

Just transitions in global economies? Union and worker understandings of justice in Germany and South Africa compared

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Summary

This article draws on fieldwork in Germany and South Africa, including interviews with unionists, environmental activists, and policy-makers, to compare experiences and perspectives of workers and communities affected by climate policies and the transition to industrial decarbonisation. There is broad support for a just transition in Germany, with workers and their unions actively promoting climate action – though the notion of ‘just transition’ is rarely used. In South Africa, the term ‘just transition’ has become a source of toxic cynicism, mistrust, and anxiety in the energy sector, to the point that unions are actively campaigning to halt or derail the transition. We argue that this divergence is rooted in the externalised sovereign control of just transition in the Global South as opposed to domestic agenda setting in the Global North; in the inherently divisive racial dynamics of post-colonial ‘just’ transitions; and in the absence of a coherent and compelling alternative programme grounded in international solidarity between unions and activists in the South and North.

Résumé

Cet article se base sur des travaux de terrain menés en Allemagne et en Afrique du Sud, y compris des entretiens avec des syndicalistes, des militants écologistes et des responsables politiques, afin de comparer les expériences et les points de vue des communautés et des travailleurs touchés par les politiques climatiques et la transition vers la décarbonisation industrielle. En Allemagne,

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la transition juste fait l'objet d'un large soutien de la part des travailleurs et de leurs syndicats—même si la notion de « transition juste » n'est que rarement utilisée. En Afrique du Sud, les termes « transition juste » sont devenus source de cynisme malsain, de méfiance et d'angoisse dans le secteur énergétique, au point que des syndicats militent activement pour bloquer ou faire échouer cette transition. L'article fait valoir que cette divergence trouve son origine à la fois dans le contrôle souverain externalisé de la transition juste dans les pays du Sud global, par opposition à la définition d'un agenda national dans les pays du Nord, dans la dynamique raciale intrinsèquement source de division des transitions « justes » postcoloniales, et dans l'absence d'un programme alternatif cohérent et convaincant, basé sur la solidarité internationale entre organisations syndicales et militants du Sud et du Nord.

Zusammenfassung

Der vorliegende Artikel beruht auf Feldforschung in Deutschland und Südafrika, u. a. Interviews mit Gewerkschafter:innen, Umweltaktivist:innen und politischen Entscheider:innen, um die Erfahrungen und Sichtweisen von Arbeitnehmer:innen und Bevölkerungsgruppen zu vergleichen, die von den Folgen der Klimapolitik und dem Übergang zu einer dekarbonisierten Industrie betroffen sind. Es gibt in Deutschland eine breite Unterstützung für eine gerechte Transition, die sich in der aktiven Förderung von Klimaschutzmaßnahmen zeigt. Allerdings wird der Begriff der „gerechten Transition“ nur selten benutzt. In Südafrika ist die Idee einer „gerechten Transition“ zu einer Quelle von toxischem Zynismus, Misstrauen und Ängsten im Energiesektor geworden. Inzwischen ist der Punkt erreicht, an dem Gewerkschaften Kampagnen führen, um den Wandel zu stoppen oder zu verhindern. Wir argumentieren, dass diese Diskrepanz darin begründet ist, dass die "gerechte Transition" im Globalen Süden nicht national bestimmt wird und ohne eigene Kontrolle stattfindet, im Gegensatz zur national bestimmten Agenda im Globalen Norden; in der inhärent spaltenden rassistischen Dynamik der „gerechten“ Transitionen in der postkolonialen Zeit und im Fehlen eines kohärenten und überzeugenden alternativen Programmes, das auf der internationalen Solidarität zwischen Gewerkschaften und Aktivist:innen im Globalen Süden und Norden beruht.

Keywords

Just transition, South Africa, Germany, trade unions, justice, political economy, decarbonisation

Introduction

Trade unions introduced the term ‘just transition’ in the US in the 1970s to call for healthy working conditions in the fossil fuel and chemical industries (Rector, 2018). Since then, the term has become widespread in international policy circles: in the preamble of the Paris Agreement (UNFCCC, 2016); in the COP2018 ‘Solidarity and Just Transition Declaration’ (UNFCCC, 2018), which documents governments’ will to enable future employment for workers affected by socio-ecological transformation (Stavis and Felli, 2020); and in the Just Transition Work Programme (JTWP) at the 2022 COP27 conference, which aimed to foster social dialogue, facilitate knowledge sharing, and develop policy strategies that ensure the Paris Agreement’s goals are met in a fair and equitable manner through protecting labour rights and social safeguards.

The International Labour Organisation (ILO) portrays just transition as a greening of the economy that leads to ‘environmentally and socially sustainable economies for all’ and requires strong social consensus and social dialogue, consultation, decent jobs, rights at work, including social bargaining, social protection for job losses and displacement, and skills development

(ILO, 2015). The International Trade Union Confederation (ITUC, 2024) emphasises the need to ‘secure the futures and livelihoods of workers and their communities in the transition to a low carbon economy’ and to ‘provide and guarantee better and decent jobs, social protection, more training opportunities and greater job security for all workers affected by global warming and climate change policies’. The ILO further argues that there is no one-size-fits-all approach, but that policies and programmes need to be designed in line with the specific conditions of countries, including their stage of development, their range of economic sectors, and the types and sizes of enterprises (ILO, 2015).

What workers and their representatives understand by ‘just transition’ is contested – especially when comparing workers in the Global North and South. Different socio-historical contexts shape worker understandings of justice. Workers in the Global North and South will be affected differently by the climate crisis and their national climate policies, with the Global South bearing the greatest costs of global warming while contributing little to its causes (Galgóczi, 2020; Olmos Giupponi, 2023). Most studies focus on just transition in the Global North (Krawchenko and Gordon, 2021). Few capture developments in the Global South (Büchs et al., 2025; Garvey et al., 2022). Even fewer compare countries in the Global North and South (for exceptions, see Bell, 2024; Kalt, 2022).

We have selected two comparator countries, Germany and South Africa, which enable us to explore the challenges, contradictions and tensions inherent in pursuing ‘just’ transitions in a context of enduring global inequities. Both countries are undergoing large-scale decarbonisation, albeit from very different starting points. As an industrialised country heavily dependent on exports of manufacturing goods, Germany has built upon its corporatist institutions and social safety nets to pursue a just transition that also entails some industrial transformation and the expansion of its green economy. Although South Africa has corporatist institutions, these operate in a context of historical dependence on the prominent extractive sector (established in the colonial period) and among the world’s highest inequality and unemployment rates. Both countries are the highest emitters on their continents, although Germany’s historical contribution to global cumulative CO₂ emissions is five times higher than that of South Africa (Ritchie et al., 2023). As middle powers, both countries play prominent roles in influencing international climate diplomacy.

The transitions in the two countries are also interwoven because of the role of Germany in the production of green technology and as a financier of South Africa’s transition through the Just Energy Transition Partnership (JETP) loan agreement and additional low-interest climate loans (Sguazzin, 2026). South Africa is also the fourth-largest coal exporter to Germany, with exports to Germany increasing by over 600 per cent since the start of the war in Ukraine (TradeMap, 2026).

