INFLUENCING A JUST TRANSITION

in the mining sector in Sub-Saharan Africa

industri all
global union

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Glossary

CAD - Canadian Dollars
CFMMEU - Construction, Forestry, Maritime, Mining and Energy Union
CLF - Climate Investment Funds
COMESA - Common Market for Eastern and Southern Africa
COP- Conference of Parties
CSR - Corporate Social Responsibility
DRC- Democratic Republic of the Congo
FDI - Foreign Direct Investment
GDP - Gross Domestic Product
GW - Gigawatt
IEA -International Energy Agency
IEJ - Institute for Economic Justice
IFI - International Financial Institution
ILO - International Labour Organization
IMF - International Monetary Fund
JETP - Just Energy Transition Partnership
MBEMA - Mberengwa Miners Associations
MDB - Multilateral Development Banks
MUZ - Mineworkers Union of Zambia
MW – Megawatts
NDC - National Determined Contribution
NEC - National Employment Council
NEDLAC - National Economic Development and Labour Council
NGO - Non-government Organisations
NO2 - Nitrogen Dioxide
NUMSA - National Union of Metalworkers of South Africa
PCC - Presidential Climate Commission
PPE - Personal Protective Equipment
REIPPP - Renewable Energy Independent Power Producer Program
SEWA - Self Employed Women's Association
SO2 - Sulphur Dioxide
SOEs – State Owned Enterprises
UNDP - United Nations Development Programme
UNEP - United Nations Environment Programme
UNFCCC - United Nations Framework Convention on Climate Change
USD – United States Dollar
WEO - World Energy Outlook
WWF - World Wildlife Fund
ZDAMWU - Zimbabwe Diamond and Allied Minerals Workers Union
ZMW – Zambian Kwacha
ZWMA - Zvishavane Women's Mining Association

Introduction

This research report focuses upon manifestations and understandings of the Just Transition in Southern and Central Africa. It details the evolution of the term and describes how it manifests in discourse and policy in South Africa, Zimbabwe, Zambia, and the Democratic Republic of the Congo (DRC). The report relies heavily on secondary data – government documents and industry reports – these are complemented by 30 interviews with civil society and company representatives (Zambia and South Africa), government consultants (South Africa) and unionists (South Africa, Zambia, and Zimbabwe). The researchers also attended the Just Energy Transition Partnership task force meeting, the Mpumalanga Provincial Stakeholders training on developing Climate Change Information Systems and Consultative Workshop for the Conceptualisation of Indigenous Knowledge Systems and the Presidential Climate Commission Skills for a Just Transition Indaba. In some cases, the exact details of the interview respondent have been deliberately obfuscated, however where key decision makers have agreed to provide quotes, they have been identified. Due to rapid changes within mining systems, this report relies more heavily on media sources than would be ideal. The large number of these sources serves to triangulate their data.

This document does not provide a normative understanding of what the Just Transition should be, nor how unions and union confederations should organise for one. IndustriALL Global Union has recently published at least two excellent documents on these subjects in the energy sector, as have its Southern African union partners (see appendix). Rather the report serves as a baseline study. It describes how activities associated with the term 'Just Transition' are manifesting in South Africa, Zambia, Zimbabwe, and the DRC. It also provides details about each nation's coal industry and one transition metal in each country.

Executive Summary

Key points:

- **There will be a transition within the global energy system.**
- **Broadly this transition will involve a lessening of coal mining and an increase in the mining of transition minerals.**
- **This process has the potential to do significant harm to coal miners if it is not managed properly.**
- **While it also offers opportunities to miners in transition minerals these opportunities come with hurdles:**
    - **A rapid increase in production can encourage reducing labour standards (e.g., DRC and Zimbabwe)**
    - **Heavily mechanised new mines often rely on fewer, un-unionised workers (e.g., Zambia)**
    - **Just Transition advocates often promise that their proposed transitions will create more jobs than they cost, however the promised jobs are often non-permanent (construction of solar panels); of a lower quality (retrenched miners reframed as agricultural workers) or may only appear a long-time after the end of the coal industry (e.g. a transition to platinum in South Africa).**
- **The 'Just Transition' serves as a 'boundary term' that links different concepts of justice while obfuscating differing best interests.**
- **Common concerns for unions within existing utilisations of the term 'Just Transition' include advocacy for increased privation and the way that the terminology ignores intra-and-international inequalities.**

There will be a transition within the global energy system. Broadly, this transition will involve a reduction in new coal projects, and to a lesser extent the replacement of existing coal assets with renewable energy sources. This transition will be partial and unequal, Global North nations are likely to continue to use coal when it suits their intra-or-international interests and powerful Global South nations, most notably India, plan on increasing their intra-national coal production and utilisation. However, coal miners and power producers in South Africa, Zimbabwe, Zambia, and the DRC will face challenges to their livelihoods. Donor dependency means that they have less control over their electrification systems than other nations, and there are significant pushes against the funding of new coal-fired power and state-controlled electrification.

The transition to renewable energy also offers significant potential benefits to miners and their unions in each of the Southern and Central African nations studied.

Africa, and particularly South Africa, Zambia, Zimbabwe, and the DRC, have substantive reserves of some of the minerals that are expected to develop importance as the global energy system becomes renewable. However, there are significant risks for workers and nations as the energy economy changes. Many transition minerals fluctuate rapidly in value and there are attempts to reduce the use of some of them, most notably cobalt. Key challenges for unions surrounding these new mining include that high prices have encouraged the artisanal mining of some minerals (cobalt and lithium); while other minerals (nickel) are extracted through highly mechanised mines, which employ fewer workers.

> ***"In the context of the mining transition, the 'Just Transition' serves as a boundary term, linking disparate groups with a broad interest in environmental and social justice, while obfuscating disagreements and inequalities of power within and between these groups. The term Just Transition evolved from the labour movement's focus on supporting workers and communities that were negatively impacted by the phasing out of high emission industries and technologies.***

People now use the term Just Transitions to invoke myriad definitions provided by unions, industry, international financial institutions, and Non-government Organisations (NGOs). South Africa and Zimbabwe invoke the Just Transition in their National Determined Contribution (NDC), while governments including the DRC incorporate the language of 'fair share', where some of their carbon reductions are contingent on international assistance. Each of these definitions offer differing emphases and meanings of 'justice'. While some definitions place workers at their centre and emphasize holistic social change, many understandings of the Just Transition argue for 'Green Capitalism, where the private sector uses technological innovation to counter climate change (often simultaneously demanding reduced oversite and increased privatisation in electricity production and distribution), other definitions prioritise environmental concerns over workers' experiences (often falsely homogenising 'the community' and 'the environment').

There are common injustices hidden within Just Transition discourse. The most obvious of these is that intranational Just Transitions in Africa ignore how little African nations have historically contributed to climate change. Further, the impact of climate change on each of the nations studied will be primarily determined by the actions of Global North nations and rapidly industrialising, heavily populated nations in the Global South. Considering several Global North nations' reopening or extending of the lives of their coal mines, African nations have good reason to be concerned about the initial sacrifices involved in the Just Transition, even if substantial benefits are promised for the future.

There are good reasons for Global South nations to be reducing their carbon emissions and to be concerned about local environmental pollution associated with coal. However, these emission reductions need to be planned in a manner that challenges intra-and-international inequalities. Currently, Just Transitions, and fair share mechanisms, primarily conceptualise the Global North and intra-national elites contributing through aid and taxation. Ambitious definitions of the Just Transition, including those associated with unions often call for a more radical transition. Instead of the Global North providing concessional finance, or even tied aid, Just Transition language could be used to argue for unconditional debt cancellation; rather than pro-market mechanisms, where the intellectual property of renewable energy remains in the Global North, and with national elites, a Just Transition could involve freely transferring carbon reduction technologies to public services in the Global South. Finally, not all carbon emissions are equally necessary, and a Just Transition could prioritise the reduction of 'lifestyle emissions' over those necessary for subsistence and seek enforceable demands for at least equivalent reductions from Global North nations. However, as we show in the section on 'inequalities within any transition' calls for more radical justice have rarely been involved in mainstream Just Transitions and Just Transition projects are structurally disincentivised to respond to international inequalities.

Just Transition programs have often viewed gender in an unsophisticated manner. Advocates of coal mine closure claim (accurately) that women suffer disproportionately from local pollution and use this to justify their calls for rapid decarbonisation. Many Just Transition programs focus primarily on formal sector miners, who are more likely to be male, without considering a transition's implications for informal and semi-formal workers, who are more likely to be female. In practice, the gendered impacts of any Just Transition reflect gender dynamics within the nation and within the sector. Gender balances across mining industries and associated livelihood activities vary (with the caveat that higher-paid, more prestigious work will primarily be captured by men), unionisation rates are crucial for ensuring women's protection within a workplace and while women bear the brunt of mine-associated local pollution, they are also disproportionately affected by a lack of electricity. To ensure nuance in its engagement with the gendered elements of the Just Transition, this report will explore gendered effects in its description of each nation's transition.

Country Summaries

Key points

South Africa's engagement with the Just Transition is significantly deeper than almost all other nations.

- South Africa signed the first Just Energy Transition Partnership (JETP) in 2021, an agreement with donor nations for 8.5billion USD in funding, but only 3 per cent of this is grants.
- All donors push South Africa for vastly more private provisioning of electricity and for 'market pricing'.
- South Africa's coal industry provides over 100,000 direct jobs, which are well paid, unionised and primarily in the Mpumalanga region.
- Platinum allegedly has the potential to provide 380,000 jobs. However, these will arrive after the closure of the coal mines. Miners and mining communities are distrustful of the government and unwilling to wait for new employment.

The Zambian government desires to reduce carbon emissions through support from donor nations and international financial institutions. However, it is heavily in debt and has called for finance through grants, rather than loans.

- Zambia has a small coal industry based around three electricity producers in the Southern Province, with approximately 2000 workers between them. Increased need for electricity used for copper mining means that these miners are unlikely to lose work in the short-term.
- Zambia has long had quality, unionised copper mining work. However, a scramble for new copper and cobalt and the limited employment within nickel mines threatens this.

Zimbabwe's isolation by Global North powers mean it is less likely to undertake a donor led Just Transition. However, it is seeking private investment to transition its electrification to solar power.

- There are approximately 4,280 coal miners in Zimbabwe. The nation attempted to upgrade its old coal-fired power stations but was unable to find investors.
- Lithium projects currently employ 2,050 workers, but investors have informed the unions that they will employ more than 7,000 after completion. There are workers' rights concerns associated with these projects and with the artisanal mining of lithium.

The Democratic Republic of the Congo has been described as a 'solution country' for the Just Transition, producing between 41 per cent and 75 per cent of global cobalt (statistics are inconsistent and references are provided in the main text).

- There are however concerns about the working conditions of the 40,000 permanent workers and the 150,000 artisanal miners in the DRC's cobalt industry.

South Africa

The report finds that South Africa's engagement with the policies, practices and politics centred upon the Just Transition is significantly deeper than that almost all other nations. South Africa signed the first international Just Energy Transition Partnership in 2021. This is an agreement between South Africa and several donor nations that is expected to serve as a model for future Just Transitions. South Africa is also the only one of the nations studied with a carbon emission per capita higher than the global average and is the highest carbon emitting country in Africa. This, combined with the potential of platinum mining and the need to update the nation's energy system, means that South Africa could change considerably from a Just Transition.

However, South Africa's current Just Transition policies are likely to increase inequality. Coal generates 80 per cent of the nation's electricity and is a key export. The sale of higher quality coal overseas cross-subsidises the extraction of the lower quality coal sold to Eskom, reducing the cost of domestic electricity in South Africa. Further, the coal industry provides well-paid, unionised employment to over 100,000 South Africans and subcontracted and indirect employment to many more. Intra-nationally, the initial components of South Africa's Just Transition (the decommissioning of the Komati Power Plant for example) have not fairly transitioned workers. Internationally, only 3 per cent of the funds offered through the Just Transition Partnership are grants, and all donors are pushing South Africa to incorporate more private providers in its energy system.

Among the most important lessons from South Africa's Just Transition is the need to create more trust by those pushing for the Just Transition. The World Bank expects that South Africa's Transition will generate over 380,000 additional jobs in the platinum mining sector, however these jobs will not arrive until after the coal mining jobs have been lost. Workers are therefore being asked to take "known short-term risks for long-term benefits" from both national and international institutions that have previously let them down. Their distrust has been exacerbated by an inadequate consultancy process and the (possibly temporary) increase in coal mining in Mpumalanga and worldwide.

Zambia

Zambia's engagement with the concept of the Just Transition is less developed than that of South Africa. However, the Zambian government has shown a strong commitment to reducing carbon emissions and a desire for this to occur through support from donor nations and international financial institutions. Zambia has a small coal industry based around three electricity producers in the Southern Province, with approximately 2,000 workers between them. These workers are poorly paid compared to miners found on the Copperbelt. Some NGOs have explored how Zambia's Southern province will change environmentally and economically after the coal mines have closed. However, in defining the Just Transition to one of the researchers in a formal interview setting, the current President of the Zambia Chamber of Mines stated that he expects that these mines will not close before 2060, which is how he describes the Just Transition.

Part of the reason Zambia's coal mines are expected to remain open is the need to power the drastic expansion in copper production. Globally, copper consumption is expected to double by 2035. The President of Zambia therefore hopes to more than triple copper production from 800,000 tonnes to 3 million tonnes a year by 2030. Zambia's copper mines have traditionally been heavily unionised and provided comparatively safe and well compensated work. However, a rapid increase in cobalt and copper mining has resulted in increasing small-and-medium scale production, often by companies that are resistant to unionism, as well as the opening of a large nickel mine that will employ few workers. Zambia's mining industry therefore highlights several key tensions with the Just Transition. Because Zambia's copper mines are powered by coal, increased demand for transition minerals is likely to come with increased coal demand; and rapid expansion of demand incentivises both small scale mining and heavily mechanised mining, neither of which are naturally conducive to union work nor to the influence the MUZ holds in the government.

Zimbabwe

Zimbabwe's isolation by Global North nations means that it has been less fully engaged with the policies, practices, and discourses of the Just Transition than either Zambia or South Africa. The nation's coal-fired power stations are in disrepair, and it has not been able to find international funding to upgrade or replace them. Zimbabwe is attempting to reduce its dependence on coal, while increasing electricity access. However, to do so it is looking for significant private-funds, and with that offering private ownership of its power production sector.

According to the Zimbabwe Diamond and Allied Minerals Workers Union (ZDAMWU), there are 4,280 directly employed coal miners in Zimbabwe. Most of these workers earn the National Employment Council minimum of 250USD per month. There are concerns about their treatment by employers, especially Chinese state-owned enterprises (SOEs). However, ZDAMWU representatives claim that the union and community are vastly more concerned about the potential loss of coal miners' livelihoods, especially in the context of the failed financing of the Sengwa power plant. The union claims it has received no consultation on when and if the mines will reduce production, nor how this will affect workers and the surrounding community.

Zimbabwe is Africa's largest producer of lithium ore (with the largest lithium deposits on the continent), and the fifth largest producer globally. The nation produced 1,600 metric tonnes of lithium in 2019 and it has the potential to account for 20 per cent of global lithium demand. Zimbabwe has both active lithium mines and significant projects in the development stage. Major projects including the Bikita and the Arcadia mine currently employ 2,050 workers but have informed the unions that they will employ more than 7,000 after completion. There are concerns within the sector about the secretive relationship between mine companies and the government and about the correct way to incorporate artisanal miners.

The Democratic Republic of the Congo

The Democratic Republic of the Congo has been described by its government as a 'solution country' for the Just Transition. The nation's production statistics are contested, producing at least 41 per cent of the world's cobalt and up to 75 per cent, as well as other key minerals for electricity transmission and battery creation, including lithium and copper. Further, the Congo Basin rainforests form the world's largest carbon sink. Of all the countries in this study, the DRC should be the clearest winner out of the Just Transition. It has very little coal mining and almost all the minerals required for electricity transmission, (cobalt, copper, lithium, manganese, nickel).

