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National and local factors in just transitions for low- and middle-income countries

Amanda Lenhardt
Independent Researcher
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Question

What impact does transitioning away from fossil fuels and other carbon-intensive sectors (e.g. cement, steel, glass etc.) have on employment in those sectors in developing countries? Is the impact national or regional?

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1. Summary

Transitions away from fossil fuels and other carbon-intensive industries involve a range of dynamic social, political, economic, and environmental factors at international, national, regional and local levels. Coordination and participation within and across these levels is a very challenging but critical component of just transitions. Many national governments, state-owned and private enterprises, trade unions, civil society organisations and individuals have committed to carbon emission reduction targets and adopted just transition principles into their strategies to shift away from carbon-intensive energy production and consumption. This report reviews some of the available evidence on the effectiveness of these strategies, summarising global and cross-country analyses and examining transitions in five low- and middle-income countries (LICs and MICS): Egypt, India, Indonesia, Mozambique, and South Africa.

This report begins with a brief background to the concept of just energy transitions and outlines the basic principles and key frameworks developed to chart the suggested pathways for countries to achieve their stated goals. Section three presents findings from a rapid review of just transitions in the five country cases selected for this report. Section four summarises the priority areas identified by the country cases and available global and cross-country evidence for effective just energy transitions. These priority areas are:

- **Political Economy Analysis**: There is no single blueprint for just transitions. Political economy analysis, from international to local level, is needed to understand the unique factors in each area affected by decarbonisation policies.
- **Relevant framing for LICs and MICs**: The language and conceptual framing of just energy transitions have been largely developed for high-income settings but the decarbonisation pathways of LICs and MICs are fundamentally different. As a result, little traction on just transitions has been recorded in the global South.
- **Coordination of energy strategies**: Government coordination of just transitions and energy planning more generally is inadequate in all contexts reviewed for this report. Conflicting policies aiming to appease both fossil fuel and clean energy demands are found to lead to ineffective outcomes, often with the fossil fuel energy sector benefiting from these inconsistencies.
- **Power differentials among stakeholders**: While active and informed participation among all affected stakeholders is considered a key principle of just transitions, it is rarely pursued in energy strategies and, where it is pursued, effects are often limited. All five country case studies show that the fossil fuel sector yields more power in political decision-making than the renewable sector, trade unions and civil society.
- **Gender inequalities hinder progress**: women are disproportionately affected by energy poverty in LICs and MICs and harmful gender norms limit women's participation in the energy labour market. Gender does not feature in many energy strategies; therefore, a major component of 'justice' is missing from just transitions.

Based on these factors, some overarching recommendations can be derived from the literature that, while still needing to be tailored to specific sectors and local contexts, can be effective in experiences of just transitions in LICs and MICs to date:

- **Decentralised approaches**: Due to the regional and localised nature of energy opportunities and challenges, many authors highly rate decentralised processes for just transitions. While international coordination and national-level planning are still critical, “there can be different approaches to implementation and financing across different ministries, shaped by different political priorities and capacity levels” (Worrall et al., 2018, p.14).
- **Effective communication:** It is a common perception that divestment from fossil fuels necessitates significant social and economic sacrifice. While there are trade-offs inherent in just energy transitions, the goal is to achieve net benefits for societies at large. “Communicating in a credible way about the reasons for and benefits of transitions—and being forthright about the challenges—is key to building support and finding well-adapted solutions” (Zinecker et al., 2018, p. 10).
- **Financial and social capital to support marginalised voices:** A leading cause of the major disparities in access to, and influence over, decision-making in energy strategies is the disproportionate access to financial and social capital in the fossil fuel industry. “Gender-responsive and socially inclusive energy businesses lack access to capital. Donors have a role to play not just via their check books, they are supporting impact investments and convening" (SEforALL, 2017).

The majority of available evidence on just energy transitions is focused on high-income settings, and detailed analysis of just transitions in lower-income settings is limited to a small set of upper-income countries (China, Brazil, South Africa, Indonesia) and India among lower middle-income countries. Mozambique was identified as a focus for this report to ensure the inclusion of a lower-income context, but evidence of the experience of just transitions in LICs is very limited. This finding was recently confirmed at a roundtable hosted by the Center for Strategic Studies and the Climate Investment Fund where the leading recommendation following the discussion was that “detailed case studies on sub-Saharan Africa, Latin America, and developing Asia are needed to provide policymakers tailored guidance and recommendations” (CSIS, 2020). There is a need for further evidence, for example, on critical factors in just transitions for those countries with high proportions of the population living in extreme poverty and limited capacity to increase clean energy production but have new or emerging fossil fuel sectors.

It is also worth noting that the research reviewed for this report did not address the potential diversion of CO_2 emissions from energy production in upper-middle income countries to lower-income countries. For example, it was noted that China and India are investing heavily in coal production in Mozambique. At the same time, most jobs in renewables are being generated in higher-income countries. There may be further scope to study the international coordination of divestment efforts and the emerging global structure of employment in clean energy sectors as LICs may be at risk of being left behind in the global energy transition.

