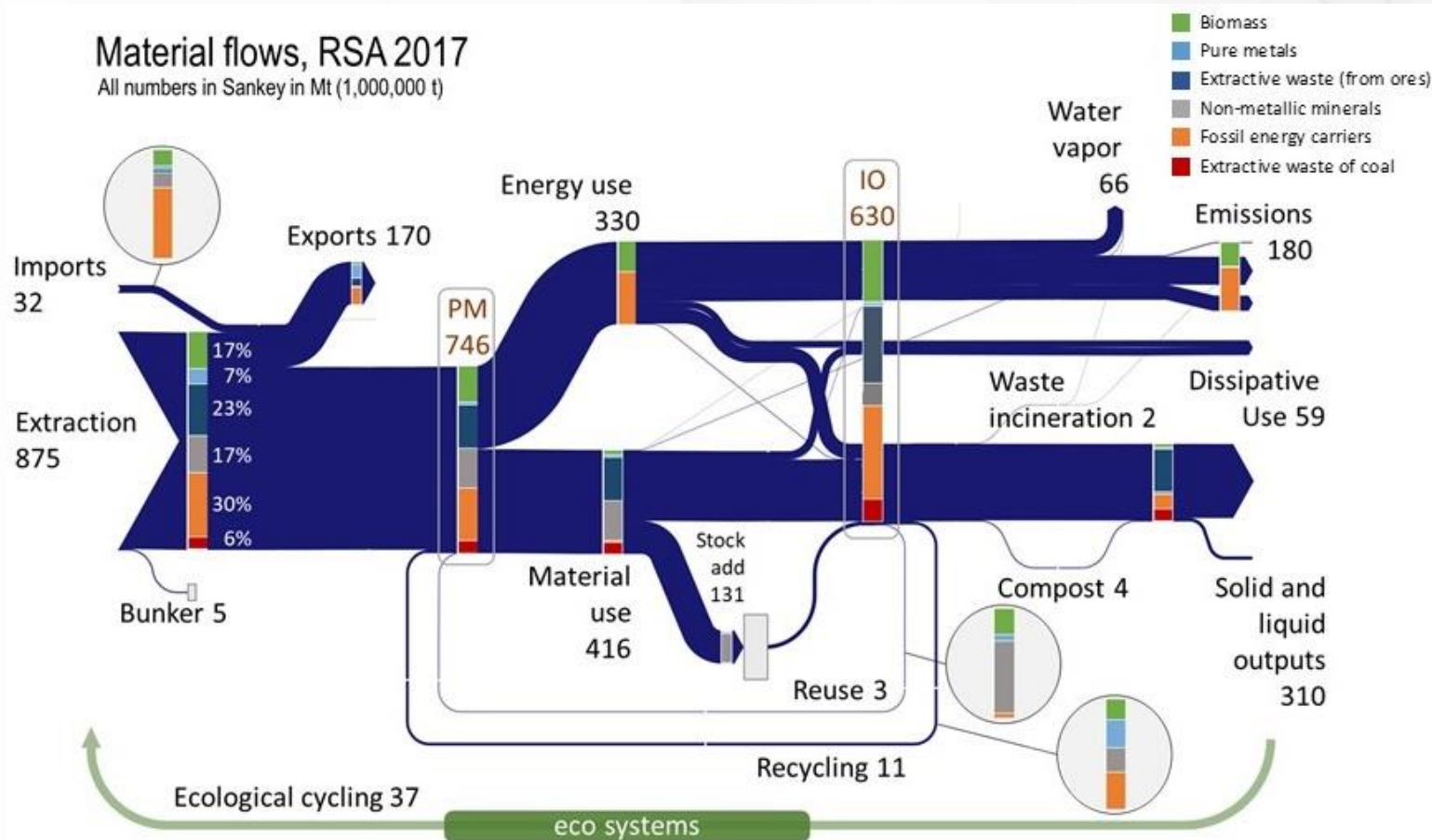


Emergence of the circular economy in South Africa

- The South African government has recognized the circular economy as a new **source of economic growth** for a re-industrialised, modern economy
- And is integrating the concept into national policy and strategy (e.g., STI Decadal Plan (2022-2032); EPR regulations, dtic Masterplans)
- The Department of Science, Technology and Innovation (DSTI) has initiated several projects to **evidence our transition** to a more circular economy, and is supporting a number of circular STI initiatives



How circular is the South African economy?



