

Estimating the cost of a just transition in South Africa's coal sector: protecting workers, stimulating regional development and accelerating a low-carbon transition

Michelle Cruywagen, Megan Davies and Mark Swilling

Centre for Complex Systems in Transition, Stellenbosch University, Stellenbosch, South Africa



Introduction

- SA's IRP (2019) commits to a decarbonisation pathway
- Hinges on decommissioning of coal & rapid uptake of RE
- What will the cost of the just transition from coal be?
- How can transformation of SA political economy be accelerated?
- Propose a methodology to estimate the cost of a just transition

Methodology

- First empirical, quantitative study
- Adapted a model by Pollin & Callaci (2019) to calculate
 1. Compensation
 2. Retraining
 3. Relocation
 4. Rehabilitation & Regional Development

Data

- Age breakdown
- Skills levels
- Education
- Salary
- Labour sending areas
- Pension Data
 - Contributions received
 - Investment Income
 - Benefits Paid
 - Surpluses

Sources

1. National labour data
2. Survey sent to coal companies
3. Companies' Social & Labour Plans
4. MPF Annual Report

Applied a 20-year cost framework that identifies **attrition** rates (i.e. natural retirement) and coal sector **contraction** rates that protect coal workers' livelihoods under various scenarios.

Attrition by retirement and job losses: SA coal workers (over 20 years)

		High Attrition Scenario one	IRP Decommissioning Scenario two
a	Contraction rate	43%	75%
b	Current employed total	82 248	82 248
c	Job losses over 20-year transition	35 367	61 686
d	Average job loss p.a.	1 769	3 085
e	Workers between 45 and 65 (35%)	28 787	28 787
f	Workers per year reaching 65	1 439	1 439
g	Workers u/45 p.a. req. re-employment	330	1 646
h	Total u/45 req. re-employment/20 yrs.	6 600	32 920
i	Attrition as a % of job losses	82%	46%

(Source: Employment data: Minerals Council; Age profile: Mining Qualifications Authority & TIPS)

Using the data from Table 1, it is possible to calculate the cost of a just transition for coal workers in South Africa. The CST research estimates the annualised, and total cost, of a just transition in South Africa over a 20-year period.

Cost (R) of a Just Transition in SA's coal sector (over 20 years)

Costs	High attrition Scenario (Total)	High attrition pa	Decommission Scenario (Total)	Decommission Scenario pa
Compensation	1 200 000 000	60 000 000	6 000 000 000	300 000 000
Retraining	621 000 000	31 050 000	3 200 000 000	160 000 000
Relocation	100 000 000	5 000 000	500 000 000	25 000 000
LED/Rehabilitation	4 000 000 000	200 000 000	6 000 000 000	300 000 000
	5 921 000 000/6bn	296 050 000/300m	15 700 000 000/16bn	785 000 000

(Source: Application by authors)

Compensation

Coal workers' salary minus green economy salary i.e.

