Climate Change and Just Transition in Mpumalanga Province in South Africa

Circular Economy Symposium
National Research Foundation

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Legal Framework

- Constitution SA , 1996
- National Development Plan Vision 2030
- Mpumalanga Vision 2030
- Mpumalanga Economic Growth and Development Path Mpumalanga Green Economic Development Plan
- Mpumalanga Climate Change Adaptation Strategy
- Mpumalanga Climate Change Mitigation Strategy (in progress)
- Mpumalanga Air Quality Management Plan
- Mpumalanga Integrated Waste Management Plan
- Mpumalanga Environment Outlook
- Mpumalanga Biodiversity Sector Plan

Background

- Mpumalanga Province key sectors are more vulnerable to climate change,
- Economic activities: mining, mineral processing, pulp and paper; light –commercial and manufacturing processes, power generation, forestry, agriculture, tourism and etc.
- Mpumalanga has extensive coal reserves and accounts for 83% of South Africa’s coal production, contributing to an active mining sector.
- It produces close to 90% of South Africa's coal and is home to twelve of South Africa’s coal fired power stations
- The impact of coal-power generation on air quality, and the consequences for the environment and public health, are experienced locally within the province
- Mpumalanga is a province well known globally for its richness in biodiversity which contributes significantly to the provincial economy, particularly through the tourism sector
- At the same time, the province has rich potential in terms of renewable energy from solar, wind and biomass
- Social Dialogues on Pathways for a Just Transition - consist of government, civil society, experts, business and labour (use bottom-up approach engaging communities,
- Focusing on three primary sectors: (challenges and opportunities)
  - energy,
  - land-use and,
  - water.

Mpumalanga Climate Change Mitigation Strategy and Implementation Plan

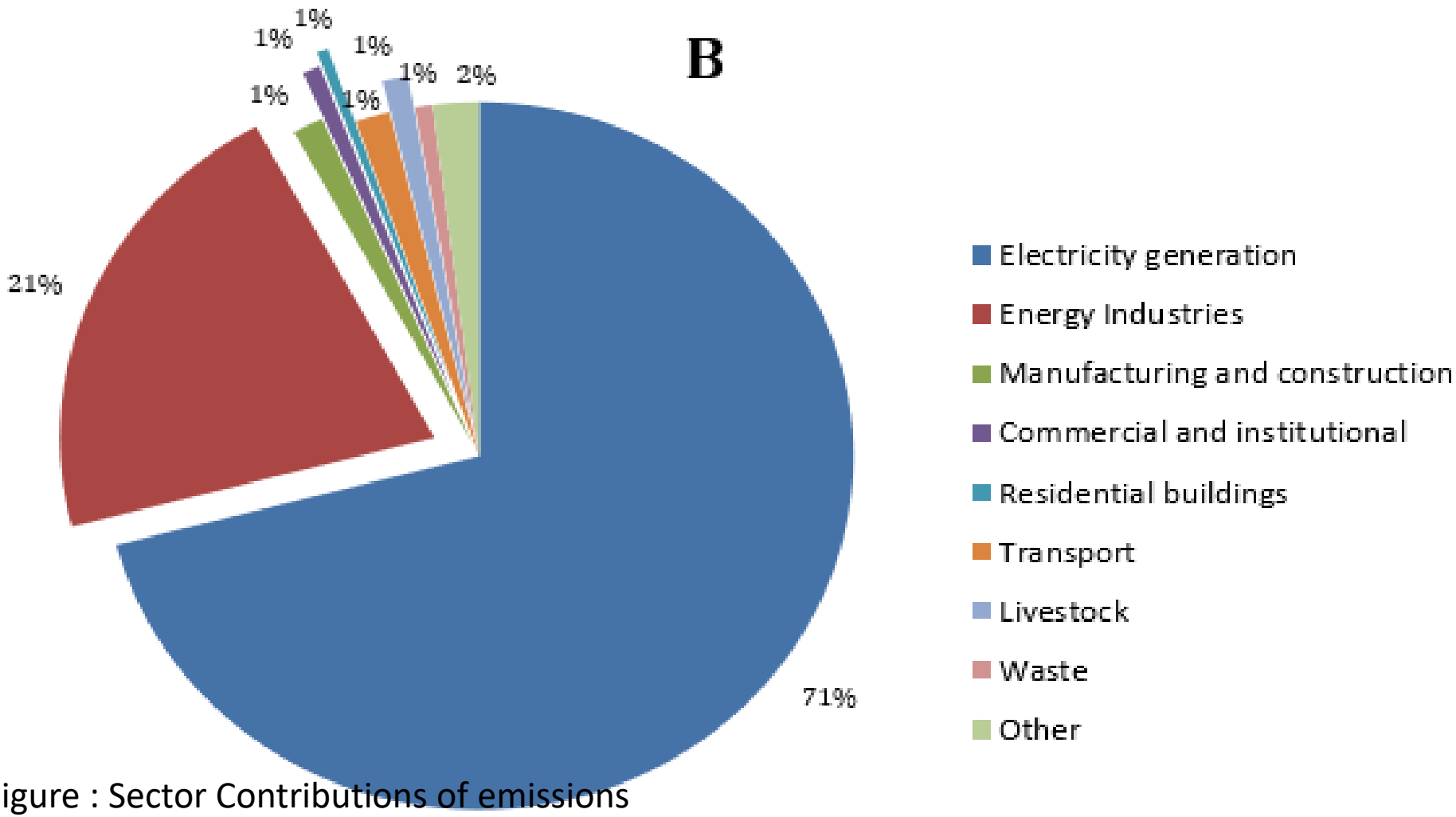


Figure : Sector Contributions of emissions

Mpumalanga Climate Change Mitigation Strategy and Implementation Plan

Goals	Objectives
1. **Green the provincial energy mix**	• Implement renewable energy in small scale embedded generation and "own use" applications • Support the uptake of natural gas and biogas as a cooking fuel and alternative to coal • Promote cleaner energy in transport • Increase uptake of renewable energy technologies across all economic sectors
1. **Improve energy efficiency**	• Implement energy efficiency measures in public buildings and municipal infrastructure • Support energy efficiency in the residential, commercial and industrial sectors
1. **Reduce GHG emissions from fugitive emissions and waste**	• Divert waste from landfill • Capture and flare fugitive methane emissions
1. **Protect and enhance carbon sequestration potential**	• Protect and enhance carbon sequestration while improving food security and rural livelihoods
1. **Build capacity for transitioning to a low carbon economy**	• Build capacity in local government • Raise awareness programme around climate change mitigation