We draw on 70 semi-structured interviews with trade unionists, environmental activists, and policy-makers conducted between 2023 and 2025 (see Appendix 1). These case studies form part of a larger study on trade union responses to the climate crisis in 14 countries (Trappmann and Eversberg, in press). Access to interviewees among trade unions and workers was facilitated by existing networks and subsequent snowballing. The South African research was undertaken in partnership with a trade union-affiliated research institute, which co-designed the research process. Given South Africa’s dependence on coal-generated electricity, most of our interviewees are from the country’s coalbelt. Alongside interviews, we held four one-day workshops with over 130 trade union members and workers. In Germany, since climate change and transition are more widely discussed within the labour movement, interviews were conducted with union officials from various sectors. The transition is also a key focus for the Hans-Böckler Foundation, a union-supported think tank that facilitated contacts with trade union officials.

For analysing anonymised interview data, we coded the interviews in NVivo, looking for understandings of the transition, using an inductive coding process with 23 distinct codes.¹ In addition to manual coding, we used QualCoder by ChatGPT to identify interview segments corresponding to the 23 codes we developed from the initial manual coding and analysis. We further analysed these AI-filtered interview segments manually, cross-checking them against the original analysis to ensure they were represented correctly. The coding enabled us to capture the situational specificities of the different case studies while comparing responses within the same coding framework.

Just transition in the Global North and Global South

Just transition aims to improve workers' lives amid decarbonisation (Clarke and Lipsig-Mummé, 2020; Velicu and Barca, 2020). Its meaning varies by scope, scale and depth (Stavis and Felli, 2020). Many initiatives focus narrowly on fossil fuel sectors (Trappmann et al., in press). In the Global North, this is often combined with expectations of employment growth driven by greener technologies, without a more comprehensive transformation of production (Stavis and Felli, 2015; Trappmann et al., 2025; White, 2020). Furthermore, the implementation of just transition initiatives does not follow the ILO's comprehensive guidelines, and spatial, gendered, racial, and class injustices often occur (Trappmann et al., in press). Just transition policies often fall short of more radical justice ideas such as industrial democracy, state ownership, welfare reforms, worker cooperatives (Galgóczi, 2022; Lethbridge, 2024; McIlroy et al., 2022; White, 2021), and expanded public services (Krause et al., 2022). Some see transformative potential in socialising production and addressing capitalism's role in inequalities, including gender disparities (Bouzarovski, 2022; Giacomini, 2020; Lahiri-Dutt, 2023; McCandless and Faus Onbargi, 2023).

There is a bias in the literature towards the study of the Global North (Garvey et al., 2022). However, recent discussions on just transition highlight historical global injustices, emphasising how the wealth of the Global North was accumulated through the exploitation of natural resources and labour in the Global South (Fitz-Henry and Klein, 2024; Kojola and Agyeman, 2021; Newell and Mulvaney, 2013). Some scholars emphasise that vital materials for the green economy, such as lithium for electric vehicles, are mined in the Global South, thereby perpetuating past inequalities (White, 2021; Zografos and Robbins, 2020). Mining often harms local livelihoods, land, and ecosystems, increasing vulnerabilities (Bainton et al., 2021; Benegiamo et al., 2023; Fernandes, 2024). In the Global South, extractivism often faces strong criticism (De Ruyter and Bentley, 2024; Kojola and Agyeman, 2021; Smith and Scott, 2022), with labour movements challenging the neocolonial and exploitative nature of just transition policies and advocating for policies prioritising national sovereignty over energy (Azzi, 2021; Fitz-Henry and Klein, 2024).

For just transition to achieve its potential, some authors therefore argue that it must address colonial relations (Smith and Scott, 2022), overcome its Eurocentrism (Jones, 2022), develop more pluriverse perspectives (Escobar, 2015), and include reparative principles to restore contemporary and historical injustices of racialised exploitation of the Global South (Fitz-Henry and Klein, 2024). Others highlight the need to adjust decarbonisation timelines for countries in the Global South (Pope and Wages, 2018). This would call for broader justice approaches that not only emphasise 'distributive' justice, but also 'procedural', 'recognitional' and 'restorative' justice (Abram

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1. Climate change; perception of governmental policies; climate political demands; social impacts of decarbonisation; just transition concept; just transition scale; just transition scope; just transition depth; just transition top-down/bottom-up; just transition justice; just transition disagreement; nature; indigenous people; climate and environmental justice; future generations; role of unions; redistribution; green economy and green jobs; competition; supply chains; growth; exploitation; and colonialism.

et al., 2022). Most of these calls are insufficiently grounded in an understanding of workers and their representatives.

We address these gaps in the literature by showing that strategic orientations toward just transition cannot be fully understood without explicitly linking them to workers' lived experiences and unions' differentiated access to structural, institutional, and associational power. Worker experiences of injustice are closely tied to configurations of power and political economy. While Kalt's (2024) comparison of the coal sector in Germany and South Africa highlights a range of similarities such as social dialogue institutions that influence the transition and the range of reactive and proactive strategies, our bottom-up analysis reveals much greater divergence.

As we detail below, in South Africa, worker experiences of injustice point to a gap between union advocacy and the realities of transition, especially in fossil fuel industries. South African unions have struggled to use their significant institutional and relational influence to shape policy directions, partly because their power is limited by international finance. Conversely, in Germany, union institutional strength has allowed unions to negotiate successful transitions, particularly in the coal sector. Here, we argue that the lack of demands for changes in ownership and economic reforms stems from the continuing ability of unions to use their established institutional influence to shape policy.

Just transition in Germany

There is broad support for a just transition in Germany, with workers and their unions actively engaged in promoting climate action. The labour movement supports the political targets set by both the Paris Agreement and the national German Climate Change Act to reduce CO₂ emissions by 65 per cent by 2030 and 88 per cent by 2040 compared to 1990 levels, as mandatory (Bundes-Klimaschutzgesetz, 2019). German trade unions have embarked on a path of ecological modernisation driven by the state (Trappmann et al., 2025).

Most German trade unions do not use the term 'just transition' (Trappmann et al., 2024: 16). Our German interviewees prefer 'transformation' or 'socio-ecological transformation' or talk about sectoral transitions involving energy and mobility. Other more general expressions, like 'FairWandel' or 'gerechte Veränderung', refer to 'just change' and advocate principles of justice applied in earlier rounds of restructuring and extended to digitalisation and demographic change. As one trade unionist observed, 'Social-ecological transformation, that's more the term for the academics or for the board or something like that. In the companies, I wouldn't talk so much about social-ecological transformation, but probably fair change or a just restructuring process' (DE_Unionist_14).

Job security

The main components of such a transition are job security, decent pay and worker participation. Some trade unionists also see more systemic issues as important, such as tackling social inequalities, supporting community development, and the global dimension. Above all, transition means that environmental protection and climate mitigation cannot happen at the expense of social and economic sustainability. As trade unionists observed: '[Environment and jobs] are both equally important to us' (DE_Unionist_15); 'you cannot deliver on climate without having the social' (DE_Unionist_1). With manufacturing contributing 19.7 per cent to German GDP (Statistisches Bundesamt, 2025), a fair transition means protecting industrial jobs in a context of de-industrialisation and the potential loss of competitive advantage to international competitors.