There are however concerns for workers involved in both the artisanal and large-scale cobalt industry. 80 per cent of the cobalt mined in the DRC comes from these large mines. In the provinces of Lualaba and Haut-Katanga 19 mines directly employ 40,000 miners and offer 220,000 indirect jobs. This workforce is heavily subcontracted, with these subcontractors earning vastly less than permanent workers (whose wages are often close to the poverty line themselves), they are also less likely to have Personal Protective Equipment (PPE) and more likely to experience abuse. Further, Chinese funded companies run 15 of the 19 large mines. There is both empiric and anecdotal evidence that these companies pay less and abuse employees more frequently than the non-Chinese companies.

In Katanga there are approximately 150,000 artisanal miners. While these miners only produce 20 per cent of the DRC's cobalt, they are vastly more numerous than formally employed miners. The wages and working conditions in artisanal miners are deeply contested, with significant national and global political implications. Some actors see the sector as inherently immoral and dangerous and hope to rid electric batteries of either artisanal cobalt or all cobalt. Others see artisanal cobalt mining as an important source of livelihoods in a resource scarce environment and hope to collectively organise artisanal workers. IndustriALL is in the premier phase of identifying well organised collectives, which could serve as an entry point for the unionisation of artisanal cobalt miners in the DRC.

BACKGROUND

Key Points

- **Global utilisation of, investment in, and employment through coal, will decrease drastically.**
- **This reduction will be unequal, partial, and inconsistent, reflecting international power-dynamics.**
- **African nations will have trouble maintaining their existing coal-fired electrification, threatening the livelihoods of their coal miners.**
- **There are significant opportunities for African nations due to their enormous reserves of transition minerals.**
- **According to some estimates, Africa's revenue from mineral production will more than double by 2030 and 37 million additional jobs will be created.**
- **However, estimate of jobs often overestimate the number of jobs created and do not differentiate according to job quality.**
- **Further, specific transition minerals come with risks, for instance their substitutability, while others encourage mining practices that are not in workers' best interests.**

A Reduction in Coal Usage

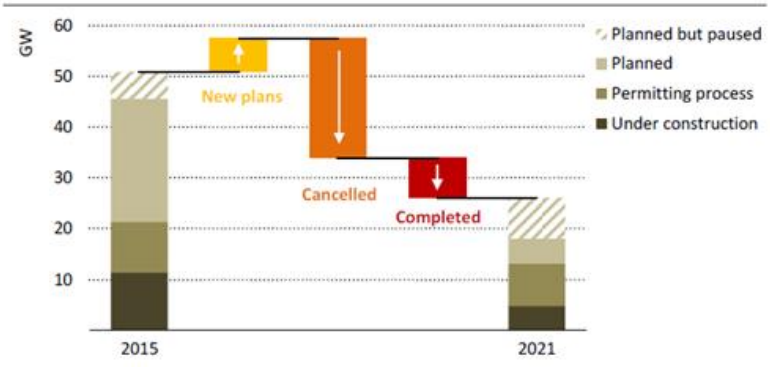
Over the next 20 years it is almost certain that global utilisation of, investment in and employment through coal will decrease drastically. This decrease will be associated with, but not wholly caused by, global and national responses to climate change. This transition will not occur equally across all geographies, rather due to their dependence on donor and International Financial Institution (IFI) funding, African nations are disproportionately likely to be engaged early in this transition, and regardless of their own carbon footprints, will be among those most affected by climate change.

Africa accounts for 10 per cent of the world's known-fossil fuel reserves, however these are unlikely to be fully utilised.[i] There are undeveloped, but seemingly viable, coal reserves in Zimbabwe and Zambia and South Africa that have long exported coal as well as using it to provide cheap electricity to its population. However, the European Union and China are actively reducing their importation of coal.[ii] While India's coal use is expected to increase in the coming years (before peaking), the Indian government and its state-owned mining company, Coal India Limited, plan to dramatically ramp up domestic coal production.[iii] The International Energy Agency's (IEA) *World Energy Outlook* (WEO) Report of 2016 predicts that coal's share in China's and India's power mix over the period 2017-2040 will fall from 75 per cent to 45 per cent, and 75 per cent to 55 per cent respectively and that coal demand in the EU and US will fall by over 40 per cent and 60per cent.[iv] The total global use of coal therefore is expected to return to the levels seen in the 1980s.

In terms of African electrification, maintaining coal-fired power will require significant financial resources that may be hard to obtain. Most nations' coal fired power stations and electricity grids require significant upgrades, and many coal mines are ageing operations.[v] Transnational resource extraction companies are reducing the role of coal in their portfolios and are hesitant to pay for upgrades on their existing operations.[vi] IFIs and donor nations have long refused to lend money for coal-fired electrification (even as they continue to use coal-power themselves), a stance recently adopted by the Government of China.[vii] The figure below, taken from the IEA's 2022 report, shows the downward trajectory of coal-fired power in Africa.

The reduction of coal usage will be unequal, partial, and inconsistent. Black coal, or coking coal is likely to remain important for the production of steel for longer than brown coal will remain vital for electrification.[viii] Further, the war in Ukraine and the Fukushima nuclear disaster have increased Global North appetite for coal. Large mines in Germany are (supposedly temporarily) expanding and on the 9th of December 2022, Britain announced the opening of its first coal mine in 30 years.[ix] Further, many progressives are sceptical of claims that coal will be quickly replaced by renewable energy, noting that most renewable projects increase the amount of available energy, rather than replacing fossil fuels.[x]

However, as this report will demonstrate, the power dynamics of international financial flows mean that the African countries studied will likely be early adopters of any transition. Each of the four nations studied is heavily in debt and is relying on donor funds to adapt to and mitigate climate change. These funds, in the form of loans and less frequently grants, often dictate that a country 'greens' its energy system. Further, each nation has ageing power plants, operating well-below their intended capacity. Both donors and private international capital will not fund upgrades or maintenance on coal-fired electricity.



Half of planned coal capacity was cancelled between 2015 and 2021, most of the remaining plans are either on hold or tied to Chinese stakeholders

Pipeline of coal-fired power projects in Africa

Source: African Energy Outlook 2022, pg. 93. IEA analysis based on S&P Global.

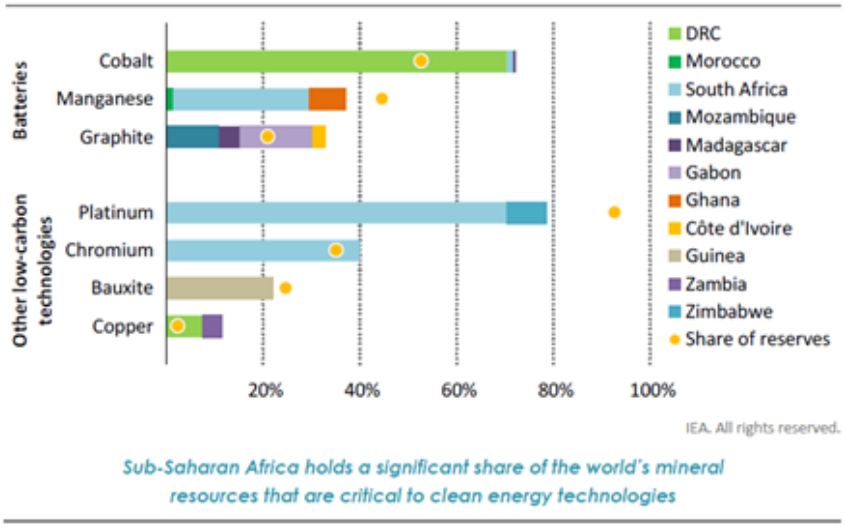
An Increased Role for Transition Minerals

There are, however, significant opportunities for African nations and their miners in the minerals that will grow in importance in response to decarbonisation. African nations account for 40per cent of global reserves of cobalt, manganese, and platinum.[xi] South Africa, the DRC and Mozambique produce these three minerals for export[xii] Zambia and the DRC are core global sources of copper and cobalt and Zimbabwe has large lithium deposits. Production of mineral resources is already a vital source of income for Africa, representing around 8 per cent of government revenues in resource-rich African nations.[xiii] In 23 African countries, minerals represent over 30 per cent of total product exports.[xiv]

The minerals sector has become a core, and growing site of Foreign Direct Investment (FDI) in many African nations. However, a large part of Africa's mineral resources remain under-explored due to the lack of adequate geological mapping. For example, despite limited official reporting on nickel reserves, BHP struck a deal to invest 100 million USD in the Kabanga Nickel project in Tanzania, reporting it as one of the world's largest nickel sulphide deposits.[xv] Adjacent areas, often called the East African Nickel Belt, are also reported to have huge potential. Yet exploration spending in Africa fell sharply between 2012 and 2016, and has remained stagnant since then, in contrast with growing exploration activities in other regions. [xvi] While additional investment and exploration is likely welcome, workers, governments and civil society need to come together to ensure that the exploration and extraction processes do not cede control and wealth from their nations to transnational corporations.

According to some estimates, Africa's revenue from mineral production will more than double by 2030 and 37 million additional jobs will be created.[xvii] In total the United Nations Framework Convention on Climate Change (UNFCCC) has identified 1.47 billion jobs in sectors critical to climate stability.[xviii] However, claims about additional jobs and revenue need to be treated with diligence. Firstly, reports vary wildly as to the employment potential associated with the Just Transition, and many of these reports are politically or commercially motivated. Many of the jobs to be created are in agriculture, representing a possible de-industrialization of the Global South, and new jobs in advanced manufacturing and energy production are not certain to come with the same protections as existing employment and with associated benefits for national governments. Similarly, claims of increased revenue presume that mines that are currently under construction, and deposits that are already found, are effectively taxed – yet many Just Transitions are associated with discourses of 'Innovation' and Green Capitalism' that are often anti-taxation.[xix] This is a core concern for labour and African nations within the Just Transition- that it represents a transition for well-renumerated, unionized work, that contributes to nation coffers through taxation and cheap electricity, to a patchwork of artisanal mines and newer, technologically advanced but un-unionized, export mines.

Further, each transition mineral comes with specific risks. This is most obvious with cobalt, a commodity which has had enormous price peaks and troughs over the last 10 years.[xx] While many analysts expect a drastic increase in global cobalt demand, major electric companies are actively trying to substitute the commodity.[xxi] Further, in some cases, currently South Africa, proposed job losses in coal will occur before the job gains that will supposedly come in transition minerals.[xxii] This means that the transition will require significant trust by people who have good reason not to trust their government or the international community. Additionally, many of the new mining jobs associated with the Just Transition face a bifurcation associated with all new mines: some minerals will be mined by small-holders or artisanal miners, while others will be associated with extremely large, heavily mechanized mines, with few employees. In each case, there are substantive concerns about the potential for unionization of the workers and the government's ability to effectively collect tax. Finally, almost all of these transitions are associated with increased privatization within energy provisioning systems.



Share of Africa in Global Production of Selected Minerals

Source: African Energy Outlook 2022, pg. 147. AEO sources USGS 2021 & S&P Global 2022

JUST TRANSITION : MEANINGS AND IMPLICATIONS

‘JUST TRANSITIONS’ MEANINGS AND IMPLICATIONS

Key Points

- The Just Transition is a ‘boundary term’. It can link groups based upon agreement and common cause, but often does so through hiding inequalities in power.
- Differing definitions of the Just Transition place differing emphasis on the claims and needs of workers, communities, and the environment.
- The concept of the Just Transition emerged from the union movement, focusing on workers and communities near extractive projects.
- The term Just Transitions is often now used because there are multiple definitions with multiple understandings of justice:
    - Union definitions ensure workers’ rights while demanding social dialogue and national ownership of assets,
    - International institutions often offer definitions of the Just Transition that are market-based and non-transformative,
    - Industry definitions often posit a slower transition,
    - NGO definitions can foreground their organisation’s expertise at the expense of workers’ priorities.

> ***The Just Transition is, in many ways, a ‘boundary term’ able to link disparate groups on the basis of a broad common agenda, difficult to disagree with, and capable of obfuscating power dynamics.[xxiii] It is a collection of values, policies and funded projects aimed at ensuring social inclusion during climate action. Differing definitions of the Just Transition place differing emphasis on the claims and needs of workers, communities, and the environment. They also differ on important questions relating to the role of government and of the private sector in providing employment and electricity.***

The concept of the Just Transition emerged from the North American labour movement during the 1980s.[xxiv] Unions were observing that the de-carbonizing of their economy, while a social good, was unequally burdening specific workforces and communities. The Just Transition therefore began as a program of support for workers and communities which were (1) negatively impacted by climate change (those whose lives and livelihoods are directly impacted by droughts, floods, and other extreme weather events) and (2) negatively impacted by responses to climate change (those whose means of securing income and work are tied to high-emissions industries that are phased out

over time).[xxv] The sectors that the term Just Transition is most often used to describe now include coal, manufacturing and agriculture. Decarbonization directly effects up to 20 million people who are connected to coal mining in India.[xxvi] In North America, the Canadian oil and gas sector supports more than 400,000 direct and related supply chain jobs—one-third to one-half of which will be lost to automation by 2040.[xxvii]

Over time, the union movement found significant partners in the environmental and social justice spaces and the concept of the Just Transition has evolved to integrate economic, social, and environmental concerns. It now operates in diverse advocacy spaces and is invoked by myriad political interests. Central to almost all Just Transitions are considerations of how different groups are included in decision-making processes and how both benefits and losses are distributed in fair and safe ways. As understanding of the climate crisis grew, unions began to tie the language of Just Transition specifically to action on climate change. They also began campaigning to insert Just Transition language into international regimes, including UNFCCC negotiations.[xxviii] The partners involved in this process have included the International Labour Organization (ILO) and the United Nations Environment Programme (UNEP). The ideas associated with a Just Transition have been incorporated in the Paris Agreement of 2015. Its preamble cites "the imperatives of a Just Transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities, alongside the separate but related issues of environmental integrity and climate justice."[xxix]

> ***The term 'Just Transitions' rather than 'Just Transition' is often used because there are multiple framings of the transition that reflect differing understandings of justice, differing interests and differing world views.[xxx] There is no set definition of the Just Transition, but rather a range of positions, principles, and practices, each of which make moral claims through their association with justice.***

There is significant funding associated with the Just Transition. The 8 billion USD Climate Investment Funds (CIF) were created in 2008 to help finance accelerated transitions to low-carbon and climate-resilient development in low- and middle-income countries.[xxxi] Its programs finance clean technology, energy access, climate resilience, and sustainable forestry initiatives. CIF operates in 72 developing countries, using six Multilateral Development Banks (MDBs) as its implementing agencies. CIF has operated as a laboratory for developing, implementing, and evaluating new approaches to climate investments, as well as learning from them. The CIF also launched a 2.5 billion USD investment programme designed to achieve a Just Transition from coal to clean energy in

emerging economies, including South Africa, India, and Indonesia.[xxxii] The CIF argue for a key role for private finance institutions in a Just Transition. Loss and damage funding agreed to in the COP 27 in Egypt is also likely to have 'Just Transition' components.[xxxiii]

Union Definitions of the Just Transition

Labour organisations, including IndustriALL, have typically posited ambitious understandings of the Just Transition. These definitions not only ensure the rights of workers but focus upon social dialogue and national ownership of resources and essential services.

The Guide of Practice to a Just Transition published by IndustriALL with the Friedrich Ebert Stiftung Foundation defines Just Transition as "a fair and equitable pathway to a sustainable future".[xxxiv] This will only be possible through re-imagining the entire global economic system, rather than a collection of projects and processes that maintain intra-and-international power dynamics. IndustriALL therefore calls for a "High Bar Just Transition." This will involve the creation of decent jobs, social dialogue between the various parties affected by the transition, permanent institutions responsible for oversite and accountability and affordable energy for all.

> ***The Just Transition posited by IndustriALL necessitates an array of different programs, as well as enhanced political power and dialogue to provide a fair and equitable pathway to workers in industries that may be impacted by efforts to limit greenhouse gases or by the introduction of new technologies.***

In a similar manner, the International Trade Union Confederation[xxxv] demands a Just Transition that will:

- Respect the contribution that workers in fossil fuel industries have made to today's prosperity and provide income support, retraining, redeployment, and secure pensions for older workers.
- Recognize that investing in community renewal is critical to gain the hope and trust of affected regions and townships whether energy transition, industrial transformation, or disaster.
- Support innovation and shared technology to enable energy and manufacturing companies to make the transition with 2020 and 2030 targets for emission reductions and for jobs.
- Involve workers in the sectoral plans for the development of clean mega cities.
- Formalize the jobs in rescue, rebuilding and resilience associated with climate disasters.
- Ensure investment in the jobs and decent work vital to both adaptation and mitigation.
- Guarantee essential social protection and human rights:

- Be backed up by a Just Transition fund in every nation, and
- Be based on social dialogue with all relevant parties, collective bargaining with workers and their unions and the monitoring of agreements which are public and legally enforceable.