Mpumalanga Green Economy Development Plan (Green economy provincial priorities)

Economic priorities according to MEGDP	Environmental priorities (based on researched activity)
Reduce unemployment	Biodiversity management
Reduce poverty	Waste management
Reduce inequality	Water resources
	Land rehabilitation

MPUMALANGA GREEN ECONOMY DEVELOPMENT PLAN (Green economy provincial priorities)

Biomass

- Generating electricity from bio-mass
- Feasibility study on developing a bio-products industry

Farming for food security

- Support for sustainable small-scale and community farming
- Training in sustainable agricultural practices
- Development of agriculture industry outside of established farming based on Agri-hubs
- Agro-forestry

Towns and urban centres

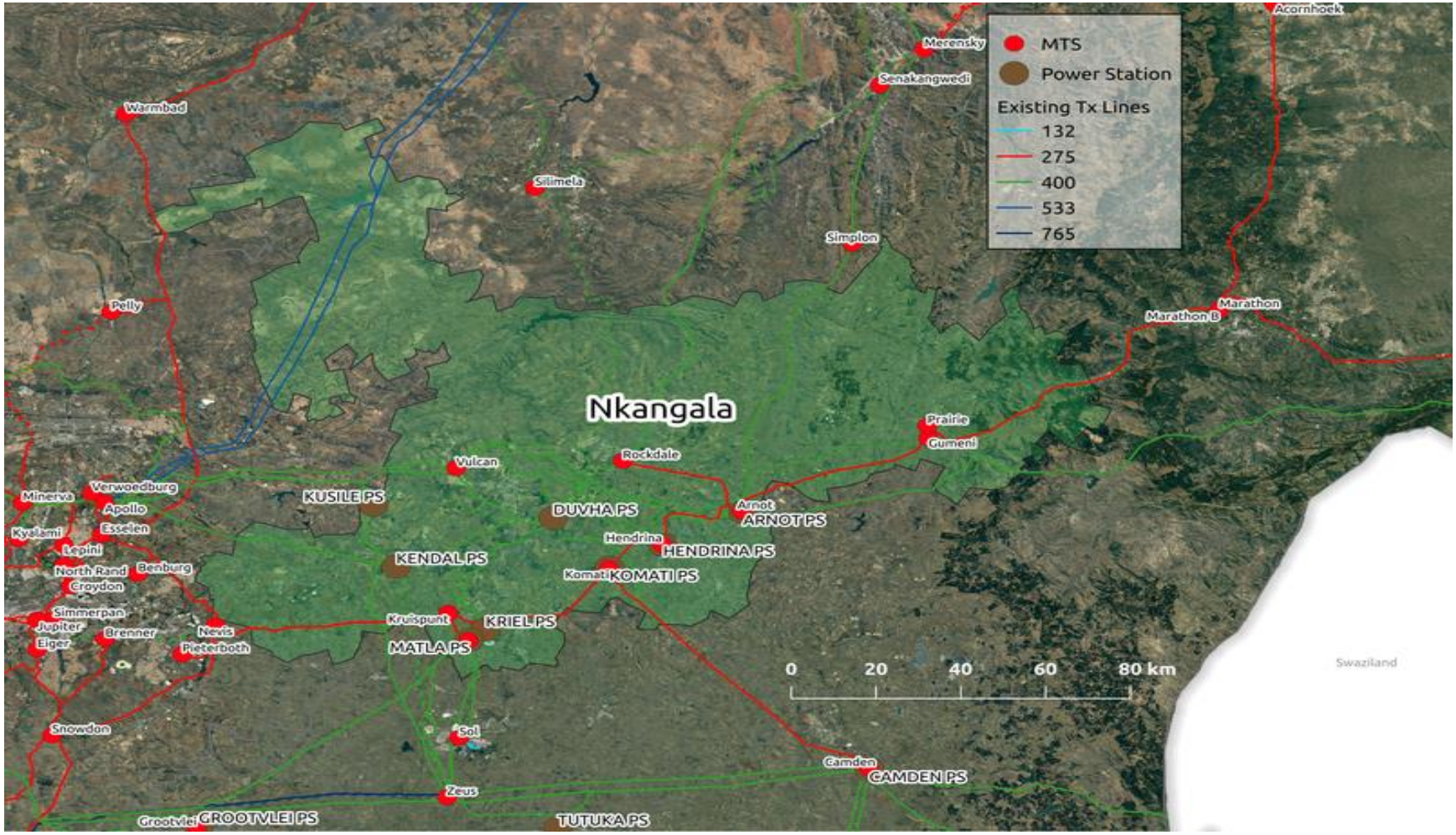
- Waste management
- Generating electricity from landfill waste
- Rollout of solar PV and energy efficiency
- Clean cooking stoves

Sustainable Tourism

- Expansion of eco-tourism and develop PPPs with large, private landowners for tourism initiatives
- Development of small, sustainable enterprise development on protected land