Finding 1:

An economy materially dominated by export-oriented extractives

Finding 2:

An economy energetically dominated by fossil fuels, notably domestic coal supported by imported oil

Finding 3:

A sizeable footprint of bio-based activities, with some attention to ecological cycling but also with significant concerns

Finding 4:

Low rate of domestic stock building

Finding 5:

Pockets of high circularity and significant informal activity around cascade use, reuse and recycling

The South African economy
~ **7% circular**
(most of that due to ecological cycling)

UNDERSTANDING THE DRIVERS FOR A MORE CIRCULAR SOUTH AFRICAN ECONOMY



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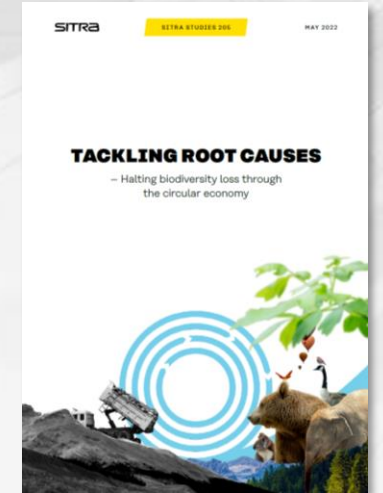
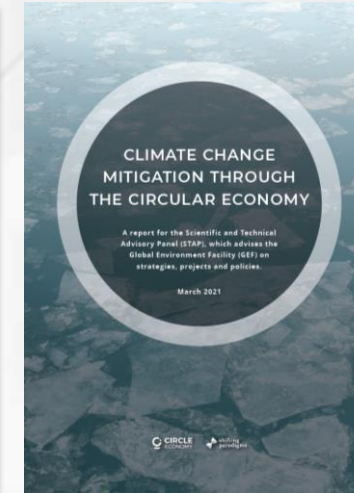
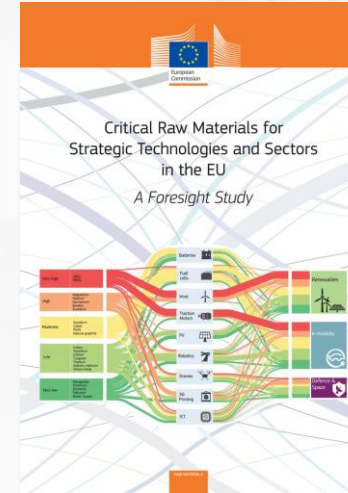
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Drivers for a more circular global economy

- Over the past decade, we've seen **four main drivers** of a circular economy transition, emerge globally –
 1. Resource scarcity
 2. Environmental
 - Climate mitigation
 - Halting biodiversity loss
 - Reducing water stress
 3. **Economic recovery**
 4. **Socio-economic development**

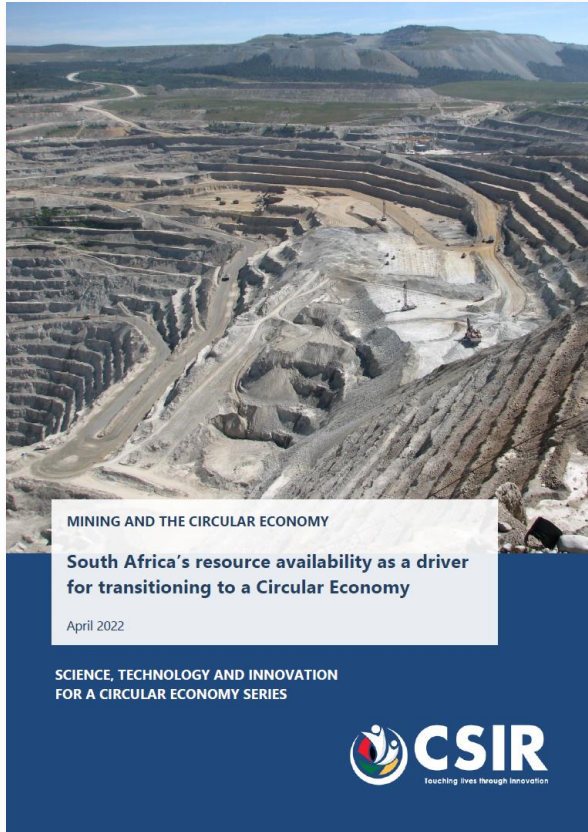


Question 1:

Is resource scarcity a driver for South Africa to transition to a more circular economy?



Is resource scarcity a driver for SA to transition to a circular economy?



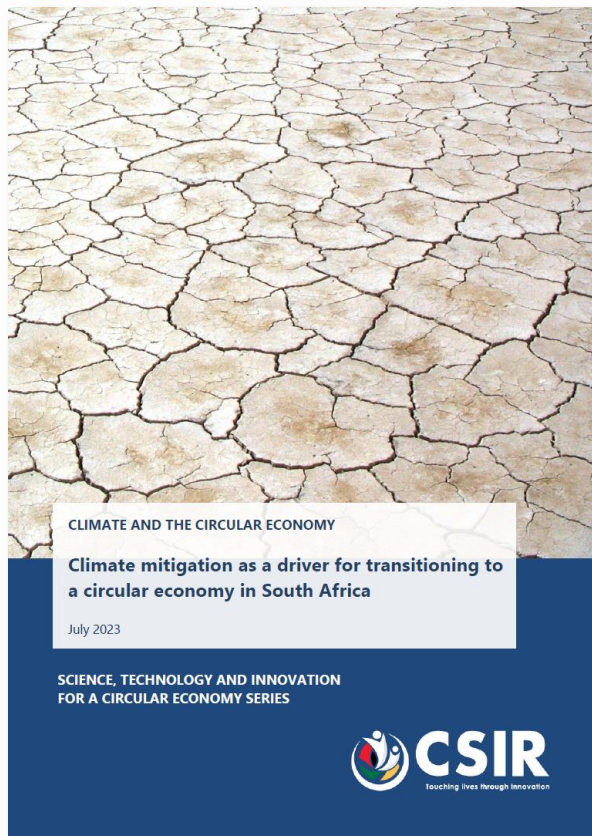
- Yes, **resource scarcity** may in fact be a driver for South Africa
 - 18 minerals were identified as **critical / strategic** for South Africa due to their economic importance and supply risk
 - 5 minerals have <50 years of economically viable mining remaining (assuming no new major reserves are found, and demand, supply and economic value remains unchanged) – iron ore, lead, manganese (<20), cobalt, gold (20-50)
 - These minerals, however, are **mostly exported**, suggesting that South Africa may have little control over their downstream circularity
- The circular economy also provides **new opportunities** (and risks) for the mining sector.
 - For example, as we decarbonize the economy it can rapidly increase the demand for metals, e.g., alternative energy technologies, new mobility solutions, etc.

Question 2:

Is climate mitigation a driver for South Africa to transition to a more circular economy?



Is climate mitigation a driver for SA to transition to a circular economy?



- Yes, **climate mitigation** is a driver for South Africa
 - Given the **carbon intensity** of our resource use in South Africa (transportation, manufacturing, agriculture, etc.), adopting circular economy principles can assist in decarbonizing economic activities
 - High-level modelling for South Africa, shows that circular economy measures can **reduce GHG emissions in 2050 by 34%**, from 500.11 MtCO₂e under a BAU Scenario to 328.66 MtCO₂e under a CE Scenario, keeping levels **below 2019 values**.
 - Sizable contributions to mitigation are achieved through ambitious changes to the use of **energy** resources in the manufacturing, mining and construction sectors (-44.51 MtCO₂e); **mobility** sector (- 34.58 MtCO₂e) and in the **agriculture** sector (-13.47 MtCO₂e)

Question 3:

What does the circular economy mean for the various economic sectors?



What is South Africa's level of readiness to adopt circular practices?