International Institutions and Governance Meanings of the Just Transition

Various international institutions offer their own definitions of the Just Transition. These differ according to the institution, but when compared to the definitions offered by trade unions, they are less likely to:

- Centre the role and needs of workers within any transition.
- Focus on protecting national assets from transnational ownership/control.
- Call for radical change to global economic systems.

> ***The International Labour Organization sees the Just Transition reconciling its Decent Work Agenda with an environmentally sustainable economy.[xxxvi] It therefore calls for social dialogue, social protection, the ensuring of rights at work and ongoing employment. For the ILO, the Just Transition should be a strong driver of job creation, job upgrading, social justice and poverty eradication.***

The ILO has therefore lobbied governments to agree to a set of Just Transition guidelines covering key policy areas (such as tax, skills, and regional policies) as well as critical mechanisms (such as social dialogue between workers and company management).

The Just Transition is integrated into the 2015 Paris Agreement and invoked at various Conference of Parties (COPs). The 2015 Paris Agreement committed governments to incorporate "the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities."[xxxvii] At COP24 in Poland in 2018, the Polish presidency prepared the 'Solidarity and Just Transition Silesia Declaration' which called upon parties to commit to a Just Transition.[xxxviii] It was noted by the presidency that: "The implementation of a solidarity-based transformation will help to generate and maintain public support for policies to reduce emissions. This, in turn will enable their successful implementation, which is a prerequisite for achieving global climate policy objectives."[xxxix]

The African Transition and the Africa-EU Energy Partnership call for combining auction instruments and feed-in tariffs with a greater focus on African leadership and the mobilization of African resources in the Just Transition, with energy justice incorporated into various strategy plans.

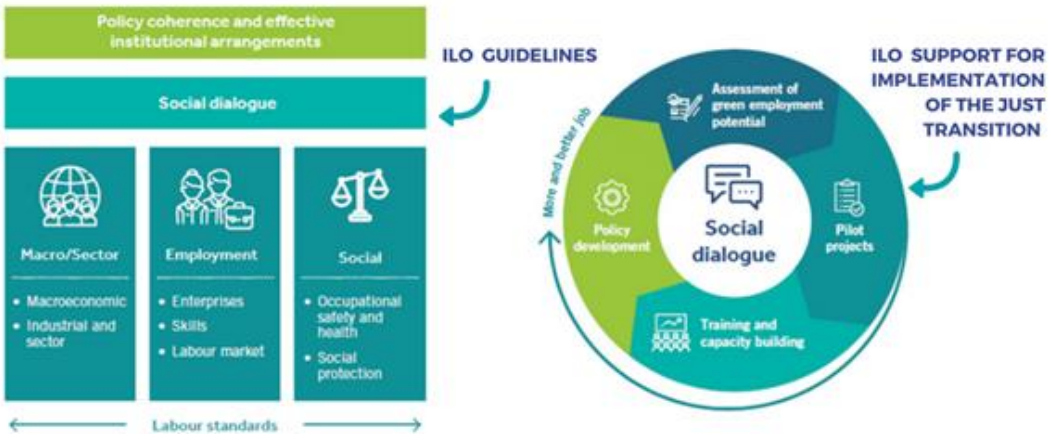
In contrast, the African Common position on Energy Access and Just Transition states that:

> **"Africa will continue to deploy all forms of its abundant energy resources, including renewable and non-renewable energy to address energy demand."[xl]**

It calls for a short-to-medium term emphasis on gas and hydrogen with a longer-term focus on renewable energy. The African Common Position notes that 600 million African lack electricity services and 900 million lack access to cooking facilities. The common position therefore encourages striking a balance between socio-economic growth and transitioning towards renewable energy.[xli]

The annual COP events have offered evolving understandings of the Just Transition. In COP22, the UNFCCC published a technical paper on the Just Transition. At COP24, over 50 countries signed the Solidarity and Just Transition Silesia Declaration. At COP 25, the Climate Action for Jobs Initiative was launched and at COP26, the Glasgow Climate Pact was the first COP instrument to focus on financing the Just Transition in the Global South.[xlii] At COP27, it was agreed that a fund would be set-up to compensation Global South nations for 'loss and damage' associated with the unavoidable risks of climate change. The COP agreement calls for the International Monetary Fund (IMF) and the World Bank to consider how they can provide this funding, but details are not yet available.[xliii]

The definitions of Just Transition offered by the governments of South Africa and Zimbabwe are offered in the text on the relevant countries, as is DRC's concept of the 'fair share'. Zambia's Nationally Determined Contribution offers no definition.



Source: Just Transition, Decent Work and Climate Resilience. International Labor Organization pg. 13.

Industry definitions and Invocations of the Just Transition

The Head of the Southern African collection of Chamber of Mines associations sees a phasing out of coal-fired electrification by 2060 as a Just Transition.[xliv] This position is in line with that of international investors including the Morgan Stanley Bank and Elon Musk.[xlv]At the 2023 African Energy Indaba, South Africa's Minister of Mineral Resources and Energy, Mr. Gwede Mantashe similarly emphasized a long transition, however did not provide an exact date for the elimination of coal-fired electrification.[xlvi]

NGO and Civil Society Definitions of the Just Transition

NGOs and civil society organizations similarly compete to define the Just Transition. In some cases, the definitions that they offer can be similar to those posited by workers' representatives, but in other cases they foreground the organization's specialty interests at the expense of broader concerns.

Two exceptionally progressive understandings of The Just Transition are those offered by the Institute for Economic Justice in South Africa[xlvii] and that agreed to by South Africa's National Economic Development and Labour Council (NEDLAC) and the National Planning Commission.[xlviii] Institute for Economic Justice (IEJ) calls for a caring, rights-based economy, an economy-wide transition towards low carbon and climate resilience, transformation of South Africa's unjust system of ownership, distribution and access to resources, and an intersectional focus on power and restorative justice.

NEDLAC and the National Planning Commission defines the Just Transition in South Africa as:

> *A just transition aims to achieve a good life for all South Africans, in the context of climate resilient and zero-emissions development.*
> *A just transition contributes to the goals of decent work for all, social inclusion, and the eradication of poverty.*
> *A just transition puts people at the centre of decision making, especially those most impacted, the poor, women, and youth—empowering and equipping them for new opportunities of the future.*
> *A just transition builds the resilience of the economy and people through affordable, decentralised, diversely owned renewable energy systems; the conservation of natural resources; equitable access of water resources; and sustainable, equitable and inclusive land-use for all, especially for the most vulnerable.*

Specific South African unionists were concerned that a 'decentralised, diversely owned renewable energy system' is synonymous with increased privatisation of electricity generation, which they see as having negative implications for workers, electricity users and the government.

However, having an ambitious definition is useful for the union movement to hold the government and civil society to account. Further, the current proposals for the use of South Africa's Just Transition funding are far from this ambition.

Both Greenpeace and the Tony Blair Institute for Global Change invoke the Just Transition in arguments that reflect their existing goals. Greenpeace foregrounds justice for communities that suffer environmental damage through coal mining.[xlix] They therefore call for a moratorium on investment in coal-fired power and for rapid investment in renewable energy instead. In contrast, the Tony Blair Foundation argues that African nations should be paid, through Just Transition funding, to preserve their wildlife and keep their fossil fuels underground.[l] It also claims that gas is crucial to any

Just Transition in Africa, due to being cleaner than coal. The Foundation therefore calls for private international investment in Africa's gas reserves.

INJUSTICES WITHIN EVERY JUST TRANSITION

INJUSTICES WITHIN EVERY JUST TRANSITION

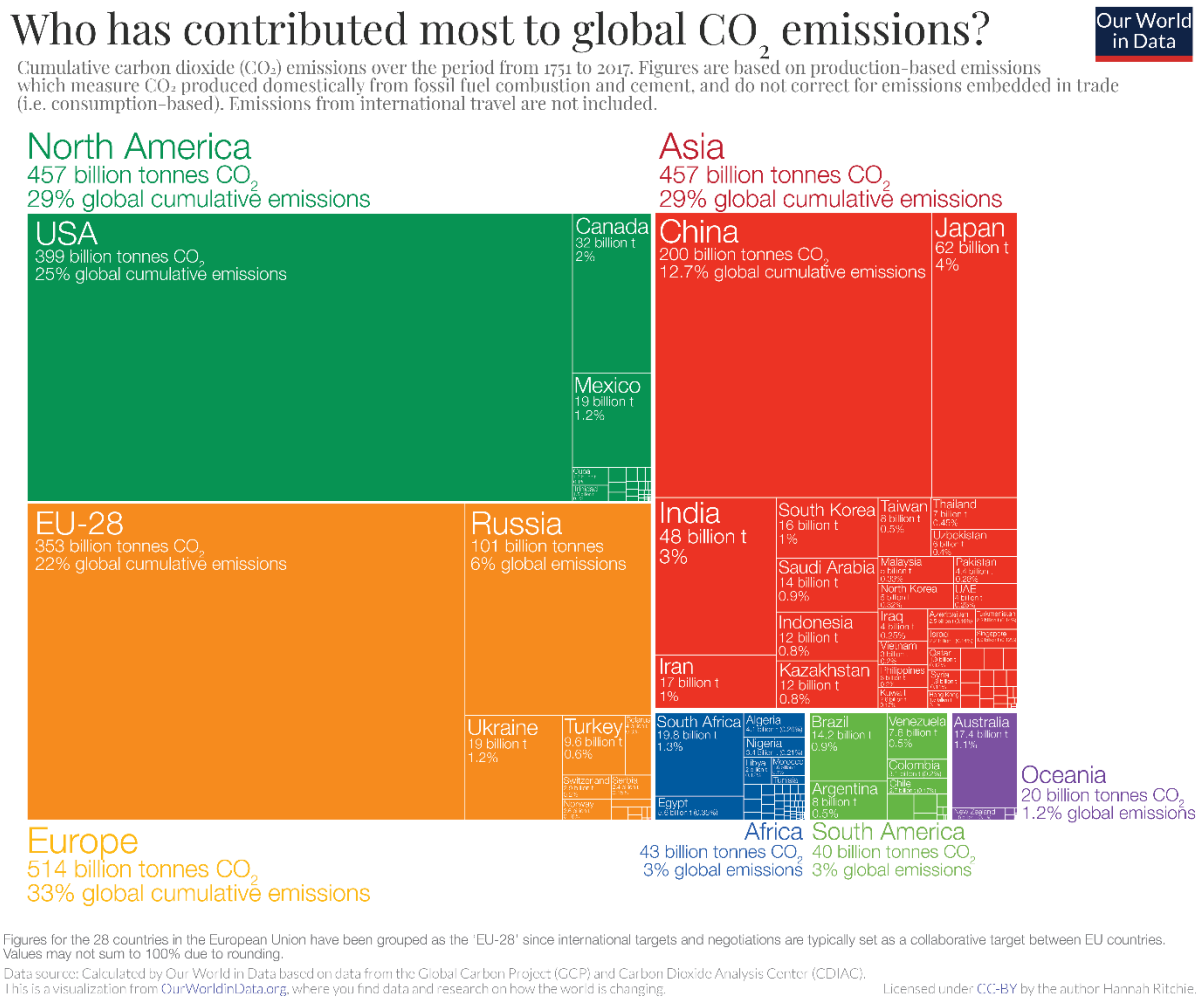
Key Points

- **Most Just Transitions focus on intranational compensation for those directly affected by the transition, rather than using the transition to enhance national and international justice.**
- **Internationally Africa contributes very little to carbon emissions, even less when historic responsibilities are considered.**
- **African nations will be disproportionately affected by climate change.**
- **Whether African nations transition their energy sources or not will have little impact on how they are affected by climate change.**
- **Intra-national inequality also determines both who contributes to global warming and who is likely to be affected by it.**
- **'Actually existing' Just Transitions in the Global South operate too much like aid programs, leaving decision making power in the Global North**

In contrast to that provided by IndustriALL, most definitions of the Just Transition focus on intra-national transitions that compensate those who are affected by the transition itself, rather than considering the existing injustices within the Global system. These intra-and-international injustices are particularly pertinent to Africa.

Africa contributes the least to climate change

Africa's contribution to global warming is miniscule. The continent is home to approximately 1/7th of the world's population, yet is responsible for less than 4per cent of global carbon emissions.[li] Asking African nations to transition to more expensive energy sources and to not use or sell their fossil-fuels is particularly problematic when one considers that the reasons these fossil-fuels are under-utilized is the colonial projects that impeded African industrialization.



Source: Our World In Data 2017 https://ourworldindata.org/contributed-most-global-co2 last accessed 13/04/2023

Africans will be among the most affected by climate change, regardless of whether they adopt Just Transition policies or not

A key implication of Africa's low carbon emissions is that, whether African nations decarbonize or not, this will have little impact of how these nations' citizens are affected by climate change. However, the costs of adapting to climate change will disproportionately fall upon Africans, regardless of how enthusiastically they adopt transition polices. Almost no African nations are substantial emitters, the largest two are South Africa and Egypt with 1 per cent and 0.5 per cent of global annual emissions respectively.[lii] If all African nations go through extensive, expensive decarbonization processes, but wealthy and large nations do not, climate disasters will continue to affect Africans. This does not mean that African nations should not decarbonize, but that any African decarbonization must be met with at least equivalent sacrifices from those who have both benefited from carbon intensive industrialization and whose carbon emissions will primarily determine the degree of temperature increase.

The combination of a heavy reliance on agriculture, existing high temperatures and poor infrastructure means that Africa is the least climate resilient region on earth. Climate adaptation activities are expected to cost at least 50 billion USD by 2050.[liii] Some analysts expect Gross Domestic Product (GDP) loss of up to 20 per cent across the continent in some scenarios.[liv]

In addition to economic costs, climate change will have extreme impacts on the lives of both urban and rural Africans. Sub-Saharan African agriculture is primarily rain-fed, and IMF loans often discourage the storage of grain. This means that irregular rainfall has a high potential to lead to famine. Many African cities are poorly insulated. One study found that providing cooling for the 700 million people in Africa who will need it would require one fifth of Africa's current electricity production.[lv] By 2040 1.2 billion Africans are expected to need electrical cooling.[lvi]

African Nations have little control over the processes of the Just Transition, and substantive reason to be wary of it

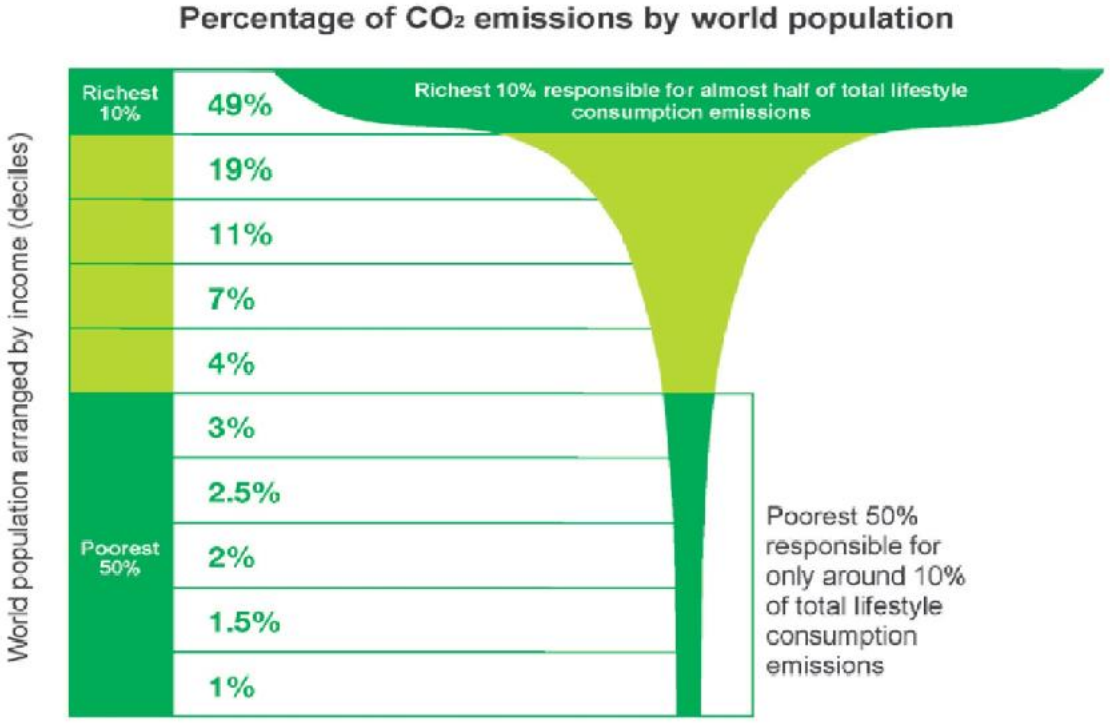
African nations already experience high electricity costs and low-quality electrification. Electricity prices in many African nations are more than double those of the United States, and far higher than those found in India.[lvii] There is significant debate about how decarbonization will impact upon energy costs. The per-unit generation costs of renewable energy should be lower than of non-renewable power. However, the costs of new infrastructure, especially if paid for through loans, may drastically increase electricity prices.[lviii] Further, the intellectual and physical infrastructure of electricity may be controlled by the Global North or wealthy Global South investors, through things like private investment in renewables.[lix] 600 million Africans, 43 per cent of the continent's population, currently lack electricity and many proposals associated with the Just Transition – things like rural micro-grids – offer only partial electrification.[lx] These are likely to hamper many of the manufacturing jobs associated with the Just Transition.