Nkangala District Municipality

Nkangala Economic Baseline Assessment




Early 1985
Ogies
Image Landsat / Copernicus
Google Earth

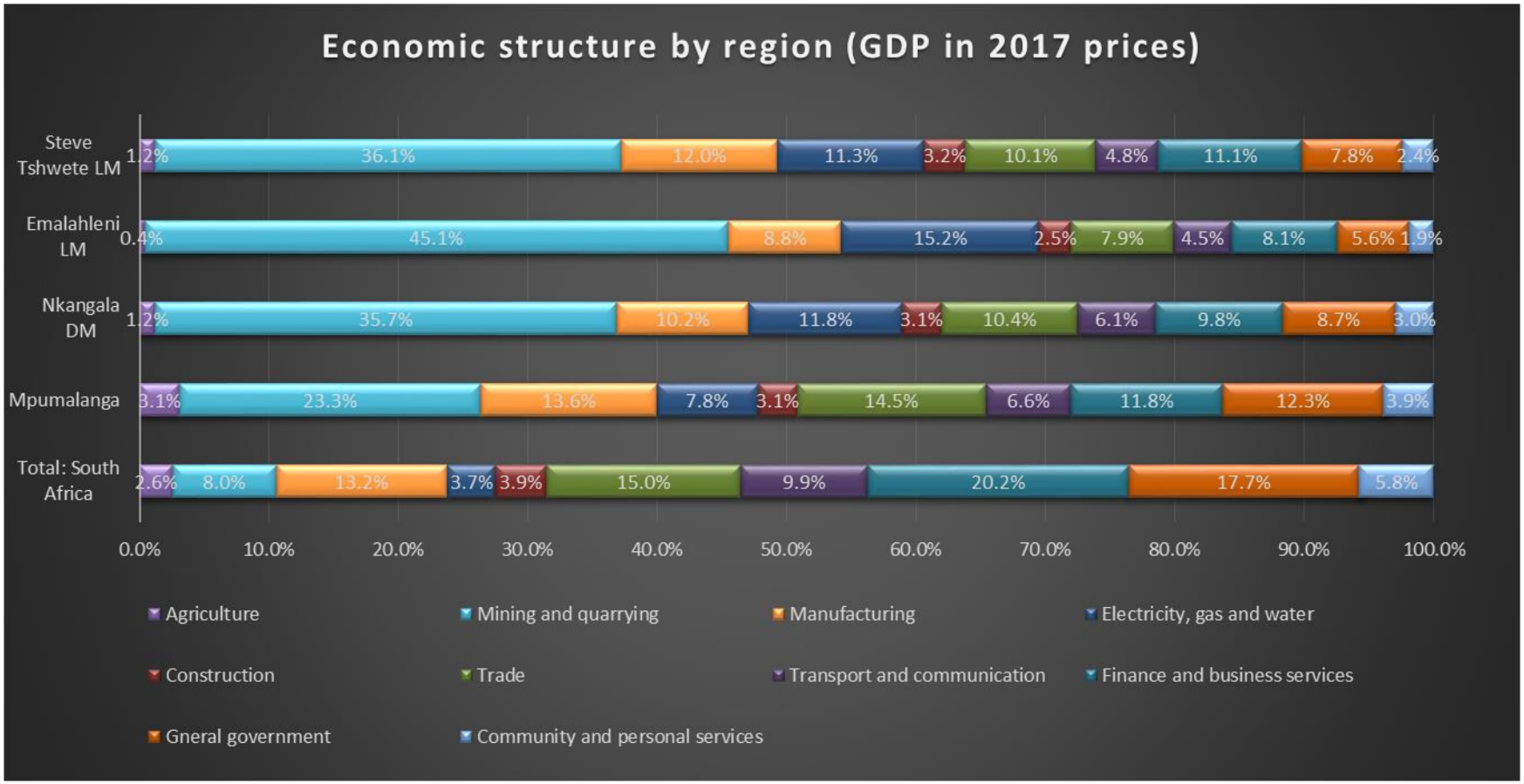

Ogies
Kendal
Image Landsat / Copernicus
Google Earth

Why assess the Nkangala Economic Baseline?

The Nkangala District region is home the bulk of power stations and coal mines in South Africa. This poses a great threat to the regional economy if these stations were to close due to decommissioning

Power station	Technology	Status	Installed capacity MW	Commissioning date	Decommissioning date	Oldest age
Arnot	Coal	existing	2220	**1971-1975**	**2021-2029**	**48 years**
Duvha	Coal	existing	3480	**1980-1984**	**2030-2034**	**39 years**
Hendrina	Coal	existing	1900	**1970-1976**	**2020-2026**	**49 years**
Kendal	Coal	existing	3840	**1988-1992**	**2038-2043**	**31 years**
Komati	Coal	existing	900	**1961-1966**	**2019-2020**	**58 years**
Kriel	Coal	existing	2880	1976-1979	**2026-2029**	**43 years**
Matla	Coal	existing	3480	**1979-1983**	**2029-2033**	**40 years**