Trade unions want to keep industry within Germany and argue that transition should be conditional on job retention and creation. As observed by one trade unionist, workers need 'the security that they won't lose a job, that is, that there is a job guarantee in the process' (DE_Unionist_19).

Moreover, it is also about ensuring that workers who lost their jobs as a result of decarbonisation and restructuring find a new job. Trade unions differentiate between the net employment effect – which may remain stable – and sector-specific job losses, which impact their membership both as an organisation and for individual workers who must adapt to change.

Mathematically speaking, in the forecasts, employment is perhaps plus-minus zero. That may be reassuring at first. But then we say: Okay, what fates are behind it, and how do we manage to ensure that there is not simply a whole losing team that has somehow relied on the combustion engine. (DE_Unionist_6)

This concern is linked to occupational identities and regional development. Industry workers are seen as proud of their skills and jobs and as wanting to maintain their occupational identities. Similarly, local regions are said to need industry to be economically vibrant and places where people can make a living: ‘We also have a responsibility for future generations. We have a responsibility for ourselves’ (DE_Unionist_5).

Equally, German unions are concerned about the jobs emerging in new sectors, and whether they are high-quality and meet the standards of decent work. One important factor is pay, as regards jobs in new sectors, such as renewable energy, where working conditions are often poorer, and in companies affected by decarbonisation. As one trade unionist said: ‘We need a guarantee of earnings. No one should lose a pay group when they switch from combustion engines to components.’ (DE_Unionist_17). Unionists also raise concerns about the slow pace of investment from government and business and which sectors benefit first from such investments. ‘The main task is, how do we get investment decisions, what products will be produced’ (DE_Unionist_26).

Social dialogue

A vital tool for achieving a just transition is strengthening existing worker-protection institutions, including union rights, co-determination, works councils, social dialogue, and collective bargaining. The German trade unionists we interviewed see enhanced social dialogue as essential for addressing workplace restructuring, training and retraining, and the creation of new jobs. They also point to the strategic importance of leveraging social dialogue and partnership initiatives to secure social conditionalities on public funding to support decarbonisation: ‘[. . .] that’s basically our just transition, that we say it can’t be done without (workers); it only works *with* the people who are affected *by* the transformation’ (DE_Unionist_6). Unions have proposed reforming the ‘Works Constitution Act’ to give works councils greater power over decisions related to environmental products and processes. Works Councilors advocate linking state support to social and employment standards. This aspect of participation is particularly crucial during planning: unions demand job security, clarity about which jobs will remain or be eliminated, and specific training needs for workers.

Decent work

Some trade unionists go beyond the immediate protection of jobs and consider that no one should be left behind: ‘the people who don’t have much money anyway, are not now totally left behind’ (DE_Unionist_4). As expressed by another interviewee, this social dimension means that ‘It must be possible for the workforce to be able to go along with this change without somehow losing their standard of living completely, losing their jobs, and then not knowing what to do for the next 20 years. So that’s this, that’s what’s in this social’ (DE_Unionist_1).

For some trade unionists, just transition offers a chance to address social inequalities, transform business models, and shift towards the provision of basic services such as transportation,

health care, and housing to meet everyone's fundamental needs. However, they are often sceptical that inequalities can be reduced within a capitalist framework, as the green economy mainly creates new profit opportunities for capital rather than prioritising justice. As one unionist states, 'The way it works in our economic system, it is first for new fractions of capital to make new profits' (DE_Unionist_14). Some voices within the labour movement further question whether a growth-driven model can achieve a just transition (Trappmann et al., 2025); whereas many other union members see growth as vital to prosperity and job security, making them hesitant to support radical systemic changes.

German unions therefore view justice in two ways. The mainstream unions emphasise the protection of jobs and industries affected by decarbonisation and draw on past restructuring and lay-offs to inform their perspective. They rely on participatory institutions to defend worker interests. A smaller, alternative faction argues for a more significant transformation to reduce social inequality by improving working conditions in emerging economic sectors and increasing access to essential services.

Solidarity and the international dimensions for a just transition

Labour unions approach transformational change at various levels, ranging from the workplace to the global stage. Each level has implications for justice. Most highlight the necessity of European and international action. In the words of one interviewee, 'I see it [the transformation/transition] as a global orientation, because the topic transformation and climate mitigation is not one that is limited to Germany or Europe, but that should be addressed globally on a political and union level' (DE_Unionist_8). It is evident that only a coalition of the willing can drive global climate action: 'There is the discussion about climate clubs, which the federal government is also pushing, forging an ever-growing coalition of the willing, who submit to similar climate goals and, yes, even in case of doubt, pricing mechanisms or, let's say, promotion mechanisms' (DE_Unionist_2).

German trade unionists also worry that swift, strict environmental regulations could cause carbon leakage, where companies move production from Germany to countries with weaker environmental and social standards. This concern was evident in our interviews and has also been raised in motions to the Trade Union Congress (Flemming, 2022; Trappmann et al., 2025). A key concern is that 'carbon leakage' will benefit countries that perform worse ecologically and have few institutions of social protection.

From our perspective, it is not positive when [a transformation] leads to a systematic reduction in industrial employment, and that potentially in other countries where climate regulation is less strict, production capacity will be increased. This will neither help the employees here nor climate mitigation. (DE_Unionist_17)

Nevertheless, interviewees argue in favour of a globally scaled transition. For some participants, universalist egalitarian justice principles that include everyone to the same degree and allow for universal rights form the basis of global justice claims: 'So, just transition can only mean that everyone will be taken on board. From a broad perspective, this applies also internationally' (DE_Unionist_3). However, one interviewee explicitly related living conditions abroad to lifestyles and economic activities in Germany, Europe or the Global North, stating that 'one has to look at it to some extent globally, this topic of justice, where it is about adhering to good living conditions and basic human rights, which are also violated by our ways of living' (DE_Unionist_21).

Justice claims are inherently tied to specific spatial and temporal contexts (Stavis and Felli, 2020). It is especially difficult for unions with a national focus to tackle climate change, which necessitates broader, more solidaristic international cooperation. German unions recognise these

tensions conceptually and have taken steps to incorporate principles of justice worldwide. For example, they have supported the Supply Chain Act (*Lieferkettensorgfaltspflichtengesetz*), which requires German companies to respect human rights standards throughout their supply chains. The DGB (2024b) emphasises that higher employer costs should not lead to deteriorating working and living conditions. Simultaneously, the DGB (2024a) backs the EU's carbon border adjustment mechanism (CBAM), designed to prevent carbon leakage and enhance the competitiveness of German industries, thereby protecting jobs. Despite these international initiatives, German labour unions primarily concentrate on domestic issues (see Schulz et al., 2025).