$$R23\ 000 - R20\ 000 = R3\ 000 \times 12\ \text{months}$$

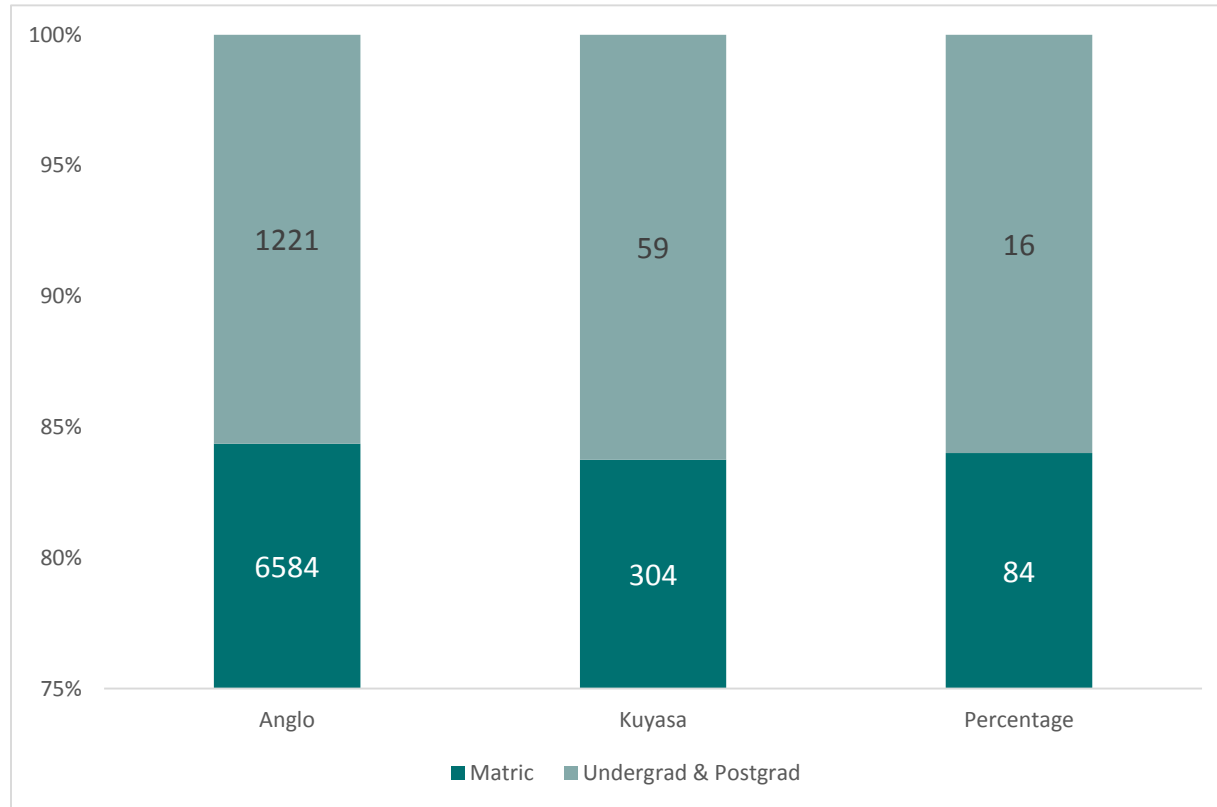
$$= R36\ 000 \times 330\ \text{workers} \times 5\ \text{years} = R1.2\text{bn}$$

Retraining Costs

Total workers	Workers pa	%	Type of Course	Cost	Total Cost
1 056	53	16	Already have degrees. Retraining/Top-up: e.g. Hydraulics, Geography	R40 000	R43m
3 564	178	54	Degree	R140 000	499m
1 320	66	20	Vocational	R50 000	66m
660	33	10	Solar/Wind Turbine Technician	R20 000	13m
6 600	330	100			R621m/31m pa

(Source: Application by authors)

Coal workers education profile

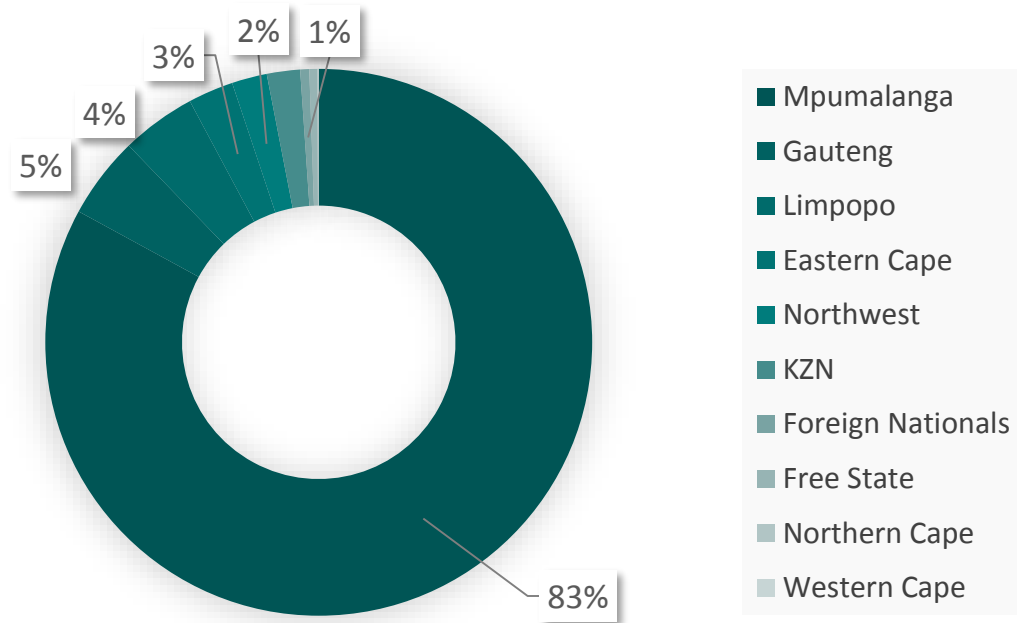


(Source: Anglo SLP, Kuyasa Scoping Survey)

Relocation

Relocation costs were based on one month's rent, travel costs and sundries like legal costs for a lease averaged at R15 000 X 6 600. Not all workers will need to relocate which will accommodate variances in the average cost.