Baseline profile for Nkangala District Municipality



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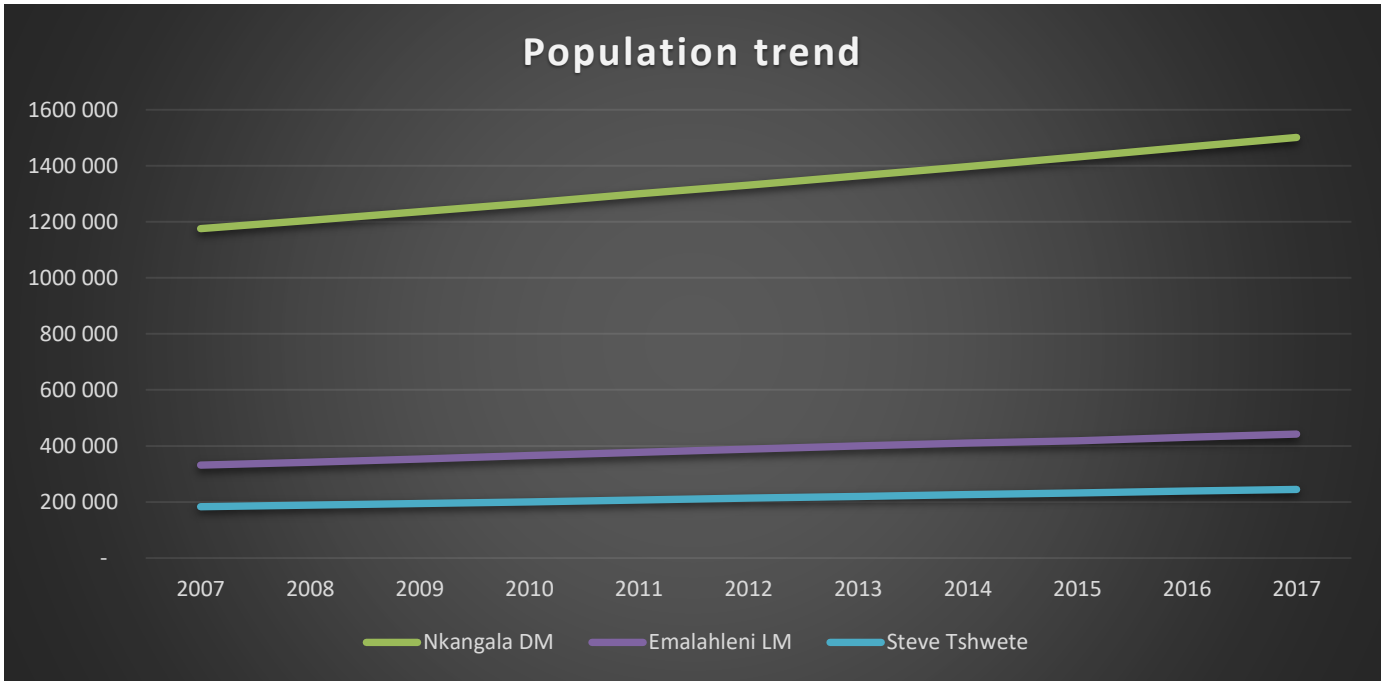
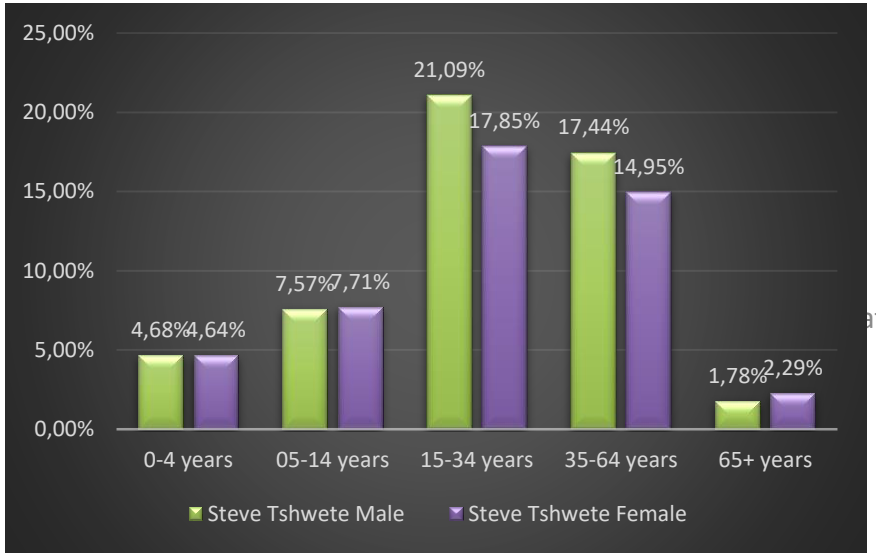


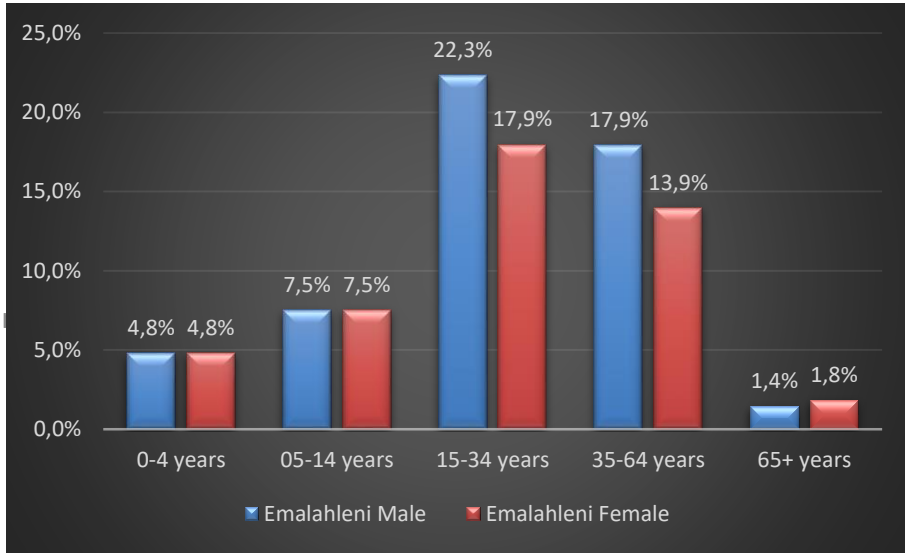
Over 1.5 million people live in the Nkangala District Municipality as of 2017