2. Background to Just Energy Transitions

Just energy transitions are a negotiated process to achieve fair economic, social, and environmental outcomes from a shift away from carbon-intensive production and consumption (Zinecker et al., 2018). “The concept [of just energy transitions] provides a shorthand for talking about protecting workers and communities affected by transitions away from damaging industries and ensuring that a new “green economy” brings decent work,

improves human well-being, and addresses widening social and economic inequalities" (Piggot et al., 2019, p.3). Ongoing just energy transition processes focus largely on shifts away from oil, gas and coal production and consumption due to these sectors' large share of CO_2 emissions (Piggot et al., 2019; Zinecker et al., 2018). Other carbon-intensive industries such as cement, glass, steel, and ceramics have also been incorporated into just energy transition process, largely due to their high energy demands for production (OECD, 2017).

Employment and economic security are critical considerations for the majority of stakeholders involved in just energy transitions. "Energy transitions often involve a restructuring of economies and labour markets, and some sectors will witness a contraction and others an expansion in employment (Zinecker et al., 2018, p.2). While shifts towards renewable energy sources are expected to generate net gains in employment, these jobs are not guaranteed to be in the same regions as job losses due to divestment and the skills required from these jobs will likely differ (ILO, 2018; Cooper, 2019). The global distribution of new employment in renewable energy is also heavily skewed. Of the 11 million jobs globally in renewable energy reported by the International Renewable Energy Agency (IRENA) in 2018, China accounted for 39%.

The ILO (2015) developed seven principles for just transitions that are widely cited in the literature and have been translated into national and regional policies. In brief, these are:

- Adequate, informed social dialogue among all relevant stakeholders.
- Respect, promotion and realisation of fundamental principles and rights at work.
- Specific gender policies to promote equitable outcomes.
- Coherent policies need to provide an enabling environment for enterprises, workers, investors and consumers to embrace and drive the transition.
- The creation of more decent jobs, including as appropriate: anticipating impacts on employment, adequate and sustainable social protection, skills development and social dialogue, including the effective exercise of the right to organize and bargain collectively.
- Policies need to be designed in line with the specific conditions of countries.
- International cooperation among countries should be fostered.

Piggot et al. (2019) highlight two dimensions of justice central to just energy transitions: distributive justice and procedural justice. Procedural justice refers to the inclusion of all individuals and groups affected by divestment into decision-making around energy transition planning. They suggest this include potential impacts on future generations as well as justice for those historically affected by energy development. Distributive justice, they argue, refers to the equitable distribution of costs and benefits resulting from energy transitions and leads to questions and tensions that must be negotiated, such as:

> "Which coal mines, oil fields and gas reserves should close first; who should be compensated for losses; how can transition planning account for non-financial losses such as loss of culture or identity associated with industry closure; what types of assistance is needed; and how should support across companies, workers, households and communities be distributed to ensure that the existing unequal relations of gender, race, class, age and ability are not exacerbated?"
>
> (Piggot et al., 2019, p.3-4)

There is wide agreement in the literature that there is no single blueprint to just transitions as needs will vary based on structures within different industries, workforce composition, local social factors and dynamic political economy factors (Bataille et al., 2016; CSIS, 2020; Piggot et al., 2019; OECD, 2017; Price, 2020; Worrall et al., 2018; Zinecker et al., 2018). Furthermore, much theorising and assessment of energy transitions have been focused on high-income countries with distinctively different opportunities and constraints from LICs and MICs (Power et al., 2016). High-income countries are focused on changes to power production, the redesign of grids and efficiency of consumption while LICs and MICs are focused on clean electricity generation, the sustainable use of biomass and equitable access to clean energy (Fankhauser & Jotzo, 2017). Power et al. (2016) note, for example, that the emphasis on 'bottom-up' approaches to technological innovations employed in many European contexts is less straightforward in contexts where multinational firms yield a disproportionately high influence in energy systems. Even the language used to depict just transitions varies widely; Morena (2018) notes that "while just transition has gained traction in the international policy space and the global North, apart from a few notable exceptions (…) it is rarely referred to in the global south".

The emerging economies reviewed in this report are less prepared for just transitions than other emerging economies. Worrall et al. (2018) propose an analytical framework for just transitions based on three pillars (macroeconomic and sectoral policies, employment, social policies) and two enabling factors (policy coherence and effective institutional arrangement, social dialogue). Based on this framework they have assessed 16 emerging economies according to their preconditions for a just transition using relevant global indicators (see Figure 1). Brazil, China and South Korea rank highest according to their ranking, while the countries covered in this report that feature in their analysis on the lower end of their ranking (Egypt, India, Indonesia, South Africa).