Labour sending areas



(Source: Social and Labour Plans: Kuyasa 2016, BHP 2012 & Xtrata 2009-2013. n=4326)

Regional development and rehabilitation

- Further research is required to calculate this cost more accurately (lack of transparency)
- Distinguish between rehabilitation, land reclamation and regional development and to further define these concepts in more detail.
- Estimate based on investment in Special Economic Zones (SEZs) in SA. Estimates for rehabilitation and regional development costs in other countries were also used.
- Government/industry will need to stimulate local economic development through pvt-public partnerships.
- While supportive attrition-based just transition approaches would likely increase income protection for coal workers, complementary sequenced sectoral and regional development strategies have proven to be effective ways to stimulate job creation.

Discussion

- It is imperative costs are planned for in SA's just transition plans
- Research sheds light on the extent of the costs involved helps shape the strategies
- This model has the potential to be deepened and extended across the energy sector at large
- Globally a just transition administered innovative institutional and financial arrangements facilitated by national government
- High-level buy-in and leadership is essential to unlock resources and enforce punitive measures to advance the energy transition

Conclusion

- Correlating decommissioning with attrition indispensable part of unlocking a just transition.
- A just transition in South Africa is going to have associated costs
- ‘No jobs on a dead planet’
- Lowest cost energy future relies finalisation just transition plan
- Costing critical juncture in SA’s future

References

- Anglo Coal. 2019. Mining & Social Labour Plans. Accessed March 2019.
- BHP Social & Labour Plan. 2019. [Online] Available: http://www.jaws.co.za/uploads/PPDocs/E812_Wolvekrans%20%20DEIR/13_SLP.pdf
- CER. 2019. Full Disclosure: The truth about mining rehabilitation in South Africa. [Online] Available: <https://fulldisclosure.cer.org.za/>
- CER. 2019. Integrated Resource Plan 2019. [Online] Available: https://cer.org.za/wp-content/uploads/2019/10/IRP-2019_corrected-as-gazetted.pdf
- Kuyasa Coal. 2019. Just Transition Scoping Survey Questionnaire.
- Minerals Council. 2019. Coal: Key Facts and Figures. [Online] Available: <https://www.mineralscouncil.org.za/sa-mining/coal>
- MQA. 2019. Annual Report 2017-2018. [Online] Available: <https://www.mqa.org.za/annual-reports>
- Pollin, R., & Callaci, B. 2019. The Economics of Just Transition: A Framework for Supporting Fossil Fuel-Dependent Workers and Communities in the United States. *Labor Studies Journal* 44(2):93-138 [Online] Available: <https://journals.sagepub.com/doi/abs/10.1177/0160449X18787051>
- TIPS. 2019. Industrial Policies for a Just Transition in SA's energy sector. Personal Interview.

Additional Slides

A just transition must be aligned with our culture. A system to which our people can easily adapt.

Patrick Mathebane, trade unionist, NUM. 2019



Source: [globalcitizen.org](https://www.globalcitizen.org). Amina Shamata, a teacher at Barefoot College, Zanzibar, installs a solar light in a home in Kanyasini Bondini village)

Hungry air is clean air

“We are in a catch 22 situation because when the mine is operating, we could die and when the mine is not working people die”.

“My son was forced to come home from school early and the biggest problem was that I couldn’t even afford to get him proper medicine”.

“Give us better jobs that are clean that we are free from pollution that we are free from sicknesses that we are free from any kind of disease”.