The union focus on safeguarding jobs in Germany's manufacturing sector stems from the strong union influence in that sector and the threat of job loss to identity and power. Germany's export-driven economy faces serious challenges due to delays in investments in future-proofing technologies such as electric vehicles (Dupuis et al., 2024). While unions still wield considerable institutional power, their influence is increasingly challenged by relocations and company efforts to avoid co-determination. Despite having a solid infrastructure, including research departments and think tanks that guide strategic policy-making, their sway over national policy has waned since the previous coalition government, which incorporated union proposals into law, such as the 'Qualifizierungsgeld,' a tool aimed at supporting industrial modernisation. In contrast, when the current conservative and centre-right coalition assumed office in 2025, public officials were less receptive to transformative union proposals, and German unions had limited alliances with leftist-green parties to press for new or alternative demands.

Just transition in South Africa

Compared with Germany, support for a just transition within South Africa's labour movement is far more divided. Although the Congress of South African Trade Unions (COSATU) initiated discussions on a just transition, workers in sectors most vulnerable to job losses have generally responded cautiously. Coal sector workers acknowledge the need to address the climate crisis but contest the pace of what they perceive as an internationally imposed transition. This tension within the labour movement complicates the country's efforts to meet its Paris Agreement targets of reducing CO₂ emissions by 65 per cent by 2030 and 88 per cent by 2040, relative to 1990 levels.

Since the end of apartheid, trade unions in South Africa have played a significant role in politics and policy. COSATU, the largest union federation, started debating a just transition in 2009, emphasising that such a transition must strengthen society by involving stakeholders through consultation, and that,

'Just transition' [. . .] is more extensive than traditional labour market adjustment programs. It includes support for communities, industries, and a period of income protection for workers. It moves workers from existing jobs to emerging ones, and to prepare them for the next phase in their lives. It proposes the protection of trade union rights and enhanced successor rights, to create institutional stability throughout the transition period. (COSATU, 2009)

In 2012, COSATU cautioned against an uncritical adoption of just transition. Instead, it advocated for climate technologies that are socially owned and industrial strategies that safeguard employment. Recently, COSATU (2022) has presented its 'eco-socialist blueprint for just transition,' promoting a 'more comprehensive and holistic transition' (p. 10).

A widespread sentiment is that the transition must be ambitious and, at the very least, grounded in the principle of no detriment to workers and their communities. A senior leader in the National Union of Mineworkers (NUM) argued:

Some people will be left behind. We need to be realistic [. . .]. Simply put, a just energy transition should be one in which the livelihood of anybody who was dependent on the high emission regime, is not negatively affected. In fact, the intention should be to improve it for those who were directly and indirectly affected. (SA_Unionist_29)

Procedural justice is emphasised, therefore, as critical to the project. For a national COSATU leader:

It's going to be quite important that workers are taken along [in the process]. That's our kind of main messaging when we speak about just transition, the inclusivity part, the meaningful engagements, being able to make workers parts of the process so [that] they own the process. And that's the most important part [. . .]. It's about livelihoods. It's about individuals, communities. So, it's in the best interests of the just transition process to work so that we're all settled in when it comes to the future of the state of the economy, of workers. (SA_Unionist_2)

Union leaders and policy-makers are very clear that jobs are central to this, which is understandable in the context of extremely high unemployment levels in South Africa:

Firstly, we as labour and the communities need to be there upon inception and on the planning stages, and we have our input as to how we want that transition to be [. . .] But a transition should be a just one (It should be that when we do away with a thousand jobs, we replace those thousand jobs with a thousand jobs or more. That would be a just transition. (SA_Unionist_23)

We must use the word just very carefully. So a just transition [. . .] effectively, what you're talking about here is a no detriment in terms of income for the household rather than the individual worker. (SA_Policymaker_24)

Just transition in national climate policy

Concerns from unions about jobs, equity, and the social impact of technology have significantly influenced national policy. The 2012 National Development Plan emphasised a just transition that safeguards vulnerable groups from rising costs in energy, food, and transport, while addressing job losses in high-carbon sectors and adapting to new skill needs (Government of South Africa, 2012). Since President Ramaphosa's tenure began in 2018, the South African government has prioritised just transition at the core of its climate strategy. The Presidential Climate Commission (PCC), established in 2020, was tasked with guiding this transition and considering social, environmental, and technological factors. In 2022, the PCC published its *Just Transition Framework* (JTF), defining a shared vision, principles, policies, and governance structures for implementing a just transition (Presidential Climate Commission, 2022). In other words, South Africa's JTF and policy were developed through extensive stakeholder involvement, including policy briefs, public workshops, expert essays, and consultations with workers, local governments, communities, and business leaders. Its core focus on procedural, restorative, and distributive justice highlights the goal ' . . . of improving the lives and livelihoods of ALL South Africans, particularly those most impacted. The scope of a just transition is wide, both in the focus on people, and on the time scales of action and delivery' (Presidential Climate Commission, 2022).

South Africa's just transition policy also focuses on specific sectors and regions. The energy sector is particularly important because it is the largest source of greenhouse gas emissions, releasing about 420 million metric tonnes of CO₂. Agriculture is the second-largest, with roughly 32 million metric tonnes of CO₂ (Boyle, 2024). These high levels reflect the country's heavy

dependence on coal-fired electricity, which accounts for over 70 per cent of the energy supply (Eskom, 2021).

Although South Africa has progressive national principles for a just transition, it cannot fund its transition independently and has sought international financial support. The government initially secured US\$8.5bn from Western actors, including the USA, UK, Germany, France, and the EU, during COP26. Most of this support, in the form of loans, was confirmed at COP27 through the Just Transition Investment Plan (JET-IP), which details how the funds will be allocated. The JET-IP specifies that the funding will be divided among sectors such as 'Infrastructure' (targeted for the largest portion of JETP financing), 'Planning and implementation capacity,' 'Skills development,' 'Economic diversification and innovation,' and 'Social Investment and Inclusion' (Government of South Africa, 2022).

Energy sovereignty

Despite international acclaim for the JT principles, several civil society and labour unions have strongly criticised JETP and JET-IP. They believe that the JETP neglects the interests of workers and their communities. One union leader expresses the increasing mistrust about the true intentions behind these agreements: 'In the long term, I don't know. Honestly, I don't think there's anything just about this transition. Because it's more like an agenda to do away with coal so that the other countries can benefit. This is never about us.' (SA_Unionist_19)

South African trade unions perceive international pressure to transition away from coal to renewable energy as deeply hypocritical. Continuing international demand for South African coal compounds this suspicion, leading to the sense that Western actors are driving the JETP agenda to weaken South Africa. As a regional coordinator argued:

Western countries are behind this drive [. . .] the same Western countries that are moving away from green energy production [. . .] They are going back to the coal, but they are saying 'you, no, no, move away from the coal' [. . .] So [they] know very well that the renewable energy is not reliable [. . .]. Now, the same Western countries, they are buying coal from us to fire their power stations. So that is why we are saying there is a high level of dishonesty in this whole thing [. . .]. Go to Germany and check what is the source of energy. So that is why we are saying 'no, man, something is very wrong'. (SA_Unionist_13)

Workers view the JETP as a colonial imposition that increases South Africa's dependence on these funders through conditional loans:

Prior to accepting the loans, does the government think about the impact? You know, because if you really want to assist a developing country like SA to move away [from coal], then my understanding is that you should donate. You know, you will move to the route of donating rather than the route of providing loans. (SA_Unionist_16)

South Africa has relied heavily on its own energy production for nearly a century. A shift to a new energy system threatens this independence and disconcerts workers. Moreover, the feeling that the transition is being forced on the country undermines JETP's legitimacy and fuels opposition to the change as a whole.