Further, African nations and unions have significant reasons to be skeptical about the promises made through the Just Transition. Global North nations have consistently promised and then walked back from various forms of climate change action. In the wake of the Russian invasion of Ukraine, many European nations have decided to reopen or extend the life of their own coal-fired power generators.[lxi] This is expected to raise EU power sector emissions by 4 per cent, a significant amount given the high baseline of EU emissions[lxii] In South Africa and Zimbabwe this has also led to electricity price increases and blackouts, as coal that would normally generate domestic power is sold for higher prices overseas.[lxiii] Any Just Transition requires long timelines and commitment between the parties involved, but the cost any breach of this trust will be higher for African nations and people.

Intra-national inequality

Issues of global inequality are compounded by intra-national equality. Many African nations are among the world's most unequal and resource distributions reflect the legacies of colonialism and apartheid. Across every nation, the wealthy produce vastly more carbon emissions than the poor.[lxiv] In some nations, parallel electricity systems exist; an under-funded public system and a higher quality private system accessed by the privileged.[lxv] Both intra-and internationally there is a need to differentiate between essential emissions and life-style emissions. Carbon emissions used for heating, cooling, and cooking are debatably morally different to those used for entertainment or unnecessary consumption. Globally and nationally, the wealthy produce almost all lifestyle emissions.

Not only will the wealthy be less affected by climate change, but several iterations of the Just Transition also call for greater private investment in electricity systems.[lxvi] If not carefully managed, this investment has the potential to further reduce access to electricity for the poor, while subsidizing the already wealthy.



Source: Vox news energy https://www.vox.com/energy-and-environment/2017/12/1/16718844/green-consumers-climate-change last accessed 13/04/2023

Just Transition programs have often viewed gender in an unsophisticated manner. The impacts of climate change are not gender neutral, however neither are the impacts of changes to market structures. Around 80 per cent of those displaced by climate change are women.[lxvii] In rural communities, women are more likely to engage in the kinds of smallholder farming activities that are temperature dependent, and more likely than men to suffer from a loss of food and personal

unsafety during periods of weather associated food scarcity.[lxviii] The relationship between formal and informal labour also interacts with gender norms. Globally, men are noticeably more likely to hold formal jobs, with 92 per cent of women in low-income countries engaging in informal labour. However, formal, unionized work can enhance gender equity, preventing workplace gendered violence and ensuring rights around the relationship between work and reproduction.[lxix] Gender-blind Just Transitions therefore run the risks of only compensating formally employed workers (men) or, through reducing the formal sector (through both deindustrialization and a focus on entrepreneurship) undoing the gains that formal employment has offered women in the Global South.

The Global Green Growth Institute therefore calls for a Just Transition that:[lxx]

- **Centres care: genuine redistribution of resources and recognition of value created;**
- **Prioritises the Local environment: just transitions regenerate natural environments and incorporate women's stewardship;**
- **Enables economic empowerment: formalisation of informality into economy with attention to specific gendered needs.**

However, the Just Transitions that are currently funded do not operate like this.

'Actually, existing Just Transitions' Look Like Development Projects, with Global North Control of Finance and Decision Making

While the Just Transitions invoked by organisations like the Global Green Institute make radical claims for justice, 'actually existing' Just Transitions – the projects and practices that receive significant donor and government attention – resemble the North-South relations found in the development industry. In current global responses to climate change Global North nations, IFIs and technical experts provide advice and finance (loans and grants) to Global South governments, with the finance linked to following the advice and to vicissitudes in the Global North. This creates a system where the internal politics of Global North but not Global South nations is respected and where Global South nations are punished for breaking agreements, with no equivalent compunction on the Global North. Nationally Determined Contributions are nominally voluntary, with shame being the only form of accountability, but aid dependent nations feel greater pressure to meet them.

Multiple people interviewed for this study claimed they felt the IFIs and donors dictated the terms of South Africa's Just Transition, with civic society and industry consultation unable to meaningfully change outcomes. In contrast, the Australian Prime Minister publicly and frequently explained that he would not engage in any climate change mitigation that cost any Australian jobs; when the British changed Prime Minister, the new leader reneged on previous aid commitments, including those related to climate change.

Additionally, almost all Just Transitions focus on market mechanisms and ‘actually existing’ Just Transitions typically expand Global North access to Global South markets. None of the transitions explored in this review argue for debt forgiveness, instead focusing on concessional loans and grants. This grant funding if often tied to creating markets for state provisioned services (most obviously electricity grids) and to the use of external, pro-market experts.

JUST TRANSITION PRACTICES
BEST PRACTICES AND CONSTRAINTS

JUST TRANSITION PRACTICES – BEST PRACTICES AND CONSTRAINTS

Key points

- The Ruhr Valley, and Germany more generally, is often praised as the exemplar of potential Just Transitions:
  - This transition required long-term planning and stakeholder engagement
  - It was also expensive for the German government
  - This required an expansive definition of sustainability, that included the social and economic aspects of life.
- The government of Canada announced plans to phase out the use of coal-fired electricity by 2030:
  - The government has committed to working with unions to "ensure workers affected by the accelerated phase-out of traditional coal power are involved in a successful transition to the low-carbon economy of the future"
  - They have committed to dialogue but made no guarantees
  - Highlighting the partial nature of Canada's Just Transition, the nation is pushing ahead with expansive of oil and gas programs.
- Enel is an Italian multinational, 25 per cent state owned, which produces electricity:
  - It is engaged in social dialogue with its Italian union partners, exploring retention, redeployment, reskilling and early retirement for elderly workers
- In Australia, the CFMMEWU has called for Transition Authority to ensure that Australian coal workers and communities are not left behind in the energy transition.
- Specific sectors in in India are undergoing smaller transitions, often in conjunction with social partners.
- Indonesia is preparing for an JETP, similar to that of South Africa.

Several nations, states and industries have already undertaken some form of Just Transition. The key lessons from each of these transitions has been the need for long-term planning, social dialogue, and engagement with their unions. Many best practices can be seen through this transition, especially the well-resourced transitions found in the Global North.

Ruhr Valley, Germany – lessons

The Ruhr Valley, and Germany more generally, is often praised as the exemplar of potential Just Transitions. While this transition was more painful than many of its advocates admit, it has significant lessons for coal regions, like Mpumalanga, where a transition will accelerate the decay of an already weakening mining industry. In the 1950s, more than 500,000 people were employed in coal mining in the Ruhr Valley. However, through various, harmful coal crises, the number dropped to 180,000 by the late 1960s, and 80,000 by the 1980s.[lxxi] By this stage it had long made poor economic sense to mine coal in the Rhine-Westphalia region. However, "coal culture" was crucial to local identity and many livelihoods were associated with the mining industry.[lxxii]

In 2007, with 37,000 coal miners remaining in the region, the state decided to end coal mining by 2018. They committed to spending 17 billion Euro on schemes that included providing early pensions to older miners, training, and programs for younger workers, and covering the environmental costs of shutting down the industry.[lxxiii]

The Ruhr Valley's Just Transition was guided by negotiations between stakeholders including the government, unions, and mining companies, aimed at achieving consensus. The World Wildlife Fund (WWF) claims that it provides four main lessons for future transitions.[lxxiv] The first of these is that Just Transitions require long-term planning, the Ruhr Valley has been in transition for 50 years. All stakeholders need to accept the long-term nature of the transition, yet brinkmanship over withdrawing from transition planning is often rewarded. This ties into the second lesson, the need for stakeholder engagement, any Just Transition requires an honest discussion of the relevant stakeholders, their combined and divergent interests. These stakeholders then need to negotiate and guide the transition process. The third lesson is that resources must be expended on a transition. As noted above 17 billion Euros have been spent transitioning out 37,000 workers. While this seems like an enormous amount of money, coal industries in many nations are heavily subsidised. Between 1960 and 2015, Germany's coal industry received 126.6 billion Euros of subsidy. Finally, any Just Transition needs an expansive understanding of sustainability. This involves significant investment in the community through activities like research and innovation, tourism, and new economic opportunities. In Duisburg this resulted in the transformation of its previous industrial port (Innenhafen), the biggest inland port of Europe, to an area that hosts commercial and recreational activities and cutting-edge technology firms.

Also in Germany, the Bavarian Metalworkers Union and Friends of the Earth Bavaria are working together to explore how decarbonisation will affect Schweinfurt's automotive industry.[lxxv] Concerns about peak oil and climate change encourage them to pressure their government on questions including: How does the regional industry have to change in regards to products, processes, and qualification of employees? How can new jobs be created? How can the interests of employees and the environment be reconciled?

Canada's National Just Transition - lessons

Coal-fired power has traditionally been a core source of electrification in Canada. It accounts for 8 per cent of Canada's total carbon emissions and over three quarters of emissions from the power sector. In 2016, the Government of Canada announced plans to phase out the use of coal-fired electricity by 2030.[lxxvi]

To support the transition, the Canadian government has said it will work with unions and provincial governments to "ensure workers affected by the accelerated phase-out of traditional coal power are involved in a successful transition to the low-carbon economy of the future." The unions are pushing for funds for income protection, training and re-employment opportunities, and regional economic development initiatives to secure a future for hard-hit communities. The focus on hard-hit communities allows workers to combine their concerns with those of community groups, creating alliances in an environment where unions may lack legitimacy.

To support the transition, Canada's government intends to use an additional 21.9 billion Canadian Dollars (CAD) over 11 years for green infrastructure and commercially viable clean energy, including funds flowing through the Canadian Infrastructure Bank. They have committed to dialogue but have not provided guarantees to the unions.

When discussing Canada's Just Transition in the coal sector, it is important to note that, unlike many Southern and Central African nations, Canada's carbon emissions primarily come from the oil and gas sector, rather than coal.[lxxvii] This sector is less labour intensive, however, is more entwined with state security and economic interests and there is much less momentum in Canada to reduce economic reliance on oil and gas than coal.

Enel's Just Transition (Italy) -lessons

Enel is an Italian multinational that produces electricity. It is 25 per cent owned by the Italian state, operating in more than 30 countries and employing nearly 62,500 people.[lxxviii]

Enel has committed to decarbonize its energy mix by 2050, which is 50 per cent decarbonized now. To do so, Enel will close 13 GW of thermal power stations in Italy, along with expanding renewable energy.[lxxix]

Enel has entered into social dialogue, and a framework Just Transition agreement with its Italian union partners. The framework covers retention, redeployment, reskilling and early retirement for elderly workers. It has dedicated resources to:

- A recruitment plan using apprenticeship
- Encouraging mobility and training for the optimization of internal resources.
- Dedicated training to ensure qualification and employability both during the "recruitment phase" and in "professional mobility" as well as for the creation of new skills for the development of new business."

The CFMMEU and Australia's Just Transition

Coal miners hold a powerful place in Australia's political imaginary and the Construction, Forestry, Maritime, Mining and Energy Union (CFMMEU) is one of Australia's most powerful unions. They have therefore called for Transition Authority to ensure that Australian coal workers and communities are not left behind in the energy transition. CFMMEU has analysed various sectors and transitions and is calling for a framework that "combines cohesive and well-funded top-down leadership, coordination and funding with bottom-up engaged participation, knowledge and creativity". This exists in comparison to many Australian approaches, which are local, piecemeal and focus on the relationship between community and government.[lxxx]

Many Global South nations are going through sectorial Just Transitions, often in conjunction with community development projects, and larger Global South nations are preparing for JETPs, often based on the current South African experience.

Sector Specific Just Transitions in India

In Gujarat in India, there are 43,000 salt farmers. Many of these people are poorer women who self-organise into collectives yet have few work rights. These women use diesel to pump brine out of ground water, which is spread over the salt pans specially prepared to enable evaporation of water, and lead to formation of salt crystals. In this context the Self Employed Women's Association (SEWA) has launched the Hariyali campaign to deliver green energy. As part of this campaign, they are offering solar pumps to replace diesel units.[lxxxi]

Dalmia Bharat Cement produces and sells cement in 18 of India's states, aiming to produce the lowest emission cement in the world. It uses blended materials and industrial waste to reduce carbon outputs. Its cement has average emissions of 493 kg per ton, while the global industry average is 612 kg CO2 per ton.[lxxxii] Dalmia also has an extensive Corporate Social Responsibility (CSR) program, building schools, sanitation blocks and providing biomass stoves and solar lighting.

Preparing for a Just Transition in Indonesia

Indonesia is a large, coal dependent middle-income country, that is expected to soon embark on a JETP, similar to that which South Africa is currently undertaking.[lxxxiii] The nation is a signatory to the Silesia Declaration and in 2019 the Ministry of Labour issued the Bogor Declaration as a tripartite commitment to respond to climate change and secure a Just Transition. Trade unions have been consulted to draft a long-term strategy on Low Carbon and Climate Resilience which explicitly incorporates a Just Transition.

However, there are serious roadblocks to Indonesia's transition. Senior civil servants see the Just Transition as imported and unclear and the current NDC and the draft of the updated NDC do not explicitly mention Just Transition.[lxxxiv] Economically, the Indonesian government subsidises fossil fuels, which due to limited electrification, primarily subside the wealthy. Further, the informal economy makes up more than half of the nation's workforce, but the current Just Transition lacks any institution for dealing with their concerns.

Brazil's Just Transition Law

In 2022 Brazil passed Law 14.2999 on a Just Energy Transition.[lxxxv] This law establishes an economic subsidy for small scale public electricity and creates Brazil's Just Energy Transition Program. This project will create a council with oversight over funding uses for the State of Santa Catarina's mineral coal or for the continuity for coal-fired electrification, in line with net carbon zero after 2050.

The combination of this law, and the election of the seemingly pro-environment President Luiz Inacio Lula da Silva, has led to donor enthusiasm to set up a Just Energy Transition Partnership similar to the South African model. In preparation for this, Germany which hopes to be a major partner, has signalled its wiliness to unfreeze funds it had allocated to curbing deforestation in the Amazon rainforest.[lxxxvi]

COMMON CONCERNS FROM THE LITERATURE

Key Points

- **Many experts argue that the transition away from fossil fuels will generate more new employment than unemployment. However, there are concerns about the quality, sustainability, and appropriateness of these jobs:**
    - **Jobs in fields like biomass or the installation of micro-grids are unlikely to provide decent wages and employment surety,**
    - **Most estimations of job creation include many more jobs in the construction phase of power generation than in the operation and maintenance phase. These new jobs are therefore often short-term, rather than ongoing positions,**
    - **Reports that argue that transitioning away from fossil fuels will generate new jobs also do not consider regional and skill differences that determine which segments of society will benefit and which will suffer from a Just Transition.**
- **Some understandings of the Just Transition draw an equivalence between 'the environment' and 'the community', without considering the impacts of job losses on 'the community' nor the sunk environmental losses of existing mines.**
- **Many Just Transitions encourage the privatisation of energy generation, as a form of innovation.**
- **Few Just Transitions consider their effects on the national revenue.**
- **Both large, heavily mechanised open-pit mines and artisanal miners are more difficult to unionise than traditional mining workforces.**

Quality, Sustainability and Appropriateness of Employment

Almost all sustainability advocates argue that the transition away from fossil fuels will generate more employment than unemployment. However, investigating their claims more thoroughly encourages demanding that the jobs are quality (well-paid, unionised, and safe), sustainable (long-term employment) and appropriate (in areas where mining jobs are being lost and/or requiring similar qualifications).