Series of 8 short *Briefing Notes*



Open access book

First international book on circular economy as development opportunity

Mining



Climate



Agriculture



Manufacturing



Water



Energy



Mobility



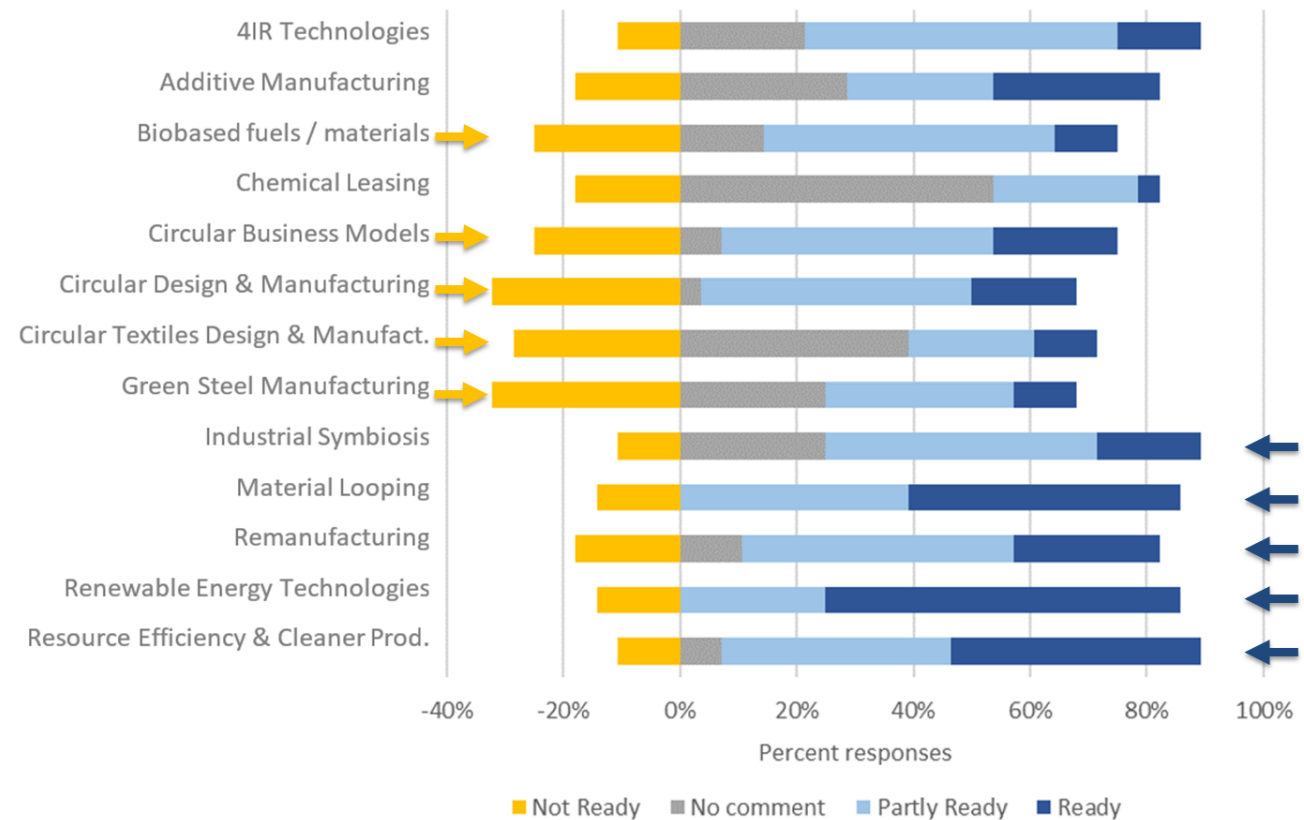
Human Settlements



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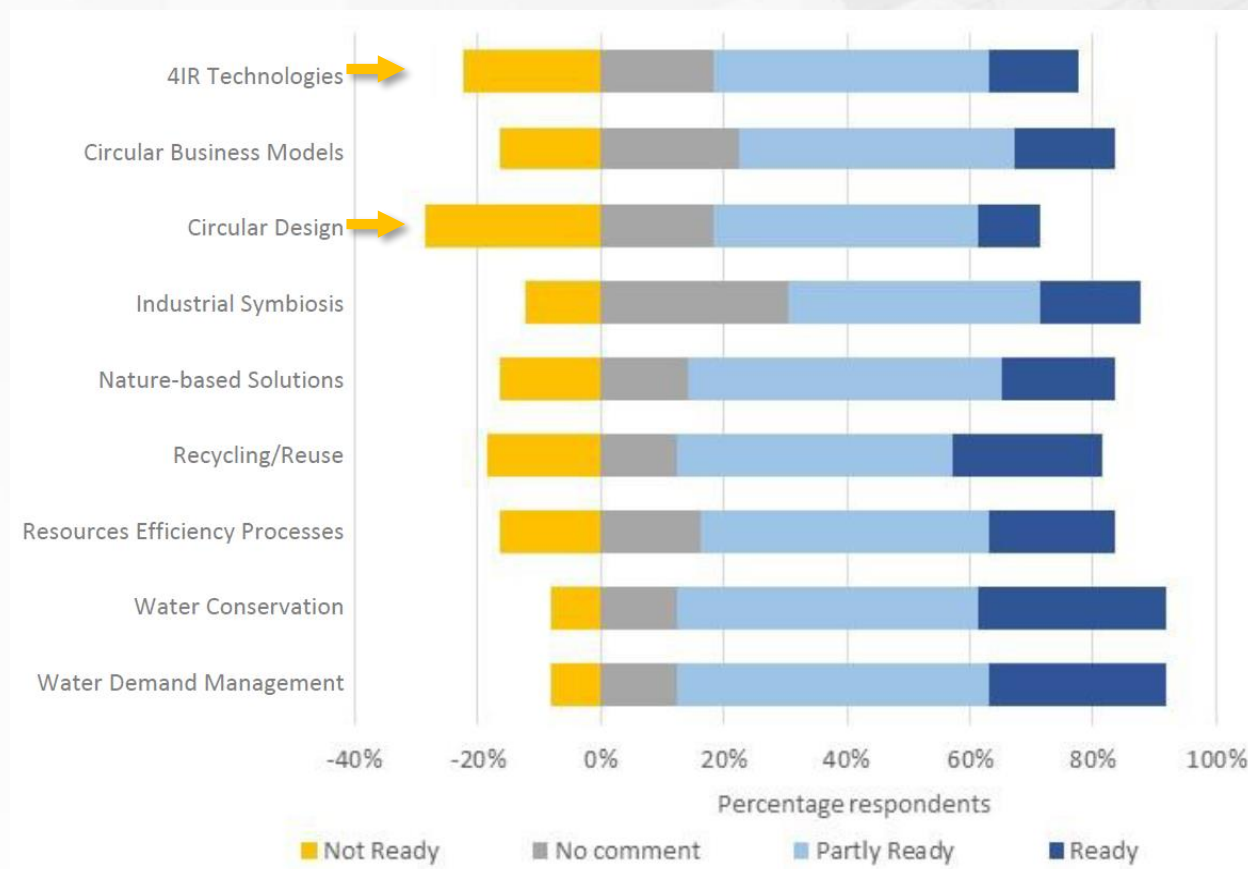
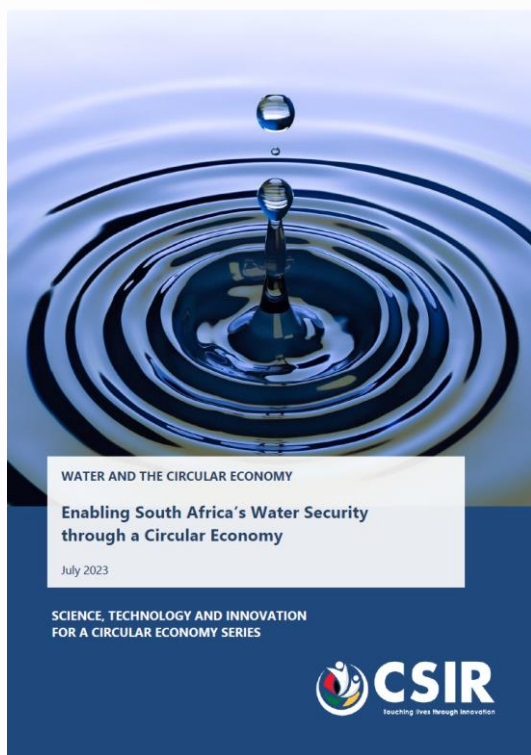
Economic recovery: Manufacturing sector