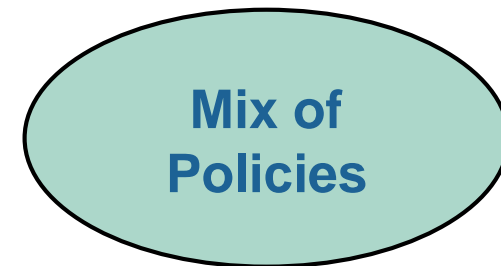
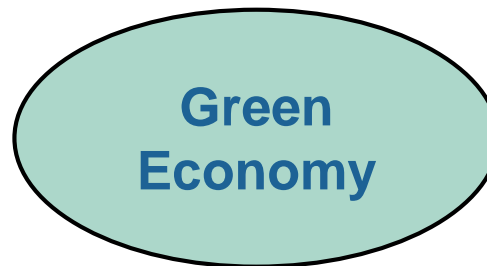
Pro Fossil Fuel

*“We’ve got a lot of coal, we’re a coal-producing country
we could be the Kings of the coal in the world!”*

CEO Mining Company. 2019

**Framework:
2015 ILO
Guidelines for a
Just Transition**

- (1) **Greening of economies** requires a coherent country-specific mix of macroeconomic, industrial, sectoral and labour **policies**. The aim is to generate **decent jobs** along the **entire supply chain** with employment opportunities on a wide scale



Guidelines for a JT towards environmentally sustainable economies and societies for all (ILO 2015)

**Framework:
2015 ILO
Guidelines on a
Just Transition**

(2) As the challenge cuts across several domains, sustainable development needs to be addressed across all policy fields in a coherent manner. For such a policy framework, **institutional arrangements are needed to ensure the participation of all the relevant stakeholders at all levels**



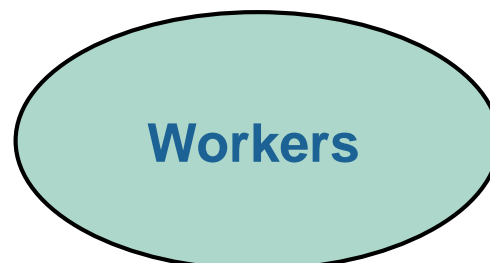
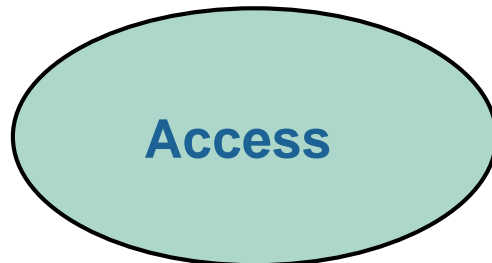
Institutions



Policy

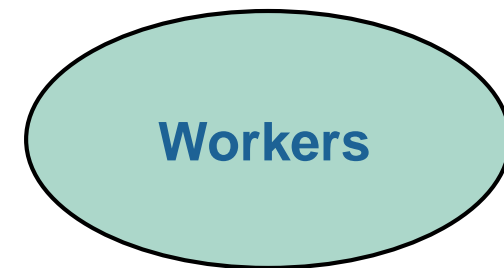
Newell & Mulvaney

energy **access** for those who do not have it; justice for those who **work** within and are affected by the fossil fuel economy; and attempts to manage the potential contradictions that might flow from pursuing energy and **climate justice** simultaneously (Newell & Mulvaney 2012)