Quality employment

Mining has traditionally provided well-paid, stable employment. In South Africa, most miners have matric qualifications yet earn around 50 per cent more than the median for the formal sector[lxxxvii]. While several reports argue that the Just Transition will provide new jobs in South Africa, finding equivalent quality work for high-school graduates will be difficult.

Across most African nations, formally employed miners have significant familial and communal responsibilities.[lxxxviii] This means that employment offered through the Just Transition should reflect their intra-community financial obligations. However, many projections of Just Transition employment see miners being redeployed to lower-paying work. Some papers describe miners moving into the 'biomass sector', a byword for re-agrarianization.[lxxxix] Other works focus on the construction, connection, and maintenance of 'micro-grids' and the installation of LPG gas into households.[xc] There is no reason why this work needs to pay less than that of unionized miners. However, the agrarian and gas sectors have long resisted unionization.[xci] Further, local installation work is likely to utilize micro-enterprise and subcontracted workforces. Key to the social dialogue surrounding 'new jobs' must be their conditions and commitment to maintaining workers' ability to organize collectively.

Sustainable Employment

The median age of South African coal miners is 40 years old and most sub-Saharan workforces are very young.[xcii] This means that the jobs generated through any transition should be ongoing, or at least long-term work. However, almost all transitions in the energy grid provide vastly more short-term than long-term employment. This is a structural facet of sustainable energy. Jobs are required in construction, but as no inputs are burnt, there are vastly less jobs in maintaining electrical capacity. Debates about employment in the Just Transition must therefore consider what employment levels will look like 10, 20 and 30 years after the transition, and ensure that workers are protected in this context. Consider the graph below from Price Waterhouse Copper's 'What a 'just transition' means for jobs in South Africa' presentation on strategy. It demonstrates the creation of over 800,000 jobs through the solar and wind sectors. However, only 21,000 of these jobs will remain in the operation and maintenance phase.

Table 2. Estimated jobs numbers to be created through wind and solar PV

	Construction phase	Operation and maintenance	Total (construction and operation and maintenance)
Wind			
Direct	179,000	5,000	184,000
Indirect	198,000	5,000	203,000
Induced	216,000	6,000	222,000
Total	594,000	15,000	609,000
Solar PV			
Direct	80,000	2,000	81,000
Indirect	79,000	2,000	81,000
Induced	88,000	2,000	90,000
Total	247,000	6,000	253,000

Source: Price Waterhouse Copper. 2021. *What a 'just transition' means for jobs in South Africa: considering employment in a lower-carbon economy.* Pg.11

Appropriateness of Employment

Finally, many of the jobs offered through the Just Transition will either a) require tertiary education or b) not be located in the regions where coal mines are. After the boom in employment associated with construction, many Just Transition jobs will be in the knowledge economy, focused on the design, maintenance, and sale of new technologies. While some miners, and certainly some machinists, will be able to find work in these roles, many will find their skills not suitable for the changing nature of transition employment.

Further, regions will be unevenly hit by the loss of coal mining jobs and many of these regions will not be 'natural homes' for new forms of employment. Consider Southern Zambia's Maamba province. There is no reason that, without substantive demands being placed on government and future employers, new jobs will come to Maamba rather than Lusaka or Kitwe.

The Primacy of 'the Environment' or 'the Community'

Several understandings of the Just Transition, particularly those associated with environmental organisations, downplay the importance of the workforce and community members' livelihoods in these transitions.

Advocates of transitions that call for an immediate end to coal mining often argue that climate change disproportionately affects the world's poorest people and highlight the malignant impacts of coal production and coal-fired power generation on coal communities.[xciii] Much of this work therefore fails to consider the disconnect between the closing of any specific coal mine and the reduction in global warming, as well as the sunk costs, in terms of environmental damage, that coal producing communities and communities with coal-fired power stations already bear.

Private 'Innovation'

Many Just Transitions argue for a greater role for the private sector.[xciv] There are two key reasons for this.

- Most African electrification systems will need a substantive influx of capital to move away from coal.
- Jobs in new forms of electrification are typically associated with private companies that have engaged in extensive research and development.

This leaves substantive questions about the responsibilities of private electricity providers to their workforce and the nation. This is particularly true where coal mines have often been, at least partially, state assets and where the state has taken responsibility for electrification and subsidised usage.

National Economic Concerns

Changes away from a centralised grid diffuse responsibility for electricity from the nation state to a collection of providers. While many Africans do not have electricity now, much (but not all) current micro-grid technology offers weak electrical connection, suitable for home usage but not suitable for commercial purposes.

For several nations in this report, coal is a major source of export earnings.[xcv] Further, miners' salaries have traditionally been easier to tax than corporate profits, or even resource rents.[xcvi] National governments therefore need to consider how they will pay, not just for electrification, but for their national priorities more generally, as mining associated revenue is reduced.

The Unionisation Potential of New Mines

The rapid increased interest in transition minerals has encouraged two forms of mining.

- Artisanal mining of easy to reach minerals (cobalt being a classic example).
- New, high technology mines with few workers mining deposits that were previously not believed to be valuable.

Both these groups will be harder to unionise than large, long-term workforces.

TRANSITION MINERALS IN THE JUST TRANSITION

SOUTH AFRICA | ZAMBIA | ZIMBABWE | DRC

TRANSITION MINERALS IN THE JUST TRANSITION

This report will now focus on minerals across four nations that are expected to grow in value over the Just Transition.

Platinum in South Africa

Platinum, used in hydrogen fuel cells, has previously been shown to have a high degree of substitutability with other metals.[xcvii] While demand for platinum is expected to grow significantly, its substitutability may serve as a price cap, or may lead to poorer conditions for labour. There is already a highly developed mining industry in South Africa. However, the structure of South Africa's JETP means that mining unions feel that their concerns are listened to but not acted upon during consultation procedures.

Copper in Zambia

Copper is a high-impact, cross-cutting mineral, meaning that it is expected to be needed across many technologies associated with the transition.[xcviii] Demand for copper is therefore likely to be high and fairly certain over the medium term. Zambia's copper mines were the victims of a disastrous privatisation process and long-term underinvestment.[xcix] This means that many mines are now in the hands of Chinese corporations with poor human rights records and that the growing global need for copper has encouraged the growth of an artisanal copper mining industry.[c]

Lithium in Zimbabwe

Lithium is set to play a key role in the global energy transition, particularly in the storage of electricity as battery energy storage systems help reduce variation in output of renewable energy generation systems. Need for lithium is expected to increase 488 per cent by 2050.[ci] Zimbabwe is Africa's largest producer of lithium ore (with the largest lithium deposits on the continent) and has significant reserves of the sought-after mineral.[cii] These are largely unexplored and are believed to be the largest reserves in Africa. Zimbabwe has two main Lithium operations, the Bikita mine and the Arcadia Lithium project. There are substantive concerns about transparency in Zimbabwe's Lithium Sector.

Cobalt in the DRC

Cobalt is the archetypical high-impact mineral. It is expected that the need for cobalt will rise 500 per cent between 2018 and 2050.[ciii] More than 70 per cent of current global production occurs within the Democratic Republic of the Congo, and much cobalt mining is artisanal.[civ] However, more than half of cobalt's demand is in the battery industry, and this industry is attempting move away from cobalt, discouraging long-term investments in cobalt mining[cv]

South Africa's Just Transition

Key points

- **There are good reasons for South Africa to embrace a Just Transition.**
- **However, there are also significant reasons for South Africans to be hesitant about transitioning from coal mining haphazardly.**
- **South Africa's Just Transition should involve significant engagement with the union movement and local stakeholders and should prioritise enhancing justice within a deeply unjust nation and planet. This has not been the case.**
- **Many of the flaws of South Africa's Just Transition have been apparent in the decommissioning of the Komati Power Plant and Hendrina Power Station.**
- **For South Africa, the primary opportunities associated with the Just Transition are located within the platinum and associated metals industry.**
- **There is an extreme degree of scepticism around this transition, and this justified scepticism encourages unjustified climate change denialism.**

South Africa's engagement with policies, practices and politics centred upon the Just Transition is significantly deeper than that of the other African nations explored in this report. Where Zambia, Zimbabwe and the DRC produce minimal carbon per capita and in aggregate, South Africa is comparatively major carbon emitter. It is also a leader in the Just Transition space, signing the first international Just Energy Transition Partnership in 2021.[cvi] This partnership between South Africa and several donor nations is expected to serve as a model for future Global South nations to use in their transitions.[cvii] However, despite assurances to the contrary from the Presidential Climate Commission, local and national stakeholders have felt sidelined in the shaping of this transition. Similarly, while unions and COSATU have demanded a transition that reforms unjust structures within South African society,[cviii] the national Just Transition appears to be following a path of increased privatisation of South Africa's assets, and of worsening employment conditions for its mineral workers.

There are good reasons for South Africa to embrace a Just Transition. The World Bank sees this as part of a 'triple transition': mitigating climate change by moving to a low carbon economy; adapting to climate change by increasing national resilience; and protecting the poor and vulnerable through the Just Transition.[cix] South Africa is a comparatively high carbon emitting nation. It is the 13th largest total emitter of carbon dioxide (excluding historic emissions) and the highest emitter of carbon-per person in Africa (though still lower than many non-African nations).[cx] It is also approximately the 5th largest exporter of coal and uses over a quarter of the total energy consumed in Africa.[cxi]

South Africa's current energy system is rendering it uncompetitive and increasing inequality. The economy's carbon intensity was 3.2 times higher than the global average in 2019.[cxii] Loadshedding[1] from aging power plants reached 1,900 hours from the beginning of 2022 to the end of November, wiping over four billion Rand per day from South Africa's GDP.[cxiii] Further, South Africa's cheap coal-fired power has disproportionately benefited a small elite. The Energy Intensive Users Group (EUIG) is a group of 29 companies, that use up over 40 per cent of South Africa's electricity.[cxiv] Their activities are therefore subsidised by the externalities created through highly polluting coal-fired power.

In addition to carbon emissions, which are dispersed globally, South Africa's reliance on coal-fired electrification has intra-national and local health effects. Air pollution is estimated to cause the premature deaths of over 20,000 South Africans a year.[cxv] Further, the Olifants River, which serves over four million people and some of the country's largest irrigation schemes, draws water from catchments in the coal belt region and is one of the most polluted rivers in South Africa.[cxvi] Pollution is extreme in coal mining areas. Mpumalanga is the world's fourth worst Nitrogen Dioxide (NO2) pollution hotspot and is among the top three global Sulfur Dioxide (SO2) pollution hotspots.[cxvii] It has significant problems with soil pollution, undermining the many transition programs aimed at encouraging miners to become farmers.

However, there are also significant reasons for South Africa to be hesitant about transitioning from coal mining haphazardly. South Africa's development path has been strongly influenced by the relationship between mining and cheap, coal-based energy. South Africa generates over 80 per cent of its electricity through coal.[cxviii] In addition, coal is one of the country's largest exports by value, with approximately 25 per cent of South Africa's coal exported. This export of high-quality coal cross-subsidises some of the mining operations that supply Eskom and through that subsidies South Africa's daily electricity use and its manufacturing sector (which employs two-million people).[cxix] Further, a key way quality of life has increased for Black South Africans in the post-apartheid era is the rights-based extension of basic services, most notably household electrification, which has risen from 35 per cent of households in 1994 to 87 per cent in 2016. [cxx]

[1] The controlled reduction in electricity to households and businesses to protect system security, this results in rolling blackouts for many South Africans.

Finally, and perhaps most importantly for the union movement, coal-fired electricity in South Africa is a core source of high-quality, well-paid employment. Coal mining and coal-fired power generation directly employs approximately 100,000 South Africans (89,000 in coal mining and 12,000 in The Electricity Supply Commission (ESKOM)'s generation division)[cxxi] as well as those directly affected through being employed in electricity price sensitive fields like manufacturing. Coal miners' median pay of 600 USD a month is twice the median of other formal sector workers.[cxxii] Eskom's workers earn an average of 900 USD a month.[cxxiii] While almost all Just Transition proposals promise the offer of new employment, little of that employment appears to be of the same quality.

Neither the endangered jobs nor their potential replacements are dispersed equally throughout South Africa. Rather, the province of Mpumalanga, with a population of 4.4 million people, is expected to lose between 150,000 and 200,000 jobs.[cxxiv] This loss of almost 20 per cent of the formal workforce will be devastating for the region's economy, making many small businesses and informal sector monetary opportunities unviable. It also has the potential to decimate regional finances, coal-associated taxation accounts for half the municipal revenue in eMalahleni.[cxxv] A poorly managed transition will affect not only workers but also the most vulnerable, who need services, are unlikely to receive unemployment benefits and have little or no resources to fall back on.

Women have historically been excluded from South Africa's formal mining sector.[cxxvi] This is rapidly changing, and it is possible that women will be beneficiaries of the promised drastic increases in platinum mining. However, a key gendered concern of the Just Transition is that women are already suffering disproportionately from the slowing-down of coal extraction. In the Mpumalanga region of South Africa, around 30 per cent of the GDP comes from informal coal, and 12-15 per cent of the informal workers are women.[cxxvii] These women are clustered in the less profitable parts of this industry, picking coal for household use and local sale.[cxxviii] When coal is scavenged for sale to enterprises through organised collectives, the leaders are typically male.

Women who live in coal communities also make significant contributions through the surrounding cash economy. Often these contributions are semi-formal, like food sales, and sometimes dangerous, including sex work.[cxxix] A Just Transition must incorporate these concerns to the same degree as the concerns of formal labourers.

In Mpumalanga, and other South African mining areas, women's unpaid agricultural labour has long subsidized male mining work. Many men have also lost their ability to farm, and cultural shifts associated with mining turned farming into a feminised role. Women's agricultural work is therefore deeply affected by mine pollution, while men suffer from mine closure in a cash economy.[cxxx] Sesele's research in the Free State Goldfields in South Africa shows that mine closure erodes the authority of and respect for women within households and the broader community.[cxxxi] Men are able to migrate for work, while women stay behind dealing with the consequences of the failing local economy.