See: Figure 1: Emerging economies' pre-conditions for just energy transition, Source: Worrall et al. (2018, p.19), https://www.sustainablefinance.hsbc.com/carbon-transition/enabling-a-just-transition-to-a-low-carbon-economy-in-the-energy-sector

3. Country case studies

Egypt

Egypt has the second-highest total CO_2 emissions in Africa and the energy sector makes up (71%) of total emissions with agriculture, industrial processes and waste making up the remaining 10%, 10% and 9% respectively (Ritchie, 2019; CAIT, 2019). Although Egypt's per capita emissions are high by African standards 2.43 tonnes per year in 2018, they are nearly half the global average of 4.79 tonnes per year (Ritchie, 2019). Fossil fuel subsidies have been a defining feature of Egypt's energy sector, amounting to an estimated $US27 billion in 2018 (IEA, 2019). Despite major subsidy reforms, Egypt's fossil fuel subsidies were the seventh highest in the world in 2018 (IEA, 2020a). Egypt is the largest non-OPEC oil producer and third-largest natural gas producer in Africa (EIA, 2018). Egypt is also a leading cement producer with energy provided by subsidised oil being increasingly replaced by coal (Vanderborght et al., 2016).

Policy context

Egypt's leading decarbonisation strategy has been fuel subsidy reforms, initiated in 2014 to reduce the significant burden on state expenditure. Leading up to these reforms, fuel subsidies accounted for around 20% of all government expenditure and disproportionately benefited high-income households (Canonage et al., 2016; UNFCC, 2016). It was also estimated that the removal of fossil fuel subsidies could lead to a 13% reduction in the country's CO_2 emissions, therefore the strategy was seen as mutually beneficial for the economy and for the environment (ILO, 2018). Fuel subsidy reforms were predicted to have a larger negative impact on poorer households given their relatively higher share of income spent on energy and lack of access to fuel substitutes (Canonage et al., 2016). To compensate for these negative effects the government introduced a series of complimentary social protection measures (UNFCC, 2016).

The range of social protection measures adopted with explicit links to Egypt's fuel subsidy reforms have been a turning point in the government's commitments towards a social protection floor for poor households. The Egyptian government committed to re-allocate between 10-15% of the estimated savings from fuel subsidy reforms on new social programmes and the extension of existing programmes. These measures included the introduction of two new cash transfer programmes, an increase to the minimum wage, the extension of existing food subsidy measures, fuel supplies to reduce shortages and free public transportation (Zinecker et al., 2018).

Participation in Egypt's just transition

Egypt's fuel subsidy reforms were championed by the newly elected Sisi government shortly after coming into power with strong public support (Zinecker et al., 2018). Following years of political and economic turmoil, the Arab Spring protests and unsuccessful government transitions, the country's fiscal situation had reached a critical point. Unemployment was high, and Egypt was at risk of defaulting on its debts (Zinecker et al., 2018). Given the significant burden of fuel subsidies on public spending, their reform came to be seen as an essential part of Egypt's return to economic stability. "Sisi relied on a predominantly technocratic cabinet which was universally in favour of energy price increases. This fostered internal government coordination" (Zinecker et al., 2018, p.29).

The Sisi government had broad-based support for fuel subsidy reforms from academics, businesses, industry, the media, wealthy elite and much of the middle-class population (Zinecker et al., 2018). Although many of these groups were benefiting from fuel subsidies, a narrative of 'shared sacrifice' was developed around the notion of building a workable economy for the Egyptian people (Zinecker et al., 2018, p.30). Opposition did arise to the reforms, mainly around potential impacts on poor households and among the transport sector. The government responded to these concerns by focusing its messaging on social equity and making explicit links between cost savings and new social protection spending (Zinecker et al. 2018).

Achievements towards just transition

The reallocation of government spending from fossil fuel subsidies to new social protection programmes has allowed the government to develop a social safety net that had been historically neglected (Canonage, 2016; Zinecker et al., 2018). There is limited

evidence on the effectiveness of these programmes, but it has been suggested that "by using a flat transfer amount, rather than progressively smaller transfers… [the cash transfer programmes] could constitute an expansion of social protection in the country, rather than simply a transitional offsetting measure during the subsidy removal process" (Canonage, 2016).

One of the key factors noted behind Egypt's relatively successful fuel subsidy reforms has been coordination, both of public messaging around the reforms and in ministerial approaches and activities (Zinecker et al., 2018)

> "Clarity and consistency about the urgency of reforms to revive the Egyptian economy were crucial in fostering cohesion both within government and the population… This was paired with communications strategies that explained how energy subsidies disproportionally benefited wealthier households… [and] strongly addressed the belief systems of middle- and lower-class Egyptians."
>
> (Zinecker et al., 2018 p.30).

Remaining challenges

Beyond fuel subsidy reform, Egypt has made limited progress in reducing carbon emissions from the energy sector. While the country has significant potential to shift energy production to renewable sources, funding to support renewable industries has been lacking (IRENA, 2018). The government has set a target to reach 42% renewables in the country's energy mix by 2035, but the share of renewables in total electricity output has been in sharp decline from 17% in 2000 to 8% in 2015 (World Bank, 2020). The government's energy strategy, developed in 2014, is due to be revised as it has not been updated to account for changes in the renewable energy sector (IRENA, 2018).

Egypt's fuel subsidies are still disproportionately high, and Egypt has the lowest spending on social safety nets as a % of GDP in North Africa and the Middle East and one of the lowest rates in Africa (World Bank, 2018). Evidence on the effectiveness of Egypt's diversion of fuel subsidy spending towards social protection programmes is needed. A better understanding of the effectiveness of these programmes in mitigating the negative impacts of fuel subsidies on poor households could be used to help extend these reforms further and to maintain public support.