Justice, lay-offs, and decent work

Worker demands for justice – whether advocating for a voice in policy-making, improved employment conditions, or income support – are often based on instances where the government fails to

deliver on its promises. Procedural injustices occur when consultations take place in exclusive environments that are difficult for workers to access. For South African trade unionists, the worry is that consultations are typically one-off events with little feedback provided. They see this approach as contradicting a South African tradition, where members are accustomed to ongoing engagement during disputes (Maree, 1998; Wood and Dibben, 2006). In the absence of ongoing consultation, many trade unionists do not find the process meaningful or pragmatic.

Among workers, there is considerable overlap in how they understand distributive and restorative justice. This is partly due to apartheid's legacy of inequality and the coal industry's central role in the apartheid economy. For these workers, a successful energy transition is therefore as much about addressing lasting inequalities as it is about mitigating the risk of new injustices. Job protection and guarantees are a central concern and workers are keenly aware of the ripple effects of mass job losses. According to a union leader at a power station in Mpumalanga Province:

I am concerned that with JET [sic], number one, it won't require as much people. That is the first problem [. . .] and people will be losing jobs. Second, this is not only impacting the worker but also its family. So, it gets extended and that is a deep problem. Two, we are going to be creating ghost towns. (SA_Unionist_10)

While the risk of job losses is destabilising in any context, the unemployment rate in South Africa is especially high,² and workers in mines and power stations often support extensive networks of dependents, spreading the potential impact of job cuts beyond workplaces and immediate households. Similar to Germany, transitions that threaten jobs and local communities – especially those dependent on coal mining – are met with strong opposition. Concerns about job security are especially strong among coal miners. As one young representative remarks:

When you talk about job security, again [. . .] [these] new energy systems they require less labour than the ones that are meant to be replaced. In South Africa, for one, we are impacted hard because we have a lot of labour into the coal industries, and this energy transition requires to cut jobs into the coal industries and replace them with green energy systems. So rather than us preparing ourselves only to become technicians of this new solar panels or this new wind turbines, all these green energies, we think when we talk about job security, we should also be discussing preparing ourselves to actually become our own developers of this equipment, not only maintenance. (SA_Unionist_34)

Beyond immediate job losses, workers fear that lay-offs may lead to mortgage foreclosures, housing loss, and stranded assets in towns where power stations or mines shut down. If they cannot sell their properties or afford mortgages in towns where they are losing their jobs, their capacity to move for other employment will be restricted. This could worsen broader social issues. As one worker remarked, 'if you are saying you want to close the mine. And there's no alternative; you end up slaughtering people, killing those people' (SA_Unionist_14). Protecting or compensating workers for these assets is therefore essential for distributional justice during the transition.

Workers also have another key demand – time. Several of our interviewees believe that a delayed transition is crucial to prevent injustices and to allow people to be adequately prepared. Additional time is necessary for individuals to 'comprehend' (SA_Unionist_15) the transition and its effects, as well as to learn best practices from other countries.

2. As of 2025Q2 the official unemployment rate stood at 33.2 per cent while the expanded unemployment rate was 43.1 per cent (Statistics South Africa 2025).

So the dynamics that we have to be looked into, is quite a broad issue that we need to prepare. As I said, in terms of good check, if you guys in Germany say you've done it and succeeded in a particular posture, allow us to see the process of how you do it. And we'll be able to say we saw it, it is working. (SA_Unionist_1)

At the national level, unions have used their associational and institutional power resources to influence the justice agenda. Ongoing links between COSATU and the government have helped maintain union influence, and unions have used their roles on the PCC to advocate for workers and their communities in just transition policy. But, as in Germany, South African power resources have also changed, especially since the JETP agenda was set in motion at COP26. The JETP agenda has circumscribed unions' associational and institutional power, while the shift toward renewable energy has begun to erode their structural power in the workplace. This has contributed to opposition to what is framed as a neocolonial imposition of energy transition on terms determined by external interests.

Such union dynamics are best understood through the lens of political-economic constraints that influence union strategies and worker perceptions of justice. In South Africa, unions operate within a context where sectoral interests are closely linked to carbon-intensive industries, especially coal, which remains vital for employment and the country's energy system. Unlike Germany, these sectoral interests are rooted in a global political economy marked by dependency, uneven development, and external pressures. This context diminishes worker structural power because global capital flows, shifting export markets, and conditionalities on international climate finance limit domestic control over the pace and direction of the transition.

South African unions still hold notable associational and institutional influence. However, COSATU's involvement in politics and bodies like the PCC do not give it enough power to direct core transition strategies. Instead, their efforts are constrained by government priorities and international financial influence, limiting their ability to advance their vision of justice. This mismatch explains why unions and workers feel justice-related issues are particularly relevant and must be prioritised. Their claims go beyond simply protecting jobs to demanding energy sovereignty, redistribution, and structural change. Unlike Germany, where union institutional strength helps stabilise expectations and aligns labour's claims with the maintenance of industrial stability, South Africa's weaker structural and institutional power leads to increased opposition, with many viewing the energy transition as an external, neocolonial imposition of terms by outside entities and reinforcing more radical, systemic justice ideas.

Comparing just transitions

Elsewhere in this special issue on 'Unions as climate actors', Dupuis et al. (2026a) propose five strategies that unions might adopt: abstentionist, unconditionally supportive, conditionally supportive, oppositional, and transformative. These are mapped along two dimensions – agreement with climate policies and engagement in climate action. German unions might easily fall into the 'conditionally supportive' category, depicting agreement with climate policy and participation in climate action. However, such models, developed primarily on cases from the Global North, may not generalise well beyond the capitalist core. The South African case reveals a more complex reality. Continuing legacies of global colonial power mean that unions often combine both transformative and oppositional approaches, as well as engagement and resistance (Beresford and Bookbinder, 2026).

First, differences in political economy and labour structures across countries lead to diverse climate responses. For instance, the strong ties of German unions to high-value manufacturing

strengthen a sectoral identity focused on industrial jobs and export strength, which influences their justice claims to prioritise job preservation over systemic change. This is rooted in their relatively robust power: institutional power through co-determination and social dialogue, union strength in key industries, and residual structural power stemming from Germany's role in global value chains. As a result, German unions often adopt a 'shared solution' approach (Stavis and Felli, 2015: 36) – making compromises with capital and government, viewing green jobs as mutually beneficial, but avoiding major political reforms. This 'conditional support' may reflect a defensive stance by European labour, emphasising worker adaptation and social dialogue aimed at reforms rather than radical justice that seeks a broader transformation of the political economy (Dupuis et al., 2026b; Harry et al., 2024: 7).