South Africa's Just Transition in Practice

For these reasons, South Africa's Just Transition should involve significant engagement with the union movement and local stakeholders and should prioritise enhancing justice within a deeply unjust nation and planet. This has not been the case. The Just Energy Transition Partnership is based upon 8.5 billion USD, funded by Britain, France, the United States, Germany, and the EU.[cxxxii]

This was secured to assist in South Africa's transition to a low-carbon economy and boost the investment in and production of renewable energy. Only 3 per cent of that 8.5 billion USD is in grants; most is in investment guarantees and concessional and commercial loans.[cxxxiii]

The South African Government has also taken a 497 million USD loan to decommission and repurpose the Komati coal-fired power plant, using renewables and batteries and will take a loan of 600 million Euro (currently 10.6 billion Rand) loans with France and Germany to help South Africa reduce its reliance on coal and shift to cleaner energy.[cxxxiv] South Africa's national debt is 4.011 trillion Rand, almost 75 per cent of GDP and this emphasis on international pro-market finance in its transition has dictated a pro-market Just Transition (see below).[cxxxv]

The President's Just Transition Framework commits to significant consultation and to creating social justice.[cxxxvi] It is centred around enhancing distributive justice (including transformative economic and social policies and strengthening local capacities); restorative justice (including remedying past harms associated with the coal industry through equitable access to environmental resources and land redistribution); and procedural justice (engaging in inclusive and participatory decision making around the Just Transition). A key stakeholder in this process has been COSATU, which has been advocating for a Just Transition at a national level since 2010.[cxxxvii] COSATU centres capitalism as the cause of the global climate crisis and calls for a movement to eco-socialism; a radical vision for a better life through the mobilisation of workers and communities, enabling a restructuring of the economic to support people, not profit.[cxxxviii]

In practice, unions and community groups from Mpumalanga report inadequate consultation and a Just Transition that entrenches, rather than challenges, national and international inequalities. Union leaders and civil society members have complained that consultation sessions serve to inform them of the progress of the transition, rather than allowing their concerns to dictate action.[cxxxix] Seemingly directed by IFIs, South Africa's Just Transition has placed a heavy emphasis on increased marketisation. Union leaders have expressed concern about the Renewable Energy Independent Power Producer Program (REIPPP), which replaces the publicly driven coal power with renewable, but privately owned, for-profit electricity.[cxl] While this program includes local content and local ownership requirements, National Union of Metalworks of South Africa (NUMSA) representatives claim that these have regularly been waved. Also of concern is the entwinement of the Just Transition with the unbundling[2] of Eskom and the focus on cost recovery. Directly referencing the Just Transition, the IMF called for the dismantling of Eskom, the laying-off of workers and the need to achieve a "full cost recovery".[cxli]

It continued that "competition from private firms is necessary" to achieve the transition. The World Bank sees the current Just Transition funding as useful for stimulating private sector investment.[cxlii] However, it argues that this needs to be accompanied by pro-market changes to South Africa's labour

[2] The separation of distribution, transmission, and generation responsibilities into separate companies, supposedly increasing efficiency through competition.

law, which will "ensure that the employment gains obtained in the low-carbon transition materialise in the private sector."[cxliii]

"Ensure that the employment gains obtained in the low-carbon transition materialise in the private sector." World Bank

Many of the flaws of South Africa's Just Transition have been apparent in the decommissioning of the Komati Power Plant and Hendrina Power Station. The Komati decommissioning was funded through a loan from the World Bank and is tied to plans to repower the facility using renewables and batteries. Long-term undercapitalisation means that Komati's power generation had dropped from 1 Gigawatt (GW) down to 121 Megawatts (MW). The project will decommission the Komati coal-fired power plant and repurpose the site with renewables (150 MW solar PV, 70 MW wind) and 150 MW batteries, more than Komati's current generation, but vastly less than is necessary in the public system.[cxliv] Further, the decommissioning involves clear guidance for transitioning permanently employed workers, however not for the hundreds of outsourced employees. Hendrina Power Station is due to be decommissioned by 2025, and 4 of its 10 generating units have already been switched off. The plant employs 500 permanent workers and 500 contractors.[cxlv] The latter will not receive any retrenchment benefits. The power station is also estimated to support about 10,000 jobs indirectly and contributes two billion Rand to municipal GDP.[cxlvi]

Platinum in South Africa's Just Transition

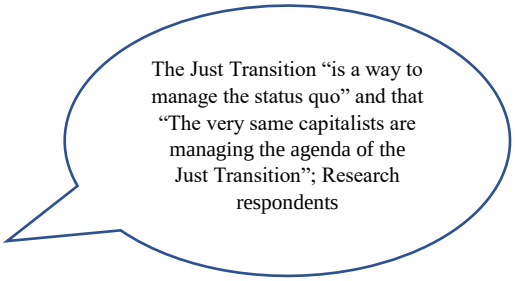
For South Africa, the primary opportunities associated with the Just Transition are located within the platinum and associated metals industry. There are currently 171,000 people employed in platinum mining (down from a peak of 200,000 in 2008) and World Bank expects that over 381,000 net direct jobs will be gained in platinum metals by 2050, offsetting all net jobs losses associated with the Just Transition.[cxlvii] However, there are reasons to be cautious about this claim. Platinum, used in hydrogen fuel cells, has previously been shown to have high degrees of substitutability with other metals. Platinum prices previously peaked at 2,000USD an ounce in 2008, before reaching a trough of 600USD an ounce in 2019.[cxlviii] They are back to over 1,000USD now, but the market is clearly volatile. Current expectations of significant increases in platinum associated minerals' use are likely. However, platinum's employment opportunities are less stable than many other minerals.

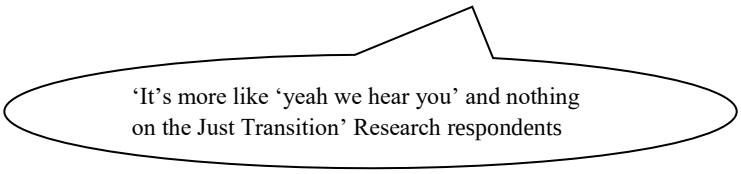
Platinum is significantly more labour intensive than coal mining. A typical platinum worker generates $50,000 of revenue annually, about a fifth of that created by a coal miner (2007-2013).[cxlix] Platinum workers therefore earn on average 35 per cent less than coal miners and work in more dangerous conditions.[cl] This is likely to remain the case during the Just Transition.

As late as 2016 residents in Rustenburg mineworker communities were four times more likely than the average South African to live in a shack.[cli] Perhaps most importantly, the promised increase in platinum employment associated with the Just Transition will only occur after 2037, yet the transition proposed in the World Bank's predict the coal mining jobs will disappear before this.[clii]

Scepticism and Poor Communication within South Africa's Transition

This leads into the most important finding on South Africa's Just Transition. There is an extreme degree of scepticism around this transition, and this justified scepticism encourages unjustified climate change denialism. The World Bank and government advisors acknowledged as much in their presentation to the Presidential Climate Commission (PCC) Skills for A Just Transition Hybrid Indaba, explaining that the mining community was being asked to take "known short-term risks for long-term benefits".[cliii] However, union figures from both a regional and national level feel justified in questioning this risk.[cliv] Linking the current transition to intra-national historic, race-based inequalities of wealth and the perception of government corruption, the researchers were informed that the Just Transition "is a way to manage the status quo" and that "The very same capitalists are managing the agenda of the Just Transition". Unionists also link this to international injustice, noting that the countries that dictate the Just Transition have used their own carbon resources to reach a point of wealth and satisfaction. Further, Great Britain has just opened a new coal mine and Germany has (supposedly temporarily) expanded coal production. While the unions have representatives on the PCC, these national representatives claim to be underutilised. The researchers were told: "It's more like 'yeah, we hear you' and nothing on the Just Transition consultation with the workers". At a local level, in Mpumalanga, where the job losses will be greatest, regional staff feel completely unconsulted.





The vertical imbalance within the consulting process is a problem more generally. NGOs and CSOs are invited to consultation workshops in Mpumalanga but believe that decisions have already been made in Johannesburg (and internationally) and they are just being dictated to.

Their presence at workshops should not be read as evidence of 'participation' in or 'local ownership' over the Just Transition process, but instead low time-cost attempts to find employment or funding.

More broadly, miners, communities' members and company representatives disbelieve the claim that coal mining is being phased out. Those living in Mpumalanga witness the regular opening of new mines, and union researchers are concerned that a focus on the transition allows increasingly mechanised mines to replace permanent workers with subcontractors. Those working for mining companies human resources also believe that coal in Mpumalanga is also likely to remain part of South Africa's energy mix for another 40 years, twice the time expected by the World Bank. All parties point to load shedding nationally and the rapidly growing international coal market as evidence on coal's ongoing importance to South Africa.

The distrust generated by poor communication and rational observations of injustice and inconsistency has also encouraged scepticism towards climate science. Multiple interviewees from the unions and civil society, after providing detailed critiques of South Africa's Just Transition, diverged into criticising the science behind climate change. One claimed, "floods were there from time immemorial, we had them before we had the climate change agenda". Rather than seeing this statement as embedded in ignorance or conspiracy theory, it is worth focusing on unions and workers' core concern about the Just Transition; that in South Africa, the Just Transition's advocates still need to articulate to the workers who will sacrifice for this transition the answer to the question "A Just Transition: For who and for what".

'Floods were there from time immemorial, we had them before we had the climate change agenda'; research respondents

Zambia

Key Points

- **The Government of Zambia desires to reduce carbon emissions through support from donor nations and international financial institutions.**
- **Zambia has a small coal industry that is likely to expand, rather than contract, as part of the Just Transition.**
- **These coal workers earn less than copper miners and are more likely be abused by their employers, who are almost all Chinese.**
- **Zambia has long had quality, unionised copper mining work. However, a scramble for new copper and cobalt and the limited employment within nickel mines threatens this.**
- **New mines are rapidly opening that resist unionisation by claiming to be small scale, yet many are medium-scale enterprises using significant mining equipment.**
- **Africa's largest nickel mine is also opening in response to the energy transition, however it will employ very few Zambians.**

Zambia's engagement with the concept of the Just Transition is less developed than South Africa's and will be for some time. However, the Zambian government has shown a strong commitment to reducing carbon emissions and a desire for this to occur through support from donor nations and international financial institutions. Zambia initially seems like a country that will benefit from the Just Transition, it is the second largest producer of copper on the African continent and has deposits of manganese, cobalt, and nickel.[clv] Copper and manganese are high-impact, cross-cutting minerals, meaning that they are expected to be needed across many technologies associated with the transition. Demand for both is therefore likely to be high and fairly certain over the medium term. Demand for nickel is expected to double.[clvi]

Further Zambia only has a small coal industry that provides a fraction of domestic energy consumption. However, as climate change makes Zambia's hydroelectric-power less reliable, and as demand for copper grows, industry leaders expect to mine more coal. Zambia's mining unions, especially the Mineworkers Union of Zambia, are well established and influential and its traditional copper sector provides decent wages and safe work. However, new small-and-medium sized mines are opening in response to demand associated with the Just Transition. These mines are less safe and resist unionisation. Conversely, Africa's largest nickel mine, to be opened in Zambia this year, will be heavily mechanised, only employing 700 workers.[clvii]

Zambia's mining industry therefore highlights several key tensions within the Just Transition. Increased demand for transition minerals is likely to come with increased coal demand; and rapid expansion of demand incentivises both small scale mining and heavily mechanised mining,

neither of which are naturally conducive to union work nor to the influence the MUZ holds over the government.

Women were excluded from Zambia's formal mining sector under colonial rule, despite their involvement in pre-colonial mining.[clviii] As in South Africa, they have long been involved in the informal tailings mining and their contributions to mine townships (often poorly re-numerated and sometimes dangerous) have made mining possible. However, over the last 20 years, the mines have actively sought out women and their increased role in the formal mining industry has been correlated with improved gender equity.[clix] There is a serious danger that the scaling down of the coal industry, and the growth of informal and semi formal copper mines will dampen these gains in gender relations. Further, in Southern Province, women's agricultural labour is crucial to coal mining livelihoods.[clx] Yet this work is becoming increasingly difficult due to mine pollution. Either maintaining or closing the coal sector must therefore consider how agricultural livelihoods can be compensated or assisted.

Energy Transitions within Zambia

As part of its Nationally Determined Contributions (NDCs) under the Paris agreement, Zambia intends to conditionally reduce its greenhouse gas emissions by at least 30 per cent by 2030.clxi However, this NDC does not define a Just Transition. These emissions are not large to begin with -0.37 metric tons per capita, placing Zambia in the bottom handful of emitters.clxii Further, Zambia aims to increase household electrification, with only

43per cent of households currently electrified.clxiii The President has also declared a desire to increase the country's copper production from about 800,000 tons per year to about 3

million tons a year within the next decade to meet the surge in demand for materials that enable the green energy transition.[clxiv] To this end, Zambia hopes to increase geothermal, wind and solar electricity by 2030.

Zambia has received very little climate finance, which in Africa, has gone almost exclusively to 10 countries. These are Morocco, Egypt, Kenya, Nigeria, Ethiopia, South Africa, Mozambique, Cote d'Ivoire, Tunisia, and Ghana.[clxv] Reports have identified governance constrains as the key reason for this, with African nations and organisations within them competing for these funds.[clxvi] However, it is not unreasonable to note that the nations that receive climate funds are often geo-strategically significant.

Zambia has called for more transition finance. In its submission on behalf of the African Group of Negotiators to the UNFCCC, Zambia called for Global North nations to provide at least 1.3 trillion USD per year by 2030, 50 per cent for mitigation and 50 per cent for adaptation, with a significant percentage on a grant basis from a floor of 100 billion USD.[clxvii] They also called for a clarification of the difference between 'provided finance' which comes directly from Global North national budgets and 'mobilised finance', private investment often convolved with gifted finance in announcements.[clxviii]

For Zambia to increase geothermal, wind and solar electricity by 2030 it will need substantive external funding. However, the nation's debt-to-GDP ratio is currently 122.8 per cent so it will struggle to take on more loans, even those which are concessional.[clxix] Further, international investors in Zambia co-opt Just Transition language in arguing for the weakening of worker protections. Law firm Herbert Smith Freehills partner and Africa co-chair Peter Leon claimed that the green energy transition presents an "unparalleled" opportunity for Zambia, before calling for pro-market reforms.[clxx]

Coal Mining in Zambia

Zambia has a small coal industry based around three electricity producers in the Southern Province. These are Collum Coal Mines, Maamba Collieries and African Power Mine. Maamba Collieries is owned by Nava Bharat (Singapore) Pte**,** which holds 65 per cent of the company, with the government having 35 per cent co-ownership.[clxxi] The total workforce at Maamba is 1,006 workers, however only 144 of them are directly employed by Maamba.[clxxii] While these workers are reasonably well-paid, workers for Admol, one of the subcontractors, earn as little as 1,350 Zambian Kwacha (ZMW) per month – the minimum salary possible for a general worker without formal qualifications.[clxxiii] Maamba Collieries provides low grade coal to the national power gird and higher-grade coal to local businesses including cement mixers.

The coal industry is expanding its production in Zambia. Collum Coal Mine, which has previously been on care and maintenance for reasons relating both to productivity and safety, employs 500 Zambians. The Africa Power Coal mine in Chisanga opened in 2022. The MUZ has not been able to unionise there because workers are already unionised through a retail workers union (typically a weaker form of union). Initial reports claim that the mine will generate 500 long-term jobs in the region.

There are significant concerns about environmental damage associated with these coal mines. Water and land pollution is making farming livelihoods impossible, which in turn makes the communities more dependent upon the coal mines.[clxxiv]

There is also significant evidence that Zambia will increase, rather than decrease its coal consumption. The head of the Zambia Chamber of Mines, who is also the head of the Chamber of Mines associations for Southern Africa, explained that the Chamber of Mines "supports a Just Transition" but for him this meant ending coal mining by 2060.[clxxv]

He noted that the President's desire to over-triple the production of copper, a key transition mineral, would necessitate more electricity. This is unlikely to come from Zambia's dams, which are drying because of climate change. Further, he noted that Zambia has been importing (coal-fired) power from Eskom in South Africa.

Copper Mining and Zambia's Just Transition

Like South Africa's coal mining sector, Zambia's copper mines have traditionally been heavily unionised and provided comparatively safe and well compensated work. MUZ has approximately 13,000 members and another 15-20,000 mineworkers are unionised through splinter unions including the National Union of Mine and Allied Workers (NUMAW), the United Mineworkers Union of Zambia (UMUZ) and the Mine Contractors and Allied Workers Union of Zambia (MCAWUZ).[clxxvi] Miners' unions, and in particular MUZ, were crucial to the decolonisation and democratisation process.[clxxvii] They are influential in government, with many MPs and cabinet members being former unionists. For Copperbelt miners, wages range between 3,000ZMW and 10,000ZMW.[clxxviii] The industry seemingly expects a profitable future, evidenced by First Quantum Minerals desire to buyback the government's share in its operations.[clxxix]

MUZ however faces significant challenges in the major mines that it has traditionally drawn support from. Its biggest challenge is the increased use of subcontracted labour. In some mines, subcontracted workers make up over 50 per cent of the workforce, they are more likely to suffer injuries and some are paid as little as 850 ZMK a month.[clxxx] Further, where 80 per cent of Mopani Copper Mines permanent workforce was unionised in 2017, only 17 per cent of subcontracted workers were.[clxxxi] Similarly, unionisation rates in the newer mines in Zambia's Northwest are much lower than on the Copperbelt, at 40 per cent rather than 80 per cent.[clxxxii]

Finally, some political commentators have accused the major unions, including MUZ, of being too close to the previous Patriotic Front government, which is weakening their relationship with the incumbent United Party for National Development.[clxxxiii]

The Just Transition has also resulted in the emergence of new mines in Zambia. MUZ reports increasing small scale copper and cobalt mining in the Northwestern Province and the Chamber of Mines claims that there are small scale manganese mines operating in the Northern Province.[clxxxiv] In each case these smaller mines are not affiliated with the Chamber of Mines and are avoiding unionisation. MUZ has been unable to obtain data on the number of workers but believes that there are not less than 5,000 miners.[clxxxv] Further, they claim that Chinese entrepreneurs depict themselves as small scale miners despite using large-scale equipment. MUZ estimates that this form of mining provides employment to another 3,000 Zambians, some of whom earn as little as 800ZMW a month.[clxxxvi]

Conversely, and also chasing resources associated with the Just Transition, Zambia is in the process of opening the Enterprise Nickel project. This will be Africa's largest Nickel project, expected to produce 30,000 tonnes of Nickel annually, yet will only generate 700 full time jobs.[clxxxvii] Zambia's transition resources then are trapped between two concerns: small mines chasing fast profits and endangering workers in the process; and heavily mechanised new mines that offer few employment opportunities.