India

India has taken several steps to reduce carbon emissions, but coal, oil and natural gas still make up 80% of its electricity (ILO, 2018, p.14) While India has maintained relatively low CO_2 emissions per capita compared to the global average, total emissions makeup 6.8% of all global emissions and are therefore critical to meeting global targets (Ritchie & Roser, 2019). India is the second-largest coal producer (IEA, 2020b), second-largest steel producer (World Steel Association, 2020) and second-largest cement producer (Müller, N. & Harnisch, 2007). India also maintains relatively high subsidies for fossil fuels. Given India's persistently high poverty rate and the large number of households reliant on fossil fuel industries for their livelihoods, an effective and inclusive just energy transition will be crucial to India's divestment process. Significant regional variation and marked differences between rural and urban areas will

also mean that this transition will require tailored local and regional strategies to interact with national strategies.

Policy context

India submitted an Intended Nationally Determined Contributions (INDC) under the United Nations Framework on Climate Change (UNFCC) in 2015. INDCs detail a country's emission reduction ambitions and set them in local contexts. INDCs are expected to follow just transition principles such as those listed by ILO above, notably around social dialogue, transparency and equity. India's INDC targets have been rated '2°C compatible by the Climate Action Tracker, meaning they are consistent with the 2009 Copenhagen 2°C goal, but are not fully consistent with the Paris Agreement's long-term temperature goal (Climate Action Tracker, 2020).

"India's climate-related policies have been heavily influenced by concerns over climate change adaptation, secure energy access and job creation, while emission reductions are seen as a co-benefit to these aims" (Roz, p.15). A defining feature of India's energy strategy is investment in renewable energy production with a commitment to reach 40% electricity production from renewable sources. India has seen a sharp increase in both domestic and foreign investment in renewable energy targeted at solar, wind, electric vehicles and storage (Sinha, 2020). The attraction of foreign investment from multilateral and bilateral agencies and sovereign wealth funds has been attributed to "a conducive policy environment, a steady influx of capital, falling prices and new technology (Sinha, 2020).

The building sector has been identified as a priority area in reducing India's carbon emissions given projected growth in the sector, largely through more efficient energy use (Graham & Rawal, 2019). The sector is estimated to contribute 35% of India's total energy consumption and to be increasing by 8% annually (Khosla & Janda, 2018). Initiatives listed in India's INDC with regards to the building sector include: minimum energy standards for new commercial buildings; design guidelines for energy efficiency; an energy-rating system; an increase in green building floor area (Graham & Rawal, 2019).

Participation in India's just transition

A large number of jobs are directly and indirectly tied to the fossil fuel industry in India and are concentrated in regions of the country that are not targeted for renewable energy production expansion. The state-owned coal company CIL has around 300,000 employees and it is estimated that 1,210,000 labourers are linked with formal and informal coal production (Zinecker et al., 2018, p.20).

Trade unions representing workers in affected industries and communities have been actively engaged around government energy decisions. While the government has "widened the scope of continuous engagement of consultations among the stakeholders for inclusive labour policy formulation at regional and state levels" (Ministry of Labour and Employment, cited in Worrall et al, 2019, p.19) it was not possible to identify evidence on the mechanisms supporting these efforts or on their effectiveness. A cross-country study of participation in just transitions in emerging economies by Worrall et al. (2018) noted that civil society has had limited access to decision-making around energy transitions in all of the cases they studied, including India, but no further analysis is provided.

Achievements towards just transition

The renewable energy sector in India is estimated to have created 719,000 jobs as of 2018, making it the fifth-largest employer for renewables in the world (IRENA, 2019). The leading renewable sectors for employment are hydropower, grid-connected solar power and wind (IRENA, 2019). Growth in the sector has been largely attributed to strong domestic and international investment. One innovative domestic financing mechanism has been the introduction of a tax on coal production that yielded US$12 billion in revenues between 2010-2018. These revenues have been partially used to fund renewable energy technologies (Zinecker et al., 2018, p.15)

Social protection measures such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) have been used for the dual purpose of economic security for rural households and climate-resilient infrastructure investment (ILO, 2018; Worrall et al., 2018). “People are employed in unskilled manual work, such as the construction or improvement of community infrastructure, or the generation of ecosystem services that protect environmental resources” (ILO, 2018, p.11). The scheme guarantees minimum wage employment for marginalised workers for 100 days per year and is seen as possible protection for workers in carbon-intensive industries (Worrall et al., 2018 p.9).

Regional and city-level actions have been taken to fulfil India’s commitments towards improved energy efficiency in the building sector. “Hyderabad recently implement[ed] India’s first online building code compliance system … while the cities of Coimbatore, Rajkot Nagpur and Shimla have committed to improving their rates of energy-efficiency improvement” (Graham & Rawal, 2019). The Energy Conversation Building Code, launched in 2007, is now mandatory in 10 of India’s 29 states. (Graham & Rawal, 2019)

Targeted government subsidies for clean cooking fuels have yielded positive outcomes for women in poor households (GSI-IISD & IRADe, 2019). As the primary cooks in many households in India, women are more exposed to indoor air pollution and suffer drudgery and time burdens from non-renewable energy sources. One study found that women targeted by the subsidies saved one hour on average per day due to reduced cooking and cleaning time and gained decision-making power within the household (GSI-IISD & IRADe, 2019).