The district and local municipalities have shown a compound annual growth rate of 2.5% over the period 2007-2017

Baseline profile for Nkangala District Municipality

Demographics





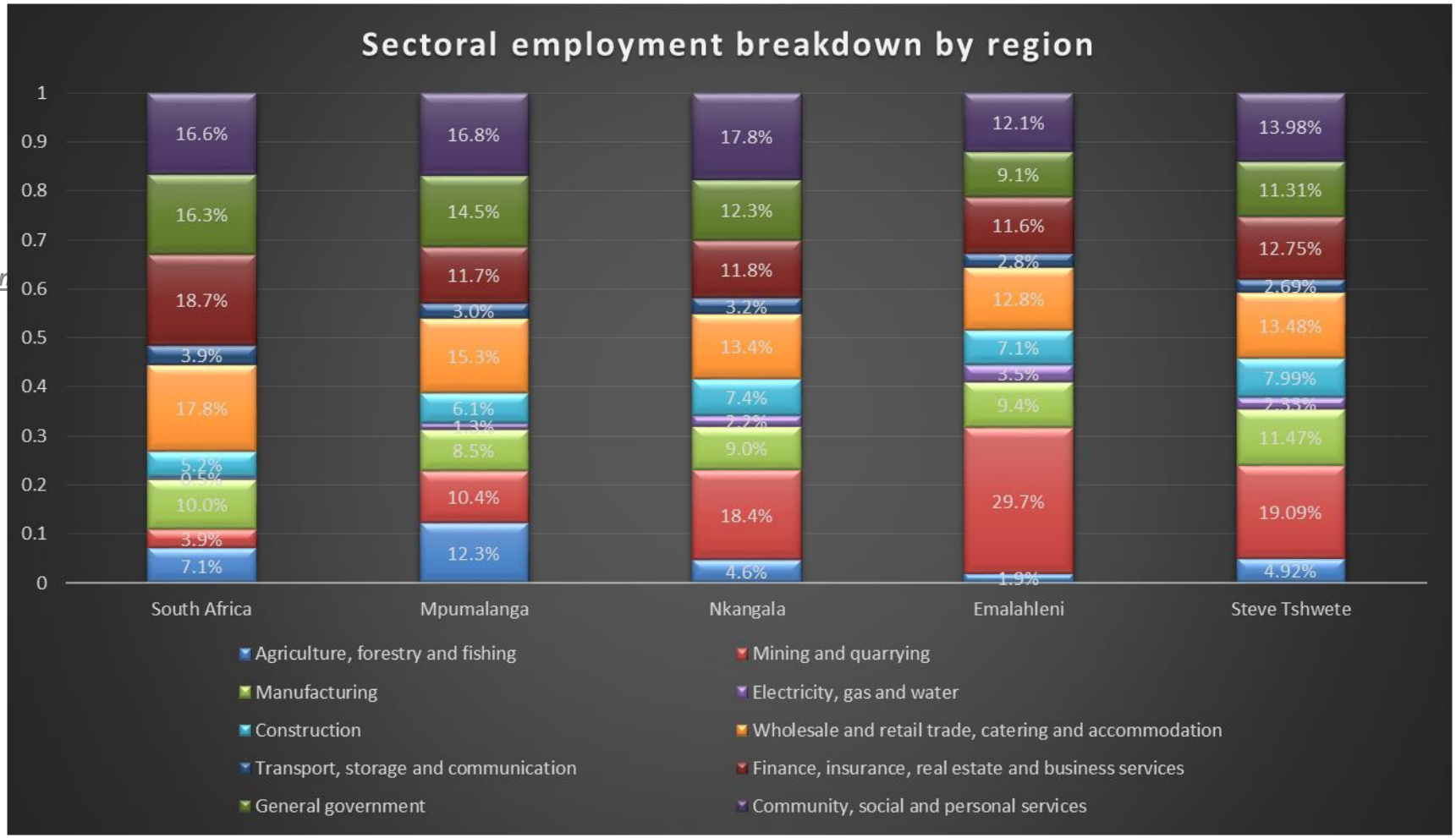
Baseline profile for Nkangala District Municipality

Employment

- ✓ Over 1 million people are of working age and living in the district municipality.
- ✓ About 40% of these individuals are employed in the DM
- ✓ The unemployment rate of the DM stands at 32%
- ✓ The remaining 28% are not economically active
- ✓ The same trend can be seen within the Emalahleni and Steve Tshwete LM's

	Emalahleni	Steve Tshwete
Population: Working age	319 437	174 974
Employed %	49 %	54 %
Not economically active	22 %	25 %
Unemployment rate	29 %	21 %