The lack of unionised employment opportunities associated with transition minerals in Zambia is problematic for the nation, not just the unions. This is because MUZ has been unable to establish social dialogue with relevant line ministries to address various challenges that emerge in the mining sector, especially related to MNCs, and foreign direct investment (FDI). However, they have not been able to integrate issues around sustainable mining and working with mining-affected communities and civil society organisation. These means that unionised mine labour has been crucial to ensuring that communities around a mine-site, and Zambia more generally, benefit from resources. As demand increases for Zambia's copper, cobalt and manganese, a core challenge for the government and the unions is to determine how to ensure these resources benefit the nation.

Zimbabwe

Key points:

- **Zimbabwe's isolation by Global North powers means it is less likely to undertake a donor led Just Transition.**
- **The nation's needs capitalisation to improve its energy generation.**
- **Zimbabwe was attempting to increase electricity through coal-fired power. However, it has not been able to find a nation or company to finance this.**
- **It is seeking private investment to transition its electrification to solar.**
- **There are approximately 4,280 coal miners, centred around Hwange province. These workers, their union and their local government have not been involved in any Just Transition planning.**
- **Lithium projects currently employ 2,050 workers but have informed the unions that they will employ more than 7,000 after completion.**
- **These workers are paid the minimum salary. However, they often experience unsafe working conditions.**
- **There are serious concerns about the transparency of lithium contracts.**
- **Zimbabwe recently banned the sale of unbeneficed lithium, due to concerns about the artisanal mining sector.**

Zimbabwe's isolation by Global North nations means that it has been less fully engaged with the policies, practices, and discourses of the Just Transition than either Zambia or South Africa. It does however have a NDC in which it partners with the UNDP (United Nations Development Program), World Bank and Common Market for Eastern and Southern Africa (COMESA). It is also attempting to attract significant private funding to reduce its dependence on coal.

Zimbabwe's carbon emissions per person are 0.77 metric tonnes per year, a number that has declined over the last 15 years.[clxxxviii] Zimbabwe generates 1,300MW of power, however if its energy generating resources were operating at full capacity it could produce double this.[clxxxix] Four large coal fired power stations offer 2,240MW of power and the Kariba South hydropower station provides approximately 750MWs.[cxc] However, these stations are old and falling into disrepair. Climate change, leading to more regular droughts, has also reduced the reliability of the Kariba South hydropower station.

Zimbabwe has a significant commercial mining industry. As well as providing 13 per cent of GDP, mining contributes about 53 per cent to exports, 12 per cent to fiscal revenue, 50 per cent of FDI and provides 35,000 formal sector jobs.[cxci] Zimbabwe has a GDP of about US$15 billion and the mining sector generated revenues of US$10 billion over a five-year period (2010-14).[cxcii]

It is the world's fifth-largest lithium producer and recently signed a law to ban the export of unbeneficiated lithium..[cxciii] Zimbabwean union leaders are particularly worried about the impacts of a transition away from coal on the Hwange province and claim that neither they nor their interlocutors have been consulted by the government. There are also substantive concerns about working conditions in the rapidly expanding lithium industry.

Unlike in South Africa and Zambia, Zimbabwe's formal mining sector is still unwilling to employ women. The Marange Women's Alliance Chairperson claims that Zimbaqua is the first mine in Zimbabwe's history to hire women.[cxciv] In the informal sector, women make up about 10 per cent of the 535,000 artisanal and small-scale miners in the country.[cxcv] Several organisations are working to create and support all female or female led artisanal mining collectives. These include the Mberengwa Miners Associations (MBEMA) and Zvishavane Women's Mining Association (ZWMA). MBEMA was formed in 2015 and has more than 500 members—a third of which are women. ZWMA is an exclusively female mining association with more than 200 members.[cxcvi]

Energy Transitions within Zimbabwe

In 2019 Zimbabwe launched its NDC and its Low Emission Development Strategy. Zimbabwe's NDC defines the Just Transition as ensuring that the benefits of delivering a green economy are widely shared and that support is provided to those that may be at risk, for example those working in polluting industries. The NDC aims to prioritise environmental protection, climate resilience and natural resource management. Key to both adaption and mitigation will be the improvement of infrastructure and utilities.

Zimbabwe has received limited external funding, however funds within its partnership framework have increased from 72 million USD in 2019 to 121 million USD in 2021, with partner organisations including the UNDP, the World Bank and COMESA.[cxcvii] The ILO and the government of Sweden have also been working with the Government of Zimbabwe and the Zimbabwe Congress of Trade Unions on a Green Enterprise program.[cxcviii]

A key aspect of Zimbabwe's response to climate change is to search for alternative forms of electrification. The NDC Green Jobs report considers scenarios based upon increases in hydropower, biomass and solar. Some of these potential proposals necessitate large amounts of government investment and may provide quality unionised work. For example, a proposal to increase electricity generation from the Batoka hydro station will require 5.4 billion USD but is estimated to create 300,000 additional jobs by 2035.[cxcix] However, other policies, including biogas and off-grid solar require little investment and will produce few jobs (approximately 10,000 in 2035).[cc]

Zimbabwe is also hoping to use the private market to increase non-coal fired electrification. The government offered incentives supporting 1billion USD of privately owned soar projects. These 27 projects aimed to provide 1,000MW of electricity, more than the Hwange Thermal Power station.[cci] Political figures have also been lobbying the government to remove taxes on the importation of solar energy components, including the 15 per cent Value Added Tax.[ccii]

Coal Mining in Zimbabwe

Coal provides most of the Zimbabwe's electricity for domestic and industrial use. However, the nation's aging coal plants are prone to frequent breakdowns, impacting mines, industry, and households. In 2013 the Chinese-backed China Africa sunlight energy announced that it would begin work on a 600MW coal-fired electricity plant, and in 2020, a consortium led by the China Gezhouba Group, announced a 3 billion USD coal fired power plant in Sengwa, which was to generate 2,800 MW of power.[cciii] The latter is currently looking for a new source of finance because the Industrial and Commercial Bank of China will no longer fund coal-based projects. The former appears to have never come online.[cciv]

According to the ZDAMWU, there are 4,280 directly employed coal miners in Zimbabwe.[ccv] The majority of these workers earn the National Employment Council (NEC) minimum of 250 USD per month.[ccvi] The majority of Zimbabwe's coal companies are Chinese operated and while they pay the minimum wage, workers work unduly long hours and do not receive the required PPE. The only operation that pays above NEC minimum is Zhong Jian, where regular strikes have pushed up wages and where 89 per cent of workers are members of the ZDAMWU.[ccvii] Hwange Colliery, which employs 1,700 workers and is partially government owned, only pays 75 per cent of the NEC minimum wage.[ccviii] It is also operating at much lower than full capacity.

ZDAMWU representatives claim that there has been no previous engagement on the Just Transition, or the transition from coal more generally, despite the failures of the Chinese operations to secure finance. They also claim that the local government of Hwange has not been consulted and that there is significant concern among miners and community leaders.

Lithium and Zimbabwe's Just Transition

Zimbabwe is in a strong position to benefit from lithium's role in the Just Transition. Lithium is set to play a key role in the global energy transition, particularly in the storage of electricity as battery energy storage systems help reduce variation in output of renewable energy generation systems. Need for lithium is expected to increase 488 per cent by 2050.[ccix] In November 2022, the price of lithium was over 80 000 USD per tonne.[ccx]

Zimbabwe is the Africa's largest producer of lithium ore (with the largest lithium deposits on the continent), and the fifth largest overall producer globally. The nation produced 1,600 metric tonnes of lithium in 2019 and has the potential to account for 20 per cent of global lithium demand.[ccxi]

While this should greatly strengthen Zimbabwe's economic position, several reports have questioned the transparency of the lithium contracts awarded.[ccxii]

The nation has both active lithium mines and significant projects in the development stage. The Bikita mine is one of the largest lithium mines in Zimbabwe with reserves of 10.8 million tonnes of lithium ore and 150,000 tonnes of lithium.[ccxiii] In June 2022 the Sinomine Resources Group bought the Bikita mine for 180 million USD with a promise to inject 200 million USD to expand operations.[ccxiv] It has 600 direct employees. However, Sinomine is constructing two additional processing plants, with the expectation that when these are completed it will employ up to 2000 workers.[ccxv]

The Arcadia mine is expected to begin lithium extraction in the first quarter of 2023.[ccxvi] The mine will produce 212,000 tone spodumene concentrate, 216,000 tonnes of petalite concentrate and 188,000 pounds of tantalum per annum for the next 12 years.[ccxvii] Zhejiang Huayou bought a controlling share in the mine in 2022 for 422 million USD.[ccxviii] It currently employs 1,000 workers in mine construction and is said to be expecting to employ 3,000 workers upon completion.[ccxix] Sabi Star Mine is under construction. It currently employs 400 workers in construction but expects to employ more than 2,000 miners upon completion.[ccxx]

There is also significant prospecting taking place, with the possibility of additional new mines. Zulu Lithium have employed 50 workers for exploration.[ccxxi] The Kamativi Lithium project, including the Arcadia mine and the Kamativi Tin mine is believed to be among Africa's best Lithium prospects.[ccxxii]

In December 2022, the government of Zimbabwe banned the export of unbeneficed lithium.[ccxxiii] This was claimed to be in response to artisanal and small-scale miners selling the product, through intermediaries at less than its market value. The Zimbabwe Miners Federation now has exclusive lines rights to buy the mineral, while assisting small scale and artisanal miners. However, large mines mentioned above are exempt from this ban, as they either have, or are in the process of creating, forms of beneficiation.

Democratic Republic of the Congo

Key points:

- **The Democratic Republic of the Congo has been described by as a 'solution country' for the Just Transition, producing up to 75 per cent of global cobalt.**
- **The nation has a very small coal mining industry and derelict power plants.**
- **Large-scale mining employs 40,000 people. Permanent workers are relatively well-paid. However, half the industry is made up of subcontracted workers with poor salaries and working conditions.**
- **Artisanal mining employs 150,000 people. There are debates about wages and working conditions in this sector, but they are uncontestably worse than in formal mining.**
- **International companies are attempting to move away from cobalt due to fears about wages and working conditions in the artisanal mining sector.**
- **Workers and labour groups, including IndustriALL, instead call for collective action or unionisation for artisanal miners.**

The DRC has been described by its government as a 'solution country' for the Just Transition.[ccxxiv] The DRC's reported production of cobalt ranges from 41-74 per cent of global mined cobalt. It also holds other key minerals for electricity transmission and battery creation, including lithium and copper.[ccxxv] Further, the Congo Basin rainforests form the world's largest carbon sink.[ccxxvi]

Energy Transitions in the DRC

Of all the countries in this study, the DRC should be the clearest winner out of the Just Transition. Its economy its almost totally dependent on the extractive sector. This accounts for between 10 per cent and 20 per cent of GDP, over 40 per cent of government revenues and up to 99 per cent of export earnings (including oil), depending upon the price of various commodities.[ccxxvii] It also provides formal employment to 375,000 people and up to 2 million informal workers.[ccxxviii] The majority of the DRC's mined commodities are likely to increase in value, including copper, cobalt, zinc, tin, tungsten and manganese.[ccxxix] Further, the nation has an exceptionally small coal industry, with hydropower providing 96 per cent of domestic power generation.[ccxxx] However, the role of artisanal and small-scale miners in the DRC's transition minerals industries is deeply contested. Concerns about their wellbeing, salaries and work-rights have encouraged various programs by the government, NGOs, consumers, and unions. They have also accelerated a push to find replacements to cobalt.[ccxxxi]

Finally, the cobalt industry is almost entirely dependent on Chinese companies, weakening the bargaining power of the DRC's government and workers.

In its 2021 NDC, the DRC committed to reducing its carbon emissions by 21 per cent before 2030, 19 per cent of which is conditional upon support in line with the principal of a 'fair share' of climate costs.[ccxxxii] To achieve this, the country will mainly focus on its forestry, agriculture, and waste management services. It has also set an aggressive target of providing electricity to 60 per cent of its population by 2025- up from the 6 per cent current electrification rate. The nation currently produces 1,245MW of guaranteed energy capacity.[ccxxxiii] Its current carbon emission per-capita are therefore miniscule, at 0.04 tonnes per person.[ccxxxiv]

The gendered impacts of the Just Transition in the DRC are politicised and deeply contested. Women have traditionally been excluded from the formal mining sector.[ccxxxv] While this is improving, at least in part motivated by company reputation, less than 10 per cent of the DRC's industrial miners and less than 1 per cent of policy makers are women.[ccxxxvi] One study found that only 17 per cent of women and 20 per cent of men believed women had a legal right to work in the mines.[ccxxxvii] The situation is vastly different for women in the artisanal sector and mine-associated informal sector. Estimates place women at close to 40 per cent of informal miners.[ccxxxviii] There are no reliable estimates for the cobalt sector, but half of gold miners and 30per cent of tin, tungsten and tantalum miners are women.