In contrast, the persistent 'coloniality of power' (Quijano, 2000) in South Africa continues to influence the political economy and impede climate action. The 'Minerals Energy Complex' (MEC), involving the coal industry, fossil fuel power generation and government support, continues to shape the labour market unevenly along racial and regional lines. Baker points out that South Africa's electricity sector remains dependant on abundant coal to produce low-cost electricity for mineral-export industries. Stakeholders with vested interests in the MEC have delayed and weakened decarbonisation efforts (Baker et al., 2014), protecting fossil fuel revenues and supporting fossil capital. Citizens and workers reliant on the MEC face a difficult dilemma: international pressure to accelerate decarbonisation may exacerbate historical inequalities and create new injustices rooted in unequal global green production. Consequently, although COSATU, the main national federation, advocates an 'ecosocialist' transition (COSATU, 2022), unions in fossil-dependent sectors often shift between opposition tactics and the promotion of more radical, transformative agendas (Beresford and Bookbinder, 2026).

Second, our comparison also highlights significant differences in location within global economic hierarchies. Germany, Europe's largest economy, is an industrial leader, whereas South Africa, a regional industrial power, depends heavily on global value chains and resource extraction to satisfy international demand. Moreover, South Africa's high unemployment rate, along with strained social services and relatively limited social safety nets, hampers government capacity to support a transition comparable to that of Germany. Global power imbalances and trade relations further complicate this process, as calls for industrialisation in the Global South may clash with employment and competitiveness concerns in the Global North. Consequently, variations in the 'scale', 'depth', 'scope' and 'direction' of the proposed transitions emerge, along with markedly different levels of economic development. These differences make it difficult to categorise South African unions, who may advocate for transformative (global) climate justice and action, yet oppose international climate policy programmes that uphold the current global order.

Third, such differences also translate into distinct union strategies and approaches to just transition. German unions tend to pursue strategies of conditional support, seeking to balance climate objectives with employment protection and industrial continuity. Their approach remains largely within the existing political-economic framework, favouring negotiated adaptation over structural transformation. In South Africa, unions combine elements of opposition and transformative ambition, reflecting both their exclusion from key decision-making processes and the broader socio-economic challenges facing workers and communities. This gives rise to more radical conceptions of justice, including demands for energy sovereignty, redistribution, and structural economic change. As such, union strategies diverge not only in form but also in their capacity to shape transition outcomes.

Finally, this brings us to the sphere of action. German trade unions mainly function at the national level, where their institutional channels are strongest. Their limited ability to shape European or global processes, along with a focus on protecting employment and economic stability in Germany,

supports this national focus. German unions usually delegate international efforts to their umbrella organisations, such as ‘European and international umbrella organisations’ (DE_Unionist_3). In contrast, South African unions engage both nationally and globally, addressing issues such as debt, sovereignty, and global inequality. These circumstances underscore the need for new international labour solidarity strategies (Beresford and Bookbinder, 2025). For example, this could include wide-reaching efforts to oppose energy privatisation and advocate for public ownership, making energy more affordable and accessible. It might also involve pressuring states in the Global North to support intellectual property waivers for countries from the Global South, helping them develop a presence in green industries, and lobbying the ILO for stronger standards on just transitions that protect workers and communities. Such an agenda highlights the potential to redefine just transition as a labour-led movement, part of a global, class-based labour advocacy that connects local, national, and international justice-in-transition efforts, which are mutually reliant and inseparable. While delaying the move to lower-emission technologies offers no benefit, especially given the urgent speed of global warming, international unions should openly discuss the timing of these transitions and recognise that true global justice requires solidarity and collective action.

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References

- Abram S, Atkins E, Dietzel A et al. (2022) Just transition: A whole-systems approach to decarbonisation. *Climate Policy* 22(8): 1033–1049.
- Azzi DA (2021) Trade union politics for a just transition: Towards consensus or dissensus? In: Räthzel N, Stevis D and Uzzell D (eds) *The Palgrave Handbook of Environmental Labour Studies*. Springer International Publishing, pp.225–248.
- Bainton N, Kemp D, Lèbre E et al. (2021) The energy-extractives nexus and the just transition. *Sustainable Development* 29(4): 624–634.
- Baker L, Newell P and Phillips J (2014) The political economy of energy transitions: The case of South Africa. *New Political Economy* 19(6): 791–818.
- Bell K (2024) International solidarity for a de-colonised Just Transition: electric vehicles and lithium in Mexico and Europe. *Contemporary Social Science* 19(3): 66–85.
- Benegiamo M, Guillibert P and Villa M (2023) Work and welfare transformations in the climate crisis: A research pathway towards an ecological, just transition. *Sociologia del lavoro* 165: 9–29.
- Beresford A and Bookbinder R (2025) *Trade union engagement for a just transition in South Africa: A report for the Hans Böckler Foundation (HBF)*. SSRN. Available at: <https://ssrn.com/abstract=5345045> or <http://dx.doi.org/10.2139/ssrn.5345045> (accessed 28 April 2026).
- Beresford A and Bookbinder R (2026) The politics of climate delay in South Africa’s “just transition”. Paper presented at the Political Studies Association Annual Conference, Oxford, 30 March–1 April 2026.