- Creating a more competitive South African manufacturing sector
- State of readiness of circular economy interventions in manufacturing

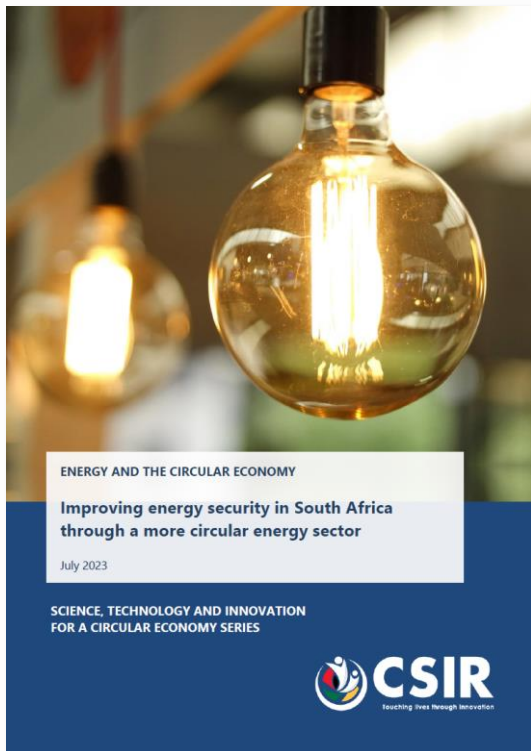


Well-being: Water security

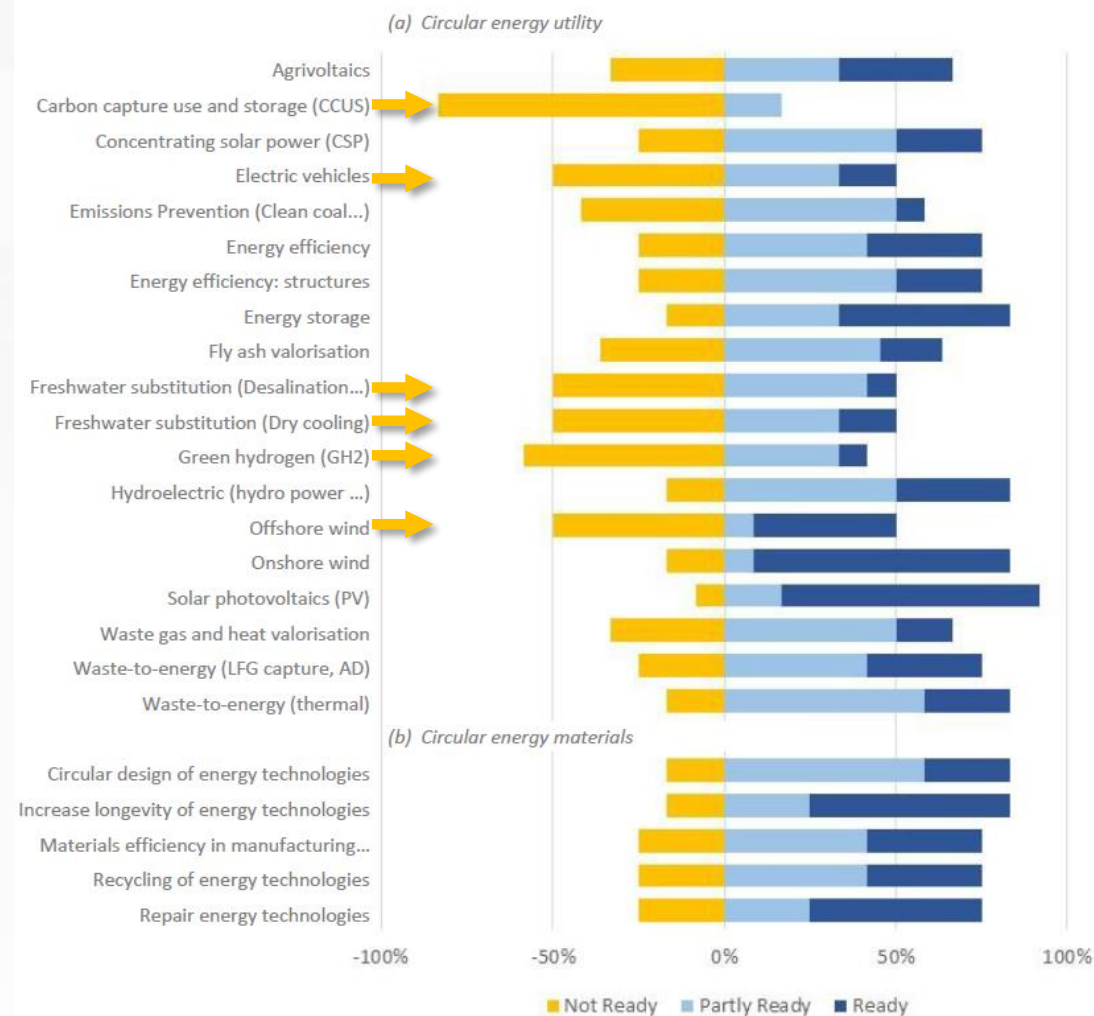
- Improved water security in South Africa
- State of readiness of circular economy interventions in the water sector