Remaining challenges

There has been inadequate decentralised energy planning to address regional imbalances in fossil fuel dependence for jobs and indirect economic linkages (Zinecker et al., 2018).

> “Most of the coal resources are located in the eastern and central states of Jharkhand, Odisha, Chhattisgarh, West Bengal and Madhya Pradesh (Geological Survey of India, 2018). In comparison, most of the planned new renewable energy capacity is concentrated in southern, western and northern regions of India. While solar and biomass can be deployed in almost all states, wind energy is concentrated in a few states in southern and western India (NITI Aayog, 2015).
>
> Zinecker et al., 2018, p.20

In addition to decentralised planning, national coordination has been cited as a barrier to India’s energy transition (Price, 2019; Kumar & Naik, 2019). Kumar & Naik (2019) argue that

there are persistent challenges to finding a synergy between India's climate and development interests, and that "institutional, systemic and process barriers, including financial constraints, inter-ministerial coordination, lack of technical expertise and project clearance delays, stand as major challenges in the efficient implementation of the missions".

India continues to invest in carbon-intensive energy production in other countries, suggesting that analyses focused solely on domestic accountability for just energy transitions is an insufficient measure of the advancement of the global position. While this issue was not raised in the literature assessing the effectiveness of India's energy transition, India's investments in South Africa and Mozambique were identified when exploring just energy transitions in those countries for this report. Power et al. (2016) note that India is a significant export market for South Africa's coal and that India has been stepping up its diplomatic efforts in Mozambique's natural resource industries, particularly around new coal and gas discoveries.

Indonesia

Indonesia's reliance on fossil fuels has been driven by complex social and political factors at national, regional and local levels. The country is the fourth-largest coal producer (IEA, 2020b) and a leading producer of cement, ceramics, and other intensive industries. While Indonesia has made notable strides in consumption-side reforms to reduce carbon emissions, far less has been done to curb production-side emissions. "Fossil fuels still make up around 67% of Indonesia's energy mix (including power, heat, transport fuels, etc) and their share is increasing further [while] the use of renewables has remained stable over the years at a fairly low level" (Climate Transparency, 2019). Regional-level factors and the country's relatively decentralised governance system are important characteristics to be accounted for as part of a just energy transition. Carbon emission levels, economic and social structures, and levels of commitment to divestment vary widely across the country's 34 provinces. CO_2 emissions range from 260 Mt CO_2 e in North Sumatera to 1.51Mt CO_2 e in West Sulawesi (CAIT, 2016).

Policy context

Indonesia's 2030 INDC targets have been found to be "highly Insufficient", mainly due to limited ambition in the country's targets for CO_2 emission reductions (Climate Action Tracker, 2020; Chrysolite et al., 2017). The Government's latest medium-term development plan has set more ambitious targets, notably around increasing renewable energy production, but as yet there are no policies in place to meet these targets (Climate Action Tracker, 2017). Analysis by IRENA (2017) shows that Indonesia could greatly expand renewable energy production with the potential to create an estimated 1.3 million jobs (up from 100,000 in 2017) by increasing investment and policy efforts in the sector (IRENA, 2017).

Indonesia's leading fossil fuel divestment strategy has been to reform consumption-side fuel subsidies. Fuel subsidies have posed a significant burden on government expenditure, upwards of 10% in the years leading up to reforms, and low fuel prices for consumers have led to overconsumption, with benefits largely accrued by wealthier households (Zinecker et al., 2018) The policy, introduced in 2014, introduced a formula for price adjustments that are closer to the international market price and ensure more regular price adjustments (Gass & Echeverria, 2017). The 'one fuel price' policy also targets remote areas to ensure that fuel prices there match those in urban areas. (Zinecker et al., 2018).

There have been provincial and district-level initiatives setting further divestment targets that go beyond national-level. The National Action Plan for Greenhouse Gas Reduction (RAN-GRK) requires the provincial government to create Local Action Plans for Greenhouse Gas Reduction (RAD-GRK). "Since 2010, more than 12,000 mitigation actions have taken place in the provinces under RAD-GRK, leading to almost 3GtCO_2e in emissions reduction" (NewClimate Institute, 2019). The island of Sumba in East Nusa Tanagra province has set a particularly ambitious target of 100% renewable energy (no fixed date) and gained support from the Ministry of Energy and Mineral Resources as well as international donors (Hivos, n.d.).

Participation in Indonesia's just transition

The national government, led by President Jokowi, has champion fuel subsidy reforms, following campaign commitments in the lead up to the 2014 presidential election (Zinecker et al., 2018). Jokowi's administration has been credited with having a clear and effective communication strategy around fuel subsidy reforms, highlighting the benefits of reforms to build public support and linking cost savings to diverted spending on infrastructure, education and health (Zinecker, 2018, p.27).