- Bouzarovski S (2022) Just transitions: A political ecology critique. *Antipode* 54(4): 1003–1020.
- Boyle R (2024) Greenhouse gas emissions in South Africa, emission index. Available at: <https://www.emission-index.com/countries/south-africa> (accessed 17 April 2026).
- Bundes-Klimaschutzgesetz (2019) KSG. Available at: <https://www.gesetze-im-internet.de/ksg/BJNR251310019.html> (accessed 4 March 2026).
- Büchs M et al. (2025) Inequality and Climate Change. In: *Handbook of Labor, Human Resources and Population Economics* [Online]. Springer, pp.1–32. Available at: https://link.springer.com/rwe/10.1007/978-3-319-57365-6_435-1 (accessed 20 May 2026).
- Clarke L and Lipsig-Mummé C (2020) Future conditional: From just transition to radical transformation? *European Journal of Industrial Relations* 26(4): 351–366.
- COSATU (2009) COSATU 10th National Congress. 10th-National-Congress-Resolutions. Available at: <https://view.officeapps.live.com/op/view.aspx?src=http%3A%2F%2Fmediadon.co.za%2Fwp-content%2Fuploads%2F2018%2F12%2F10th-National-Congress-Resolutions.doc&wdOrigin=BROWSELINK> (accessed 7 November 2024).
- COSATU (2022) Just transition: Blueprint for workers. Available at: <https://mediadon.co.za/wp-content/uploads/2022/04/COSATU-Just-Transition-Blueprint-Full-version.pdf> (accessed 27 April 2026).
- De Ruyter A and Bentley G (2024) Enabling a just transition. *Contemporary Social Science* 19(1–3): 1–20.
- DGB (2024a) *Europawahl 2024—Forderungen des DGB und seiner Mitgliedsgewerkschaften an die Parteien*. Deutscher Gewerkschaftsbund, Industriegewerkschaft Metall. Available at: https://www.dgb.de/fileadmin/download_center/Positionen_und_Thesen/Europawahl_2024-_Forderungen_des_DGB_und_seiner_Mitgliedsgewerkschaften_an_die_Parteien.pdf (accessed 25 June 2024).
- DGB (2024b) *Verbändeappell: OffshoreAusschreibungsdesign muss Ausbau der Windenergie sichern und sozial-ökologisch vorantreiben*. Deutscher Gewerkschaftsbund, Industriegewerkschaft Metall. Available at: https://www.dgb.de/fileadmin/download_center/Positionen_und_Thesen/2024-06-03_Verbändeappell_zu_Offshore_DGB_IGM_DNR_DUH.pdf (accessed 25 June 2024).
- Dupuis M, Greer I, Kirsch A et al. (2024) A just transition for auto workers? Negotiating the electric vehicle transition in Germany and North America. *ILR Review* 77(5): 770–798.
- Dupuis M, Hagan J, Laroche M et al. (2026a) How do workers and their unions become climate actors? A research framework. *Transfer: European Review of Labour and Research* 32(2): 153–171.
- Dupuis M, Greer I and Park D (2026b) Striking for a Just Transition? North American Auto Unions and the Electric Vehicle Transition. *Industrial Relations: A Journal of Economy and Society*, irel.70024.
- Escobar A (2015) Degrowth, postdevelopment, and transitions: A preliminary conversation. *Sustainability Science* 10(3): 451–462.
- Eskom (2021) Coal in South Africa, Eskom: Factsheets. Available at: <https://www.eskom.co.za/wp-content/uploads/2021/08/CO-0007-Coal-in-SA-Rev-16.pdf> (accessed 27 April 2026).
- Fernandes S (2024) “Just” means “just” everywhere: How extractivism stands in the way of an internationalist paradigm for just transitions. *International Journal of Politics, Culture, and Society* 37(4): 493–511.
- Fitz-Henry E and Klein E (2024) From just transitions to reparative transformations. *Political Geography* 108: 103004.
- Flemming J (2022) *Industrielle Naturverhältnisse. Politisch-Kulturelle Orientierungen Gewerkschaftlicher Akteure in Sozial-Ökologischen Transformationsprozessen*. Oekom. Available at: https://www.researchgate.net/publication/357835752_Industrielle_Naturverhältnisse_Politisch-kulturelle_Orientierungen_gewerkschaftlicher_Akteure_in_sozial-_ökologischen_Transformationsprozessen (accessed 6 November 2025).
- Galgóczi B (2020) Just transition on the ground: Challenges and opportunities for social dialogue. *European Journal of Industrial Relations* 26(4): 367–382.
- Galgóczi B (2022) From a ‘just transition for us’ to a ‘just transition for all’. *Transfer: European Review of Labour and Research* 28(3): 349–366.
- Garvey A, Norman JB, Büchs M et al. (2022) A “spatially just” transition? A critical review of regional equity in decarbonisation pathways. *Energy Research & Social Science* 88: 102630.

- Giacomini T (2020) An ecofeminist perspective on the just transition from capitalism to commons. In: Tokar B and Gilbertson T (eds) *Climate Justice and Community Renewal: Resistance and Grassroots Solutions*. Routledge, pp.194–205.
- Government of South Africa (2012) National Development Plan. Available at: https://www.nationalplanning-commission.org.za/National_Development_Plan (accessed 2 March 2026).
- Government of South Africa (2022) *South Africa's Just Energy Transition Investment Plan (JET-IP): For the Initial Period, 2023–2027*. Government of South Africa. Available at: <https://pcccommissionflo.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf> (accessed 7 November 2025).
- Harry SJ, Maltby T and Szulecki K (2024) Contesting just transitions: Climate delay and the contradictions of labour environmentalism. *Political Geography* 112: 103114.
- ILO (2015) *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All*. ILO.
- ITUC (2024) Just Transition Centre - International Trade Union Confederation. Available at: <https://www.ituc-csi.org/just-transition-centre> (accessed 31 March 2025).
- Jones L (2022) Editorial: A 'Just Transition' – A meaningful movement or rhetoric that has been co-opted for other purposes? *Enterprise Development & Microfinance* 33(3): 166–169.
- Kalt T (2022) Agents of transition or defenders of the status quo? Trade union strategies in green transitions. *Journal of Industrial Relations* 64(4): 499–521.
- Kalt T (2024) Transition conflicts: A Gramscian political ecology perspective on the contested nature of sustainability transitions. *Environmental Innovation and Societal Transitions* 50: 100812.
- Kojola E and Agyeman J (2021) Just transitions and labor. In: Schaefer Caniglia B, Jorgenson A, Malin SA et al. (eds) *Handbooks of Sociology and Social Research*. Springer Nature, pp.115–138.
- Krause D, Stevis D, Hujo K et al. (2022) Just transitions for a new eco-social contract: Analysing the relations between welfare regimes and transition pathways. *Transfer: European Review of Labour and Research* 28(3): 367–382.
- Krawchenko T and Gordon M (2021) How do we manage a just transition? A comparative review of national and regional just transition initiatives. *Sustainability* 13: 6070.
- Lahiri-Dutt K (2023) Framing a gender transformative post-coal future for just transition: A feminist manifesto. *Energy Research & Social Science* 100: 103097.
- Lethbridge J (2024) Building a democratic expertise to inform labour's struggle for a just transition. *Contemporary Social Science* 19(1–3): 117–134.
- McCandless E and Faus Onbargi A (2023) Just transitions and resilience in contexts of conflict and fragility: The need for a transformative approach. *Current Opinion in Environmental Sustainability* 65: 101360.
- McIlroy D, Brennan S and Barry J (2022) Just transition: A conflict transformation approach. In: Pellizzoni L, Leonardi E and Asara V (eds) *Handbook of Critical Environmental Politics*. Edward Elgar Publishing Ltd., pp.416–430.
- Maree J (1998) The COSATU participatory democratic tradition and South Africa's new parliament: Are they reconcilable? *African Affairs* 97(386): 29–51.
- Newell P and Mulvaney D (2013) The political economy of the 'just transition'. *The Geographical Journal* 179(2): 132–140.
- Olmos Giupponi B (2023) Just transition in the Global South: Alternative approaches from Latin America. *International Journal of Comparative Labour Law and Industrial Relations* 39(3/4): 381–392.
- Pope C and Wages R (2018) Green growth: Agenda for a just transition to a sustainable economy. In: Borosage R (ed.) *The Next Agenda: Blueprint for a New Progressive Movement*. Routledge, pp.249–274.
- Presidential Climate Commission (PCC) (2022) A framework for a just transition in South Africa. Available at: <https://www.climatecommission.org.za/just-transition-framework> (accessed 7 November 2024).
- Quijano A (2000) Coloniality of power and Eurocentrism in Latin America. *International Sociology* 15(2): 215–232.
- Rector J (2018) The spirit of Black Lake: Full employment, civil rights, and the forgotten early history of environmental justice. *Modern American History* 1(1): 45–66.