**Tony Mazzocci
Labour Union
Leader**

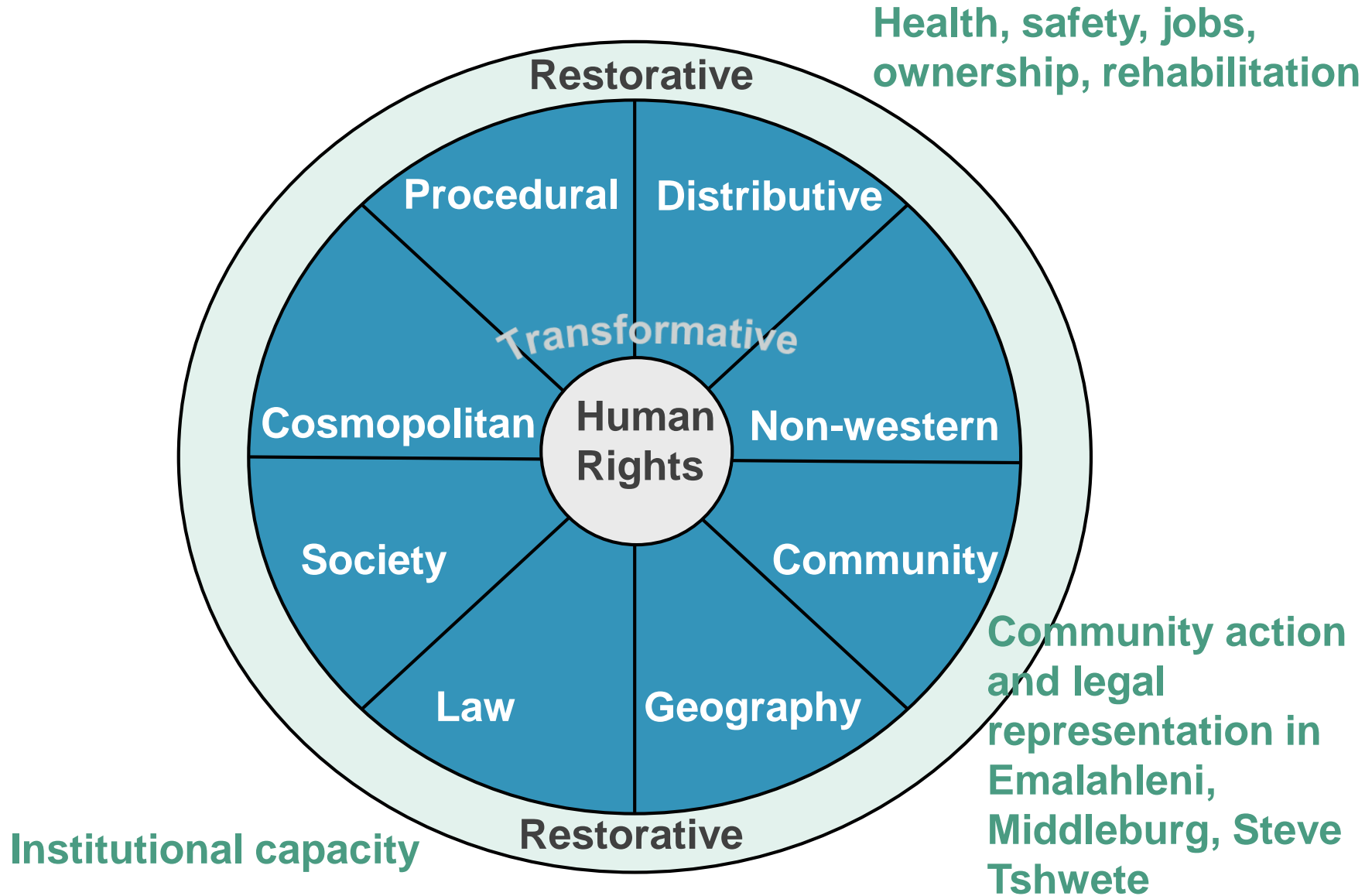
**“Those who work with toxic materials on a daily basis in order to provide the world with the energy and the materials it needs deserve a helping hand to make a new start in life”
(Pollin & Callaci 2019:94).**



Decent Work

opportunities for work that are productive and deliver a **fair income**, security in the workplace and **social protection** for families, better prospects for **personal development** and social integration, freedom for people to express their concerns, organise and **participate** in decisions that affect their lives and equality of opportunity and treatment for all **women** and men (ILO 2019).

Conceptual dimensions of a Just Transition



Heffron & McCauley 2018

SDG's



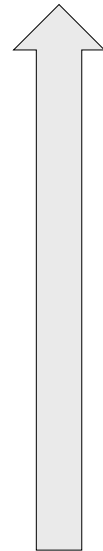
Analysis of just transitions by country

Country	Main 'protection' measures	Differentiator	Analysis
Germany	Early retirement (5 years), reskilling	Knowledge-based	Successful
Australia	Job creation, regional dev, reskilling	Local governance	Partial success
Canada	Sector conversion, diversification	High level buy-in	Partial success
Netherlands	Bridge to retirement, re-employment	Regional conversion	Partial success
Spain	Early retirement, infrastructure investment	Managed phase out	Partial success
UK	Redundancy, early access to pension	Carbon tax	Unsuccessful
Poland	High/lower once off conditional payment	Nuanced packages	Unsuccessful
Ukraine	Redundancy payments, retraining, SEZs	Support each mine	Unsuccessful
India	Green jobs training, decentralised RE	RE leader	Contradictory
China	Budgeted for transition, investing in coal	Plural, scale	Contradictory
US	Trump derailed workers' support plan	Unjust	Unmanaged

Just Transition Job Protection Spectrum

Support Measure

Attrition/natural retirement
Bridge to retirement
Early retirement 5 years
Early retirement > 5 years
Low once off payment
High once off payment
Redundancy



Impact SA (Global South)



Impact Global North