> *"*The government strongly communicated on all the newly built infrastructures, funding to villages, economic progress, and other benefits of reform, mostly through commercials and social media. This method of communication [was] most effective among people living in the cities with good access to information and relatively higher levels of education, but less so in rural areas with less access to these channels."
>
> Zinecker et al., 2018, p.27

Achievements towards just transition

While fuel subsidy savings cannot be directly linked to improved social and economic outcomes, analysis has shown that investments in social sectors increased in the following budget period (Gass & Echeverria, 2017). Targeted social protection measures such as food subsidies and health insurance assistance were linked with fuel subsidy reforms as part of a broader reorientation of public spending (UNFCC, 2016, p.49).

> "Massive programs were implemented together with the reforms. They did not target workers specifically but stimulated economic growth and rural development. The Revised State Budget 2015 showed marked increases in expenditure in three main areas: economic and social programs, infrastructure and regional transfer funds."
>
> Zinecker et al., 2018, p.27

Remaining challenges

Indonesia is being urged to increase the level of ambition of its carbon emission targets and to expand renewable energy production (Climate Action Tracker, 2020; Chrysolite et al., 2017; As the world's fifth-largest emitter of greenhouse gases, the country's commitments will be critical to meeting global climate targets (Chrysolite et al., 2017). While energy does feature as a priority for the government's climate policies, emissions from deforestation and peatland megafires have been a leading focus given their large share in the country's carbon

emissions. Multilateral institutions and donors have also placed a significant emphasis on deforestation and peatland conversation with Indonesia being a leading country in REDD+ activities, a framework under the Paris Agreement in which higher-income countries pay lower-income countries to protect their forests.

The energy sector is predicted to become the country's leading cause of carbon emissions in the next decade, replacing land-use changes and peat fires (Chrysolite et al., 2017). Estimates from the World Resource Institute indicate that the country's growing population and economy will lead to increased demand for energy, predicting the sector will become the leading contributor of carbon emission between 2026-2027 (Chrysolite et al., 2017). Chrysolite et al., (2017) recommend Indonesia introduce "a carbon tax on fossil-fuel power plants, replac[e] new development of coal power plants with clean and renewable energy sources (wind or solar), and provid[e] subsidies and better feed in tariffs for promoting renewable energy sources.

Mozambique

Mozambique's high poverty and low energy access rates mean that the country's energy needs are likely to increase significantly to meet social and economic targets set by the UN Sustainable Development Goals (SDGs). Mozambique has one of the lowest per capita CO_2 emissions rates in the world at 0.28 tonnes in 2018 compared to the global average of 4.79 tonnes in 2018 and the African average of 1.1 tonnes (Ritchie & Roser, 2019). Recent investments in Mozambique's extractive sector, particularly coal and new offshore gas discoveries, are likely to have positive effects on energy access and livelihoods, although are also likely to increase CO_2 emissions (Power & Kirshner, 2018). These investments have spurred growth in a struggling economy and created jobs in construction, manufacturing and services (World Bank, 2017). Perspectives on a just transition in Mozambique are likely to pose significant challenges where proposals are perceived to threaten the recent economic gains that Mozambique has gained from carbon-intensive industries. That being said, the policy environment for actions to tackle climate change has been deemed favourable in Mozambique as demonstrated by the country's positive response to the UNFCCC process, relevant national policies and funding for climate change issues and mainstreaming these into local government programmes (Shankland & Chambote, 2011)

Policy context

Mozambique's National Climate Adaptation and Mitigation Strategy (2013-2025) is intended to promote low-carbon development through the integration of adaptation and mitigation in sectoral and local planning (Ministry of Foreign Affairs Netherlands, p.7). Mozambique also submitted an INDC to the UNFCCC, which "highlights that the implementation of any proposed reduction is conditional on the provision of financial, technological and capacity-building support from the international community" (Netherlands, p.8).

International donors have played a significant role in shaping "the landscape of energy politics" in Mozambique (Power et al., 2016). "Reflecting the high levels of aid dependence in Mozambique's, off-grid rural electrification and grid extension has frequently been funded by grants and soft loans from European bilateral donors who have played a key role in configuring the landscape of energy politics and closely shaped the Mozambican state's capacity to pursue different renewable energy pathways" (Power et al., 2016, p. 16).

Participation in Mozambique's just transition

The energy sector has been highly politicised in Mozambique, with the expansion of electricity access into remote area seen as an extension of state power and allegations of corruption in the awarding of energy contracts to companies with political ties (Power et al., 2016). Critiques of the government's energy policies by civil society organisations are centred around "the Mozambican government's failure to uphold its resource sovereignty, locally redistribute the wealth generated by hydrocarbon revenues, create jobs for local populations in coal-producing areas, or negotiate favourable terms with investors" (Power et al. 2016).

There is a dearth of information on participation and key stakeholders in Mozambique's energy transition. As noted above, very little research has been conducted on energy transition processes outside high-income countries, that the few studies conducted in lower-income settings have tended to be in a limited set of upper-middle income countries.