Findings on women's employment in these sectors are mixed. Several studies argue that women participate in artisanal mining because it offers higher salaries and status that other roles available in their community.[ccxxxix]

Women work as miners and traders, however often the most prestigious and highest status roles go to men. Several artisanal mining operations are female only. Women also work in the informal industry surrounding the mines, sometimes in dangerous roles. 25 per cent of women in mining towns self-identified as sex workers, and 40 per cent reported trading sex for access to work or basic goods.[ccxl] Concerns about women's workplace conditions have often been highlighted to Global North audiences, encouraging a reduced use of DRC copper and major battery manufactures disengaging with the nation.[ccxli]

Coal Mining in the DRC

There is also very little coal mining in the DRC. Société Nationale d'Electricité (SNEL), the public utility, owns an estimated 39 power stations, including 24 thermal-powered stations.[ccxlii] However, these have a negligible electricity output. The nation produces 9,011 tonnes of coal and consumes 12,538 tonnes, including imports from neighbouring countries.[ccxliii]

Specific coal-fired power plants have been proposed to assist with the electrification of the nation and the mining industry. The Luena Katanga power station has been in production since 2012. This is a 500MW coal-fired plant aimed at increasing electricity for the copper and cobalt mines in the Katanga region. The price drastically increased from 648 million USD in 2012 to 2.8 billion USD by 2017 and the project has been shelved.[ccxliv]

Cobalt Mining in the DRC

The DRC is the world's primary provider of mined cobalt, supplying 70per cent of the world's mined cobalt production in 2021. This production is almost exclusively in the Southern Provinces of Lualaba and Haut-Katanga. The rapid rise of cobalt's price, to 95 000 USD per tonne in 2018 and 82 000 USD in 2022, means that cobalt has provided substantial recent wealth to the DRC and mining companies.[ccxlv] However, cobalt's price is highly volatile. In August 2019, when cobalt prices receded to 23 000USD per tonne, Glencore announced that it would place its world-leading cobalt mine on care and maintenance.[ccxlvi] Cobalt's price fluctuations have various effects, all of which are deleterious for workers. The formal copper industry relies heavily on subcontracted labour; most of the employers are Chinese; and the artisanal mining industry serves as a swing provider of cobalt.[ccxlvii]

Large-scale cobalt mining typically occurs in conjunction with copper mining, with the combination of the two making a mine viable. 80 per cent of the cobalt mined in the DRC comes from these large mines.[ccxlviii] In the provinces of Lualaba and Haut-Katanga 19 mines directly employ 40,000 miners and offer 22,000 indirect jobs. 15 of these 19 mines are Chinese owned, 90 per cent of the minerals extracted from Katanga are exported to China and 80per cent of mineral processing plants in Katanga are owned by Chinese companies.[ccxlix]

There is some empirical evidence that Chinese mines pay their workers less on average than international capital associated with the Global North. This is at least in part because these Chinese mines use a greater portion of subcontracted workers. TFM and Metakkol, two Chinese financed companies reported 68 per cent and 64 per cent of these workforce to be subcontracted.[ccl] Further, at Siconmines, Somidez, TFM and Metalkol workers report either experiencing or witnessing racism and discrimination almost daily.[ccli] In addition to this, China refines and consumes about half the world's cobalt.[cclii] The dependence of the industry on one international partner weakens workers' ability to negotiate with management and the nation's ability to control taxation and working conditions. It also makes the DRC dependent on the Chinese economy.[ccliii] This is not to say that conditions at non-Chinese owned mines are appropriate, subcontracted labourers at Glencore's Kamoto Copper Company, the largest cobalt-producing mine in the DRC, report earning as little as 135 USD per month.[ccliv] Human Rights Watch has also reported that Glencore (among other operators) has illegally bought artisanally produced cobalt from children.[cclv]

Further, this mining industry, like that of Zambia, is heavily reliant on subcontracted labour. Studies place the number of subcontracted workers in major mines at 57 per cent of the workforce.[cclvi] Subcontracting is legal only for short-term tasks. However, many subcontracted workers claim to work on long-term contracts. They rotate between tasks which are part of the regular life cycle and maintenance of the mine. Subcontracted workers report vastly lower salaries than permanent workers, with an average monthly wage of 335 USD, below the mining living costs of 402 USD per month.[cclvii]

Subcontracted workers are also more likely to work in excess of the legal maximum number of work hours without receiving overtime and report high levels of racism, lower levels of PPE and less access to (legally mandated) healthcare.[cclviii]

Artisanal miners switch between cobalt and copper mining, serving as swing producers based upon the cost relationship between the commodities. While these miners only produce 20 per cent of the DRC's cobalt, they are vastly more numerous than formally employed miners. In the entire DRC, there is an estimated 500,000 to 2 million artisanal miners across many different minerals.[cclix] In Katanga specifically, there are approximately 150,000 artisanal miners. As each miner has an estimated 4.5 dependents, the total number of people who directly rely on the industry is 825,000 in a region of 6 million people.[cclx] While nominally illegal, it is consistently reported that these miners sell more directly to the major mines for smelting.

The wages and working conditions on artisanal miners are deeply contested, with significant national and global political implications. Allegations of child labour have reduced significantly over the last 10 years, however, these are reasserted in the recent work of Siddharth Kara.[cclxi] Similarly, some outlets have reported artisanal miners earning as little as 14 USD per month, while others offer averages of around 10 USD per day and higher than 30 USD per day for the most successful miners.[cclxii] There are few studies however that do not acknowledge that artisanal mining is typically done without adequate safety protections.

Various stakeholders have posited ways to either regulate artisanal cobalt production or reduce its usage. Major electronics companies including Apple and Tesla are attempting to reduce the amount of cobalt in their products.[cclxiii] Several organisations have discussed creating certification schemes, similar to those used for conflict diamonds and conflict minerals. There are significant downsides for the miners in the Southern DRC from both of these decisions. As mentioned above, cobalt is a core provider of wealth in a very poor region. Reducing its usage will enhance, rather than reduce, local poverty. Similarly, internationally imposed certification schemes have been heavily criticised for creating an artificial market for 'clean' commodities, empowering politically connected brokers and experts, often from the Global North, while pushing the costs of this scheme onto the commodity producers.[cclxiv]

In contrast, artisanal producers, as a group, hold significant political power within the DRC. They have been arguing for the creation of collectives. The evidence of the efficacy of these collectives is similarly mixed. Some studies report substantive improvements in safety, while others present the collectives as imposing costs of artisanal miners without providing any additional services.[cclxv] IndustriALL is in the premier phase of identifying well organised collectives that could serve as an entry point for the unionisation of artisanal cobalt miners in the DRC.[cclxvi]

COMMONALITIES AND KEY LESSONS

South Africa can serve as a learning model for other African Transitions. Both the victories and the struggles of South Africa's Just Transition offer important lessons for future and emerging Just Transitions in Zambia, Zimbabwe, and the Democratic Republic of the Congo.

'Just Transition' is an unclear term, its meaning in every country will be determined through contest and/or cooperation. Because the term is deployed by some many actors with differing amounts of power, it is crucial that unions are involved in these contests, pushing for a transition that enhances workers' rights and justice in their nation and internationally.

Workers and communities unaddressed by rational concerns lead to climate denialism. Too often it is presumed that workers and communities need more education or sensitisation to improve their attitude towards climate change and the Just Transition. The community and workers' representatives who were most sceptical about climate change were those who felt their concerns about material conditions for communities and workers were not addressed.

Debt and donor dependency will shape most nations' experiences of the Just Transition. All the nations studied were deeply in debt, with donors and International Financial Institutions shaping their development policies. 'Just Transitions' based upon the JETP will therefore be shaped by the understandings of justice found in these institutions and in Global North nations. Unions may have the ability to build upon calls from the African Group of Negotiators to the UNFCCC for more clarification as to the grant and loans component of various climate finance instruments to foreground the need for these grants to reflect local understandings of justice.

A core example of these donor led Just Transitions is the push for private international capital to lead new electrification. In both Zimbabwe and South Africa there is an expectation that private capital will produce solar power. This will likely reduce the ability of the nation to use electrification in its development planning through things like subsidies to strategic industries.

There is a lack of capital for upgrading coal-fired power in each of the nations studied. This is a problem as in each case significant upgrades are necessary. This signifies a core injustice within the Just Transition, where African nations may be able to export their coal to wealthier nations, but not utilise it for their own development.

Coal mines and power plants are often funded by Chinese capital. While the Chinese government has recently stopped funding the creation of new coal-fired power, in both Zambia and Zimbabwe, Chinese SOEs are dominant players in the coal industry. Often their wages and working conditions are poor and these electrification systems are at the mercy of changes in Chinese climate-change policy.

There has been poor communication surrounding the Just Transition. In South Africa workers and CSOs in Mpumalanga feel they have been 'communicated to' rather than 'communicated with' about the Just Transition. Part of this is structural, donors and IFIs influence key decisions, which are made at a national level despite disproportionately affecting people in one region. Zimbabweans in Hwange have similarly heard nothing about how their region will be affected by their national climate action plan.

Miners and communities **lack confidence that they will receive the promised benefits of the transition.** This is most obvious in South Africa, where coal mining jobs will disappear long before they are promised to be replaced by platinum mining. Similarly in the DRC many workers do not believe they are experiencing any benefit from the rise in cobalt prices. **Workers, unions, and communities need to receive some material benefits from the Just Transition to encourage their long-term engagement with it.** This could involve the creation of downstream jobs associated with the transition being committed to transitioning coal mining communities. However, these jobs would need to be of a sufficient quality.

Rapid fluctuations in the value of a mineral encourage artisanal mining. This is most obvious in the DRC's cobalt and Zimbabwe's lithium sectors but can also be seen in Zambia's manganese sector. These artisanal miners are almost inevitably poorly paid and work in unsafe conditions and their presence weakens the power of the unions that represent the permanent workforce. **Coming up with ways to represent artisanal workers is a key challenge for unions in responding to the Just Transition**

More broadly new mines offer challenges for unions and governments. Mines have long been a source of strength for unions, due to their large, skilled workforces and high capital-to-labour ratios. Increasingly mines like the approved nickel mine in Northwest Zambia will have smaller, more international, workforces that are less likely to unionise. Determining how to represent workers in these mines is a core challenge for unions; and determining how to make sure these mines work for a nation is a core challenge for its government.

CONCRETE POLICY ACTIONS

All Nations

Working with IndustriALL, each nation's mining unions should create their own **National Definitions of the Just Transition.** This is a crucial first step, as when they are then negotiating with government, industry and civil society partners, unions must be able see how far proposed programs and policies, described by their partners as Just Transitions, are from their own understanding of justice. While each national Just Transition should be slightly different, the definitions argued for by COSATU and IndustriALL provide useful first steps (see appendix).

Each national definition should be used to guide **Agreed upon timelines and plans for decarbonisation.** These plans are primarily the responsibility of a national government. However, having government, industry and investors disagree on their timelines for decarbonisation creates significant risks for workers in carbon intensive industries. This is complicated by the need to finance continued coal-fired electricity. If mines in Zambia and Zimbabwe are scheduled to continue producing until 2060 or later, but coal-fired electricity systems are not upgraded, this could allow the mining companies to avoid the costs of retraining and environmentally-sound mine closure when the mines cease to be viable.

These definitions should also lead to **Policies over the beneficiation of transition minerals.** Across each of the nations studied transition minerals have the potential to significantly improve state budgets and workers' livelihoods. However, all four nations have previously done a poor job of capturing the wealth provided by their resources. Transition minerals are likely to exacerbate this problem. Artisanal and small-scale mining pays workers directly, but often undercompensates both workers and the state for the value of resources. New, highly mechanised mines employ few workers and, in tax regimes including Zambia's, are likely to pay little tax due to writing-off their equipment as expenses. Workers should therefore be involved in discussions about beneficiation in a manner that acknowledges how older, worker-driven mining has made newer mines possible and which attempts to correctly price the labour and minerals in artisanal and small-scale transition mining. Examples may include single-buyer desks for artisanal miners and trust funds for retraining paid for from new mines' resource rents.

South Africa

To maintain support among the most vulnerable stakeholders, it is crucial to **Secure immediate material benefits for Mpumalanga and coal workers.** Under the timeline offered by the World Bank, coal mining jobs will disappear a long time before platinum mining job numbers increase. Further, many people in Mpumalanga's coal mining industry doubt that a transition will occur at all. The combination of these factors has encouraged a cynical engagement with the Just Transition and with the PCC. To reengage these stakeholders, unions should pressure the government to provide substantial benefits to Mpumalanga before, rather than after, the loss of mining jobs. Due to the scale of the disruption, these benefits need to be substantive, rather than the collection of training and small development programs often associated with mine close and mine workers' redeployment.

It is also crucial to **Obtain an actionable role in policy discussions for national mining unions.** While mining unions have a role on the PCC and local mining union representatives are invited to PCC events in Mpumalanga, unionists consistently report that their concerns and objections are unrecorded in these forums.

This is debatably a structural component of South Africa's Just Transition, where external funding determines the parameters of government policy and engagement. To mitigate concerns about the validity of the JETP's engagement processes, the current system needs a mechanism where the objections and concerns of unions (and other civil bodies) are made public and publicly addressed by the government.

Zambia

The Zambian government must **Define a Just Transition in its NDC.** The current lack of a definition provides the union movement with an excellent opportunity to ensure that the definition used by the Zambian government matches their own. A rapidly actionable result of this research should be the creation of a Just Transition definition led by the Mineworkers Union of Zambia, the union can then lobby its government to adopt this definition.

The union should then work with the government and the Chamber of Mines to **Formalise small and medium scale transition minerals mines.** Exploding mineral values have encouraged the proliferation of small and medium scale mining. MUZ has serious concerns about working conditions in these mines, and there are also concerns about taxation and environmental impact. Small to medium scale mines are also not represented by the Zambia Chamber of Mines. The government and the Chamber of Mine should therefore be amenable to working with MUZ to formalise these miners, enabling the protected conditions and wages associated with Zambia's unionised mining industry.

Zimbabwe

Create a roadmap to continued electrification that maintains public control over the system. Zimbabwe had hoped that coal-fired electricity from the Sengwa power plant would maintain electricity. If this plant will not be funded, it is crucial to determine what will happen to coal miners and mining communities that were expecting future livelihoods through it. It is also crucial for Zimbabwe to determine where electricity will come from. If this is going to be private renewable providers, the nation should consider things like price-setting mechanisms.

Zimbabwe's unions should pressure the government to **Improve wages and conditions with the formal lithium and coal sectors.** As these wages reflect nationally determined minimum standards, it is the government, rather than industry, that should be the first point of contact for improving them. It is however telling that the only mine that pays above minimum wages is the enterprise that had recent industrial action.

The union should also ask the government to **Clarify the purpose of the export ban and its implications for artisanal and small-scale miners.** There is potential for this ban to have significant positive impacts for the nation. It could be used to correctly price the labour of artisanal and small-scale miners and could be expanded to ensure that these miners receive the benefits of unions or labour collectives.

The DRC

Secure permanent contracts for subcontracted miners in the formal cobalt industry. There is substantial labour in the formal cobalt sector that is currently performed by labour subcontractors. This is illegal under DRC law and these subcontracted labourers have lower pay and worse working conditions than formal workers. A quick way to increase the benefits of cobalt for the DRC is to ensure that subcontracted labourers are correctly categorised as formal employees.

It is also crucial to **Create union-lead regulations for the artisanal sector.** Without such regulations it is increasingly likely that companies will disengage with the DRC's cobalt sector if they are able to, ensuring that it becomes a sector of last resort and through this further worsening wages and conditions. Further, where regulations have been determined by transactional sectoral interests (most notably coltan) they have often worked against workers' interests by enabling greater control over the market by a small number of certified agents. The unions and government must therefore come together to address concerns about safety and child labour in a worker-and-community-focused Congolese manner.

Conclusion

The authors of this report are hesitant to conclude with a definition of the Just Transition. This is because it is their belief that any Just Transition should reflect local, as much as global concepts of justice. This necessitates intra-national definitions that centre the voices of those most affected by these transitions. However, it is also our belief that the definitions of justice provided by IndustriALL and COSATU, combined with the policy structures from Germany and Italy, offer a good starting point for these intranational discussions, which must then incorporate international injustices.

At a discursive level, IndustriALL and COSATU blame global and national capital structures for the entwinement of environmental and economic injustice. A "fair and equitable pathway to a sustainable future" will therefore most likely be achieved through the creation of decent jobs, social dialogue between the various parties affected by the transition, permanent institutions responsible for oversite and accountability and affordable energy for all. These structural changes exist in direct contradiction to the private-sector and donor-driven transitions currently offered to Global South nations.

In contrast, the policies and practices associated with Just Transitions in the Global North seemingly more accurately reflect an attempt to create justice for workers and mining communities, albeit within a capitalist framework. The four key lessons from the Ruhr Valley are that:

- Just Transitions require long-term planning, with agreed but reviewable timelines and with accountability between all partners,
- All stakeholders need to be engaged in honest discussions that reflect their divergent interests,
- Resources must be expended upon a transition, even if these resources do not reflect pure make logics, and
- A Just Transition requires an expansive definition of sustainability, which incorporates community concerns, non-material resources and cultural expectations.

These best practices do not look like the current South Africa transition or the emerging transitions in the other nations reviewed. In each case, the absence of agreed timelines enables a lack of accountability to workers and transition communities, a focus on convergent interests obfuscates the losses associated with the transition and internationally 'guided' budgets constrain the resources needed to fairly compensate workers and communities.

The focus of Enel Italy on social dialogue with union partners has produced a strong framework for redeployment that could shape union demands in the coal sector in the Global South. The framework dedicates resources to:

- A recruitment plan using apprenticeship
- Encouraging mobility and training for the optimization of internal resources.
- Dedicated training to ensure qualification and employability both during the “recruitment phase” and in “professional mobility” as well as for the creation of new skills for the development of new business.”

These resource intensive Just Transition programs have important lessons for shaping intranational programs for workers and communities. However, a truly Just Transition leaves IndustriALL with the task of linking intra-and-international inequalities and demanding truly just economic and environmental systems.

Appendix – Key Unionist Documents on the Just Transition

The following key union documents have heavily shaped our thinking on the Just Transition and should guide future intra-national, intra-Africans and global Just Transition work.

Just Transition: Blueprint for Workers. COSATU Summary Document

Just Transition: a report for the OECD. Just Transition Centre, International Trade Union Confederation.

A Trade Union Guide of Practice for a Just Transition. Friedrich Ebert Stiftung

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