Baseline profile for Nkangala District Municipality



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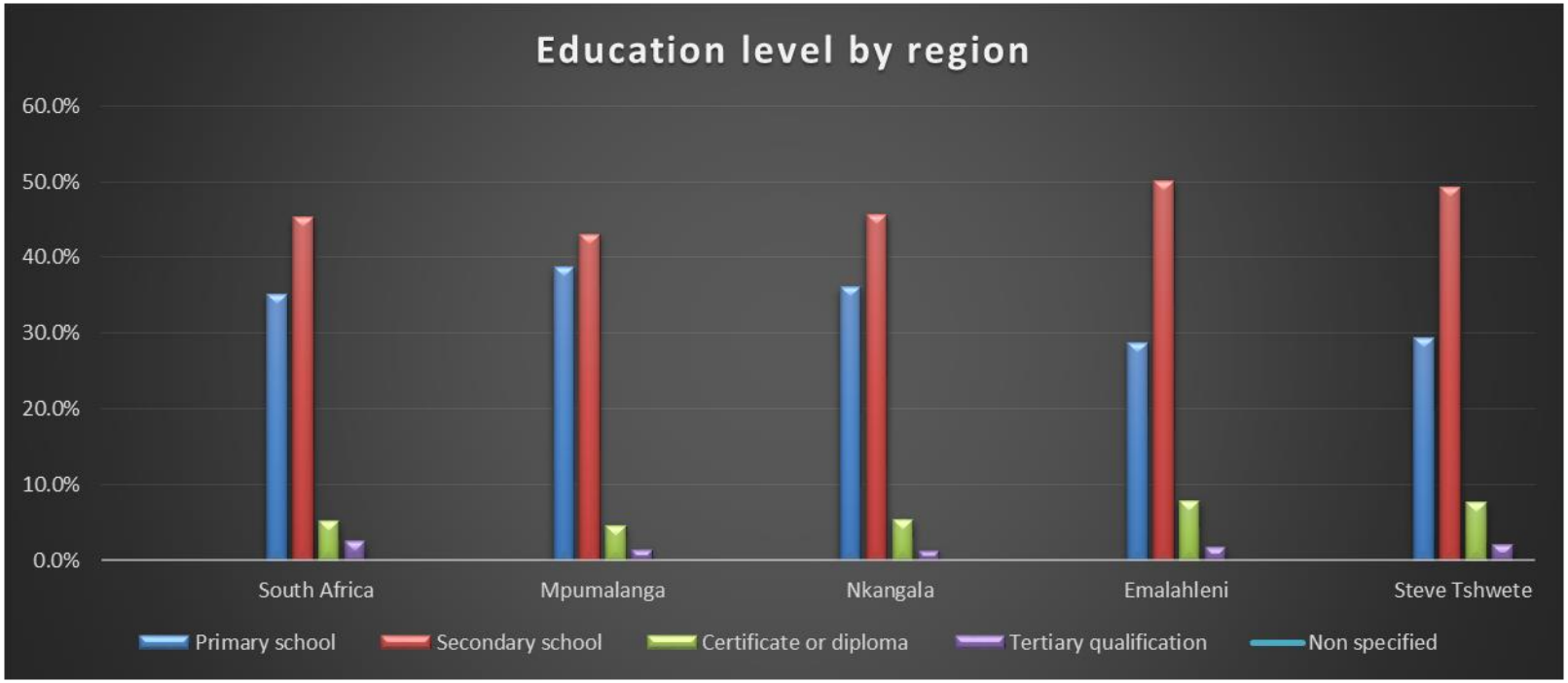
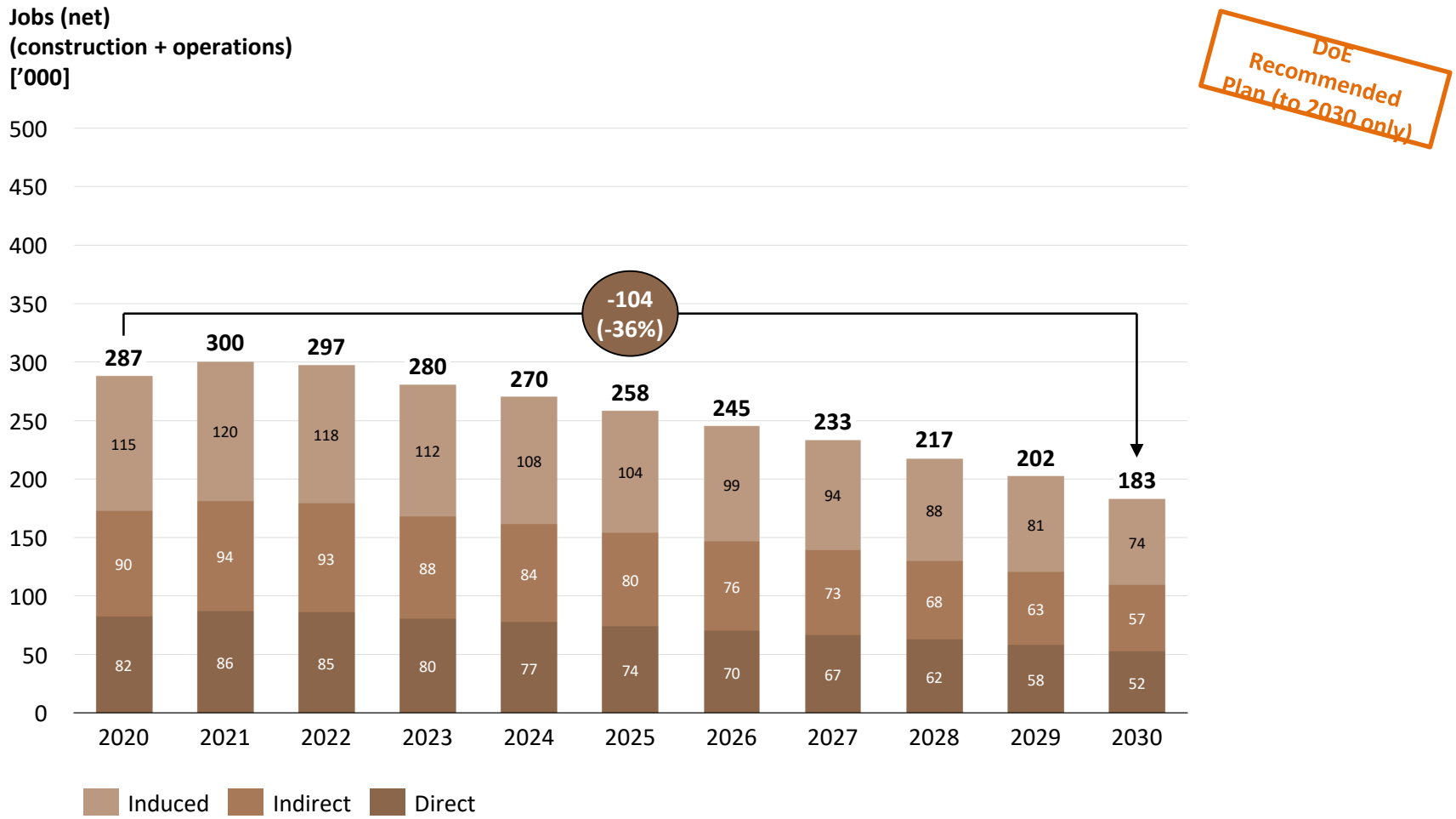