Achievements towards just transition

Mozambique's National Energy Fund (FUNAE) has been supporting renewable energy development through solar PV systems, mini-hydro and wind projects (Power et al., 2019, p. 511). "The agency is funded through the state budget, with revenues from taxes and levies from petroleum and electricity concessions, along with donor support from the World Bank, the EU, several European bilateral donors, and more recently, India" (Power et al., 2019, p.511). There is limited evidence on the effectiveness of these programmes, but Power et al. (2019) note that this extension of energy provision to underserviced areas has been seen to benefit rural wellbeing, particularly through provision to rural schools and clinics.

Remaining challenges

Lack of coordination among ministries responsible for climate change mitigation in Mozambique has been cited as a leading barrier to effective energy transition (Ministry of Foreign Affairs, 2018). Key responsibilities for implementing energy policies have shifted between ministries and some ministries have been dissolved, placing a significant burden on remaining industries. To address this shortfall in coordination, a Climate Change Unit was established in 2014 to serve as a cross-governmental body to coordinate climate-related activities (Ministry of Foreign Affairs, 2018, p.8)

Displacement due to mining development has been highly problematic in Mozambique with the government found to be inadequately addressing the needs of local communities affected by natural resource extraction (Varia, 2013). Tete province, for example, has been the site of significant coal production with approximately 60% of the province's area either approved or pending approval for mining concessions (Varia, 2013). Thousands of people have been resettled due to coal mine developments, access roads and related infrastructure, with and Human Rights Watch report finding that "the resettlements, particularly the provision of poor-quality agricultural land and unreliable access to water, have had negative impacts on community members' standard of living, including rights to food, water, and work" (Varia, 2013).

South Africa

Although South Africa has made limited progress, it is one of the few lower-income countries recognised for having adopted explicit steps towards a just energy transition. South Africa has strong environmental reasons for raising the share of renewables in the energy mix: its carbon emissions per capita are twice the global average and it has the joint highest per capita CO_2 emissions in Africa at 8.09 tonnes in 2018, compared to the African average of 1.1 tonnes (Ritchie & Roser, 2019). Around 77% of South Africa's primary energy needs rely on coal and South Africa is the seventh-largest coal exporter globally (IEA, 2020b). It is reported that business, the government and trade unions continue to have an interest in the competitiveness of coal production, most notably ESKOM, the state-owned energy supplier and the largest producer of electricity in Africa (Schmitz, 2017, pp 521-540). The coal industry employed an estimated 92,230 people in 2019 (Minerals Council of South Africa, 2020), largely in the Mpumalanga region. Nonetheless, the role of coal in the South African economy and power generation is already decreasing, while that of gas and renewables is increasing (IEA Outlook, 2020). The decommissioning of coal power plants due to age, and the steps taken to reduce reliance on coal internationally, are expected to have an impact on South African energy transition (Bridle, 2019).

Policy context

South Africa explicitly articulated the need for a just transition for all in its National Climate Change Response white paper in 2012 (UNFCC, 2016). The National Development Plan, launched the same year, set out a commitment to "produce sufficient energy to support industry at competitive prices, ensuring access for poor households, while reducing carbon emissions per unit of power by about one-third" (National Planning Commission, 2012, p.34). The Plan also referred to managing a just transition in the context of protecting the poor and vulnerable to health-related risks of climate change and with reference to the high number of workers in the energy sectors. It stated that "an equitable transition must protect the poor and vulnerable from the transitional costs associated with mitigation, such as increased costs of energy, food and transport, job losses in carbon intensive industries, and the demand for different skills" (National Planning Commission, 2012, p.211).

Another key intervention relating to South Africa's commitment to just transition is the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Established in 2010, the programme has been described as one of South African government's urgent interventions to enhance the country's power generation capacity with 17.8 GW of electricity generation capacity from renewables over an 18-year period to 2030 (Walwyn & Brent, 2015). The REIPPP lists several targeted interventions for local economic development including job creation, rural development (especially in disadvantaged regions), community participation, skills, education and enterprise development and the participation of previously disadvantaged citizens (Walwyn & Brent, 2015, p.395)

Participation in South Africa's just transition

One of the most explicit just transition social dialogue instruments in the global South is South Africa's Green Economy Accord. The accord is aimed at developing local industrial capacity in the green sector and creating new green jobs while including key stakeholders in the

process (UNFCC, 2016, p. 41). The accord, signed in 2011 by several government departments, representative trade unions and employers' organizations, and civil society organizations, was characterised by President Zuma as "one of the most comprehensive social partnerships on the green economy in the world" and "ground-breaking" by a leading South African trade unionist (Amis et al., 2018, p.13) Amis et al. (2018) argue, however, that despite some progress in providing green job and employment, the Accord has "not helped unlock change in areas which were needed. In the end, it was more of a public relations exercise" (p.13)

There is a growing demand for shifts away from fossil fuel production and consumption in South Africa, though tensions persist around potential job losses and the closure of coal mines and coal power stations (Morena et al., 2018). While the government and private sector have been largely pursuing market-based approaches to just energy transition, an alliance of labour, social movements and popular organizations called One Million Climate Jobs Campaign has put forward an alternative vision for just energy transition that:

> "calls for a much more radical approach including departure from the market-liberal development pathway and towards a public sector-led transition…Following the suggested path would strengthen the role of local governments in increasing energy equity and access and would also create decent jobs. It could also serve to support a democratic transition away from fossil fuel capitalism that is built from the bottom up."
>
> (Morena et al., 2018, p.25)

Achievements towards just transition

Direct employment in projects under South Africa's REIPPPP more than doubled from 17 800 job-years in 2014 to 36 500 by mid-2018 (IRENA, 2019). The REIPPP has contributed to the emergence of South Africa's small but growing wind and solar manufacturing industries and many direct and indirect job. Some 85% of jobs were created in the construction phase, the remainder in operations, and the majority are held by people from local communities (IRENA, 2019). Evidence from the World Bank indicates that there have been measurable benefits to rural communities in South Africa owing to the REIPPP, going so far as to characterise the programme as "the most successful public-private partnership in Africa in the last 20 years" (World Bank, 2014).