- Ritchie H, Rosado P and Roser M (2023) CO₂ and greenhouse gas emissions. Published online at OurWorldinData.org. Retrieved from: <https://ourworldindata.org/co2-and-greenhouse-gas-emissions> [Online Resource].
- Schulz F, Eversberg D and Trappmann V (2025) German labour unions and the just transition: State-driven eco-modernisation as strategy for union renewal. SSRN Scholarly Paper, 5475587. Social Science Research Network. Available at: <https://papers.ssrn.com/abstract=5475587> (accessed 3 March 2026).
- Sguazzin A (2026) Germany offers South Africa €720 million in climate loans. *Bloomberg.com*, 23 January. Available at: <https://www.bloomberg.com/news/articles/2026-01-23/germany-offers-south-africa-720-million-in-climate-loans> (accessed 24 February 2026).
- Smith AA and Scott DN (2022) Law, labour and landscape in a just transition. In: Natarajan U and Dehm J (eds) *Locating Nature*, 1st edn. Cambridge University Press, pp.229–252.
- Statistisches Bundesamt (2025) Gross value added manufacturing - German Federal Statistical Office. Available at: https://www.destatis.de/Europa/EN/Topic/Industry-trade-services/Industry_GVA.html (accessed 6 November 2025).
- Statistics South Africa (2025) Quarterly Labour Force Survey (QLFS), 4th Quarter 2025.
- Stevs D and Felli R (2015) Global labour unions and just transition to a green economy. *International Environmental Agreements: Politics, Law and Economics* 15(1): 29–43.
- Stevs D and Felli R (2020) Planetary just transition? How inclusive and how just? *Earth System Governance* 6: 100065.
- TradeMap (2026) List of supplying markets for a product imported by Germany - Product: 2701 Coal; briquettes, ovoids and similar solid fuels manufactured from coal (unit: %). Available at: https://www.trademap.org/Country_SelProductCountry_TS.aspx?nvpm=1%7c276%7c%7c%7c2701%7c%7c%7c4%7c1%7c1%7c1%7c2%7c1%7c2%7c5%7c1%7c1 (accessed 27 April 2026).
- Trappmann V and Eversberg D (eds) (In press) *Union and Worker Initiatives for Fair Climate Policies*. Bristol University Press.
- Trappmann V, Eversberg D, Dessi M et al. (In press) Trade unions' strategies for just transitions: A typology for global comparison. In: Trappmann V and Eversberg D (eds) *Union and Worker Initiatives for Fair Climate Policies*. Bristol University Press.
- Trappmann V, Eversberg D and Schulz F (2024) Conjunctures of eco-social partnership unionism: The German Trade Union Confederation's climate policies over three decades. *Industrielle Beziehungen: Zeitschrift für Arbeit Organisation und Management* 31(1): 35–62.
- Trappmann V, Eversberg D and Schulz F (2025) German trade unions and decarbonisation: A transition to green growth, a-growth or degrowth? *Industrial Relations Journal* 56(4): 322–333.
- UNFCCC (2016) *Report of the Conference of the Parties on its 21st session, held in Paris from 30 November to 13 December 2015: addendum*. UN. Available at: <https://digitallibrary.un.org/record/831052> (accessed 6 November 2025).
- UNFCCC (2018) *Silesia Declaration on Solidarity and Just Transition*. Brussels.
- Velicu I and Barca S (2020) The Just Transition and its work of inequality. *Sustainability: Science, Practice and Policy* 16(1): 263–273.
- White D (2020) Just transitions/design for transitions: Preliminary notes on a design politics for a green new deal. *Capitalism Nature Socialism* 31(2): 20–39.
- White D (2021) Labour-centred design for sustainable and just transitions. In: Räthzel N, Stevis D and Uzzell D (eds) *The Palgrave Handbook of Environmental Labour Studies*. Springer International Publishing, pp.815–838.
- Wood G and Dibben P (2006) Broadening internal democracy with a diverse workforce: Challenges and opportunities. In: Buhlungu S (ed.) *Trade Unions and Democracy: COSATU Workers' Political Attitudes in South Africa*. HSRC Press, pp.45–74.
- Zografos C and Robbins P (2020) Green sacrifice zones, or why a green new deal cannot ignore the cost shifts of just transitions. *One Earth* 3(5): 543–546.

Appendix I.

Composition of interviews.

Interview	Interview code	Respondent Occupation	Interview	Interview code	Respondent Occupation
1	DE_Unionist_1	Unionist	1	SA_Unionist_1	Unionist
2	DE_Unionist_2	Unionist	2	SA_Unionist_2	Unionist and PCC representative
3	DE_Unionist_3	Unionist	3	SA_Researcher_3	Researcher
4	DE_Unionist_4	Unionist	4	SA_Researcher_4	Researcher
5	DE_Unionist_5	Unionist	5	SA_Unionist_5	Unionist
6	DE_Unionist_6	Unionist	6	SA_Researcher_6	Environmental NGO
7	DE_Politics_1	Secretary of state	7	SA_Unionist_7	Unionist
8	DE_Unionist_7	Unionist	8	SA_Unionist_8	Unionist – Full time shop steward
9	DE_Unionist_8	Unionist	9	SA_Unionist_9	Unionist
10	DE_Unionist_9	Unionist	10	SA_Unionist_10	Unionist – Full time shop steward
11	DE_WorksCouncil_1	Works Council	11	SA_Unionist_11	Unionist
12	DE_Unionist_10	Unionist	12	SA_Unionist_12	Unionist – Full time shop steward
13	DE_Unionist_11	Unionist	13	SA_Unionist_13	Unionist
14	DE_WorksCouncil_2	Works Council	14	SA_Unionist_14	Unionist
15	DE_WorksCouncil_3	Works Council	15	SA_Unionist_15	Unionist – Full time shop steward
16	DE_NGO_1	NGO Public Relations	16	SA_Unionist_16	Unionist
17	DE_Unionist_12	Unionist	17	SA_Unionist_17	Unionist
18	DE_Unionist_13	Unionist	18	SA_Unionist_18	Unionist – Full time shop steward
19	DE_Unionist_14	Unionist	19	SA_Unionist_19	Unionist
20	DE_Unionist_15	Unionist	20	SA_Unionist_20	Unionist

(continued)

Appendix I. (continued)

Interview	Interview code	Respondent Occupation	Interview	Interview code	Respondent Occupation
21	DE_Unionist_16	Unionist	21	SA_Unionist_21	Unionist – Full time shop steward
22	DE_Unionist_17	Unionist	22	SA_Policymaker_22	PCC representative
23	DE_Unionist_18	Unionist	23	SA_Unionist_23	Unionist
24	DE_Unionist_19	Unionist	24	SA_Policymaker_24	PCC representative
25	DE_Unionist_20	Unionist	25	SA_Unionist_25	Unionist
26	DE_Unionist_21	Unionist	26	SA_Unionist_26	Unionist
27	DE_Unionist_22	Unionist	27	SA_Unionist_27	Unionist
28	DE_Unionist_23	Unionist	28	SA_Unionist_28	Unionist – Full time shop steward
29	DE_Unionist_24	Unionist	29	SA_Policymaker_29	PCC representative
30	DE_WorksCouncil_4	Works Council	30	SA_Unionist_30	Unionist
31	DE_WorksCouncil_5	Works Council	31	SA_Unionist_31	Unionist
32	DE_Politics_2	Department head	32	SA_Unionist_32	Unionist
33	DE_WorkCouncil_6	Works Council	33	SA_Unionist_33	Unionist – Full time shop steward
			34	SA_Unionist_34	Unionist
			35	SA_Unionist_35	Unionist
			36	SA_Unionist_36	Unionist
			37	SA_Unionist_37	Unionist