Education

The district and local municipalities have higher levels of secondary and diploma graduates when compared to provincial and national averages

Net job losses in coal overall of ≈100k, direct jobs in coal shifting from ≈80k in 2016 to ≈50k by 2030



Sources: Draft IRP 2018; CSIR Energy Centre analysis
Note: Job potential includes direct, indirect and induced jobs

STUDY TOUR TO EUROPE

Lessons learnt -applicable to the province for Coal Regions in Just Transition

Purpose of the Study Tour

- Initiative by the EU Commission's SPIPA (Strategic Partnerships for the Implementation of the Paris Agreement) Programme and GIZ South Africa
- To exchange experiences and best practices/technologies in the “Just Transition” of Coal Regions (energy, water, land use) in relations to Climate Change
- Develop understanding on how nations in the European Union are addressing the just energy transition of coal regions over the last 25 years.
- The end results is a knowledge exchange that could benefits South African and European regional economies and create partnerships between all entities involved
- A learning exercise and a platform of exchange ideas with other like minded stakeholders from different parts of the globe and attending Climate Opportunity Conference 2019 and Working Group on Just Transition for Coal Regions.

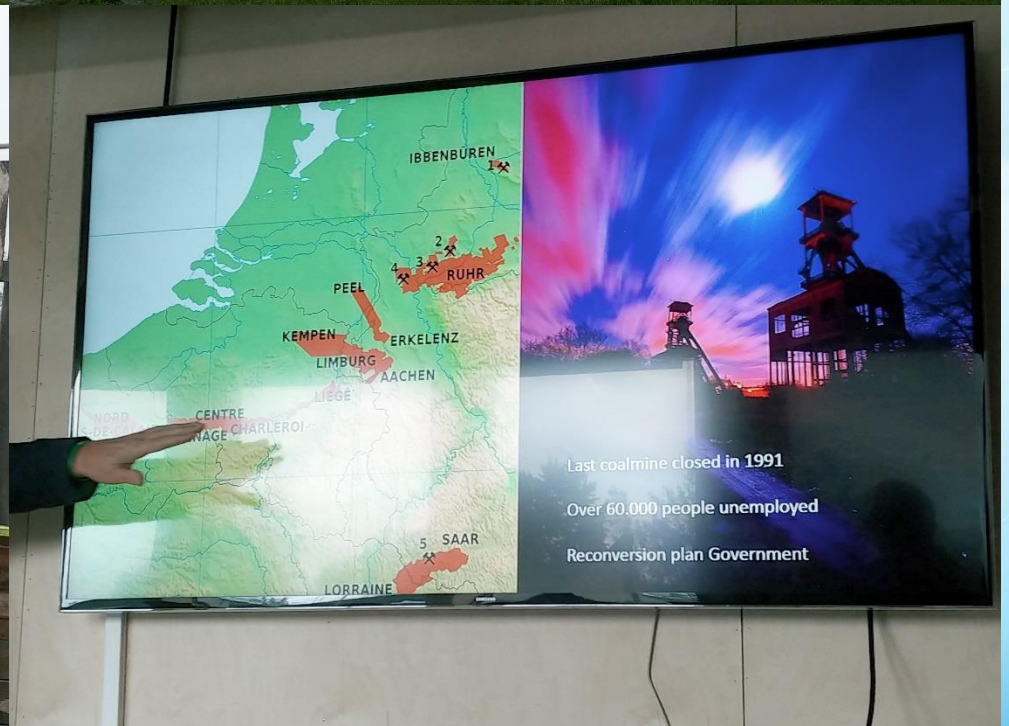
Germany, Lusatian Coal Fields (Visit to F60 Conveyor Bridge)

- The F60 conveyor bridge in Lictherfeld is a colossal, 350m long and 80m high structure and a vivid testimony to the German industrial heritage
- It has been transformed into a multi-sector area that aims to celebrate Germany industrial heritage by turning the structure itself into a tourist attraction and deploying future technologies in the immediate area to offset losses
- Stimulated sectors include:
  - RE deployment
  - Tourism (Lake, Camping, Concerts)
  - Conservation
- Employment levels are still very low in comparison but due to specific reason


LMBV
F 60
Oberer Hauptförderer
Zwischenförderer
Unterer Hauptförderer
Bockkran
Es 3750
Brückenquerförderer
Es 3750
SRs 1301
Kohlebandanlage

Kempen & Maasland Regional Landschap

- After closer of seven coal mines 60000 job losses,
- The local NGO's design reconversion plan with communities (by converting the area into National Parks with six entrance gate with different themes called Climate Change and Ecosystem Reconnection Model in investing on Natural Assets
- 150000 visitors annually costing 3Euro per person).
- Linked with University Ecotron Hasselt created 5000 jobs in Tour Guide, Research Facility, Cycling, Horse Riding, Trailing, Bird Watching, Canoeing, Resturanrts, Camping, Shopping, Rain Water Harvesting, Renewable Energy, Cable Skii and etc


IBBENBÜREN
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RUHR
PEEL
KEMPEN
ERKELENZ
LIMBURG
AACHEN
LIEGE
CENTRE
CHARLEROI
5
SAAR
LORRAINE
Last coalmine closed in 1991
Over 60.000 people unemployed
Reconversion plan Government