Well-being: Energy security



- Improved energy security in South Africa
- State of readiness of circular economy interventions in the energy sector



Current activities

- Launch of **Circular Innovation South Africa (CISA)** (in 2023)
 - Hosted by the CSIR, aimed at giving effect to Government's Circular Economy **STI priorities**
- Launch of STI instruments, including –
 - Circular Economy STI Grants
 - Circular Economy Demonstration Grants



Current activities: CE Demo Fund Projects (2023)



- Implementation of automated refill stations in the sale of FMCG (CSIR)



- The Campus: A One Hectare Circular Farm (SU)



- Field Demonstration of Biodegradable Mulch Films (CSIR)



- On-site, industrial demonstration of ethanol production (SU)



- Green Bricks (CSIR)



- Demonstration of a modular zero carbon roof and flooring system (CSIR)



- Low-fouling NiCMeR™ Ultrafiltration Membrane (Mintek)



- Textile-to-textile recycling using SMME scaled (CPUT)

Current activities: CE STI Strategy



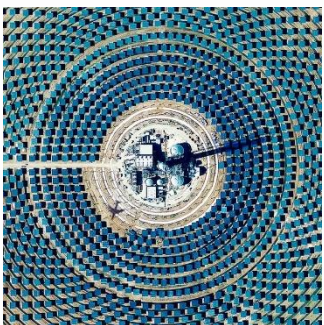
- Government's new **Circular Economy STI Strategy** (2024-2032)
 - To be published in late 2024 / early 2025
 - Guide government's strategic direction and investment in circular economy related science, technology and innovation

Current activities: Circular Initiatives



- Government's STI Decadal Plan (2022-2032) prioritized three economy sectors that could benefit from STI –
 - **Mining, manufacturing and agriculture**
 - With circular economy and digital economy as cross-cutting
- Through the CE STI Strategy, support the modernization of these three economy sectors, with the launch of –
 - The South African **Circular Minerals and Metals** Initiative (SACMMI) (April 2024)
 - The Circular **Manufacturing** and **Agriculture** Initiatives (early 2025)

Concluding thoughts



- The circular economy is not about waste management, but about **sustainable resource management**
- There is substantial evidence to show that a circular economy transition is an economic, social and environmental **imperative** for every country – but we're all starting from different places
- Transitioning to a more circular economy creates **opportunities for business**, including **new businesses** and **new business models**
- The circular economy calls for **disruption** and **innovation**, with a strong role for science, technology and engineering

Thank you

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