61

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Poland, Bogatynia (Visit to Kluster)

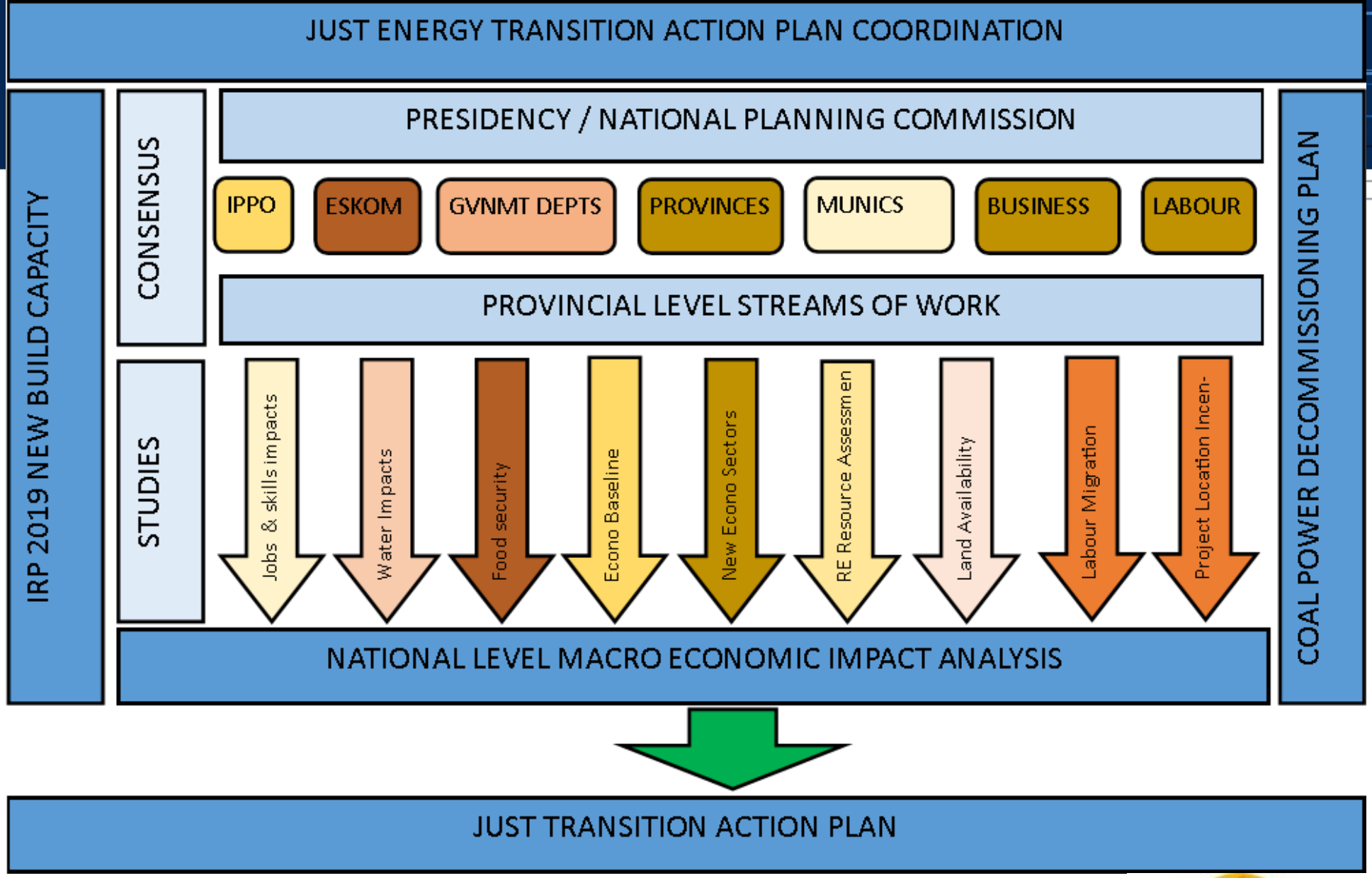
- Klaster is a regional incubator that aims to deploy and develop integrated regional systems that reduce regional economies dependence on the states utility whilst offsetting regional economic and socio-economic losses due to coal decommissioning.

The Europeans countries were in the same status quo as MP to be affected by decommissioning of Coal Mining that lead to huge number of Job losses but they:

- Capitalized on Historical Assets to rebuild their economy
- Converted Historical areas to tourism facilities and shopping centres
- Converted Closed Mines into Tourist and Recreation Facilities e.g. creating National Parks with different indigenous species
- Incentivize mine workers into business entrepreneurs
- Promote renewable energy and energy efficiency to reduce the amount of GHG emissions to the atmosphere
- Mobilizing communities to set economic agendas on economy diversification (ownership - bottom-up approach)
- Establishing Commissions to deal with Coal Just Transition by developing and aligning policies with creative-mentality
- Create Just Transition Fund to assist struggling Coal Regions
- Strengthen partnerships and cooperation with other stakeholders (adopting best technology and innovation practices)

Challenges on Energy Transition

- ✓ Losses on Region Economic activities
- ✓ Losses in jobs and opportunities in mining and power sectors
- ✓ Labour migration
- ✓ Negative socio-economic impacts
- ✓ Loses of existing skills and lack skills required for new industry
- ✓ Lack of change of policies to include Renewables
- ✓ Limited Economic Diversification



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THANK YOU
DANKIE
REA LEBOHA

HI NKHENSILE
SIYATHOKOZA
SIYABONGA

NDOLIVHUAA
ENKOSI

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Sources:

CSIR Analysis
Mpumalanga Analysis

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