Remaining challenges

Policy consistency has been identified as a major challenge to implementing South Africa's policies in support of a just transition (Morena et al. 2018, p. 25). For example, contrary to the stated objectives around divestment from fossil fuels noted above, the South Africa Department of Mineral Resources and Energy recently stated that the country's reliance on coal was "unlikely to change significantly in the next two decades owing to the relative lack of suitable alternatives to coal as an energy source" (DMRE, 2020). These inconsistencies, in the already complex domain of energy transition, can make it harder for key stakeholders to comprehend or comply with policies. An engineer in the renewable energy sector was quoted by Power et al. (2016) as stating that "meeting the economic commitments of the project can be a huge challenge… not all developers will coordinate with each other over labour and socio-economic issues as the industry is too competitive".

A widely reported challenge to the implementation of fossil fuel divestment strategies comes from the disproportionately large role of private sector stakeholders' influence in decisions around energy (Power et al., 2016; Morris & Martin,2015). Morris & Martin (2015) note that the incentives to develop renewables originated in the electricity crisis in 2007 and ESKOM's inability to promptly respond to continued high demand for energy since. Morris & Martin (2015) concluded that ESKOM had been able to use its own failure in meeting energy needs to reassert its control over the electricity value chain.

4. Leading issues for Just Energy Transitions in LICs and MICs

This section briefly summarises some common issues highlighted by cross- country studies of just transitions in LICs and MICs and draws on the findings from the country cases studies included in this report.

Policy coherence and communication

Evaluations of energy transitions in the case study countries discussed in this report all noted a lack of policy coherence as a leading barrier to progress. This includes failures to coordinate policy commitments and activities across government ministries, incompatible policies between fossil fuel and renewable energy development, and ineffective communications strategies towards businesses, civil society and the wider public. While there is limited evidence on effective policy coherence in just transitions in LICs and MICs, one area that has been explored in more detail is the coordination and communication of fuel subsidy reforms in Egypt and Indonesia. Both countries were found to have had well-coordinated policies that aligned with complimentary social protection programmes to mitigate negative effects on poor households. These policies were also found to have adopted effective communications strategies, acknowledging the challenges or 'sacrifice' involved in fossil fuel divestment but focusing on the net social benefits from diverted investment in social sectors.

Decentralised decision-making and policy coherence is widely recognised as a necessary dimension of just transitions to complement comprehensive national energy planning. Localised challenges and opportunities inherent in shifting away from fossil fuels mean that tailored interventions and local-level dialogue to ensure all affected stakeholders are included in energy decision-making.

> "National mandates and plans to address just transitions can be necessary to spur and support local action in some cases. But for just transitions to work, the process needs to be owned at the local or regional level, not merely in the climate change-oriented discussion among multilaterals and central governments. Cities and regional governments will be on the front lines of dealing with transitions, but they often lack the political power and institutional capacity to plan and manage broad systemic changes and commonly do not have a clear sense of roles and responsibilities. In some instances, national legislation significantly curtails the options of very capable local governments. Local governments also lack access to finance on the scale required to manage worker displacements and fund new adjustment programs, worker retraining, and other social insurance."

(CSIS, 2020)

Participation

Social dialogue with active and informed participation of affected stakeholders is a leading challenge to just transition in the case studies reviewed by this report and also in a number of other cross country-studies (Zinecker et al., Worrall et al., 2018). Worrall et al. argue that "The main obstacles to effective social dialogue appear to be the absence of platforms or engagement with subnational governments, civil society and business around policy (2018, p.12). Their cross-country analysis found that some countries engaged civil society when developing their INDCs (Nigeria, Philippines, Viet Nam) while other countries did not (China, Pakistan). In some countries,

In those countries where social dialogue platforms do exist, it is widely recognised that inequalities in different stakeholders' abilities to influence decision-making are critical barriers to realising just outcomes. Worrall et al.'s (2018) cross country study found that fossil fuel energy agencies hold more power in Indonesia, India and Nigeria than renewable energy entities**.** The case study of South Africa also shows that the coal industry has a disproportionate impact on energy decision-making compared to the renewable energy sector. Worrall et al. (2018) note that the exclusion of workers and civil society actors from just transition dialogues is in step with the wider global trend of the erosion of works rights and voices and lack of union representation. Barriers to participation are therefore critical, but not unique to just transition dialogues, indicating that more systemic reforms to workers' inclusion in the political landscape may be needed.

Gender inequalities

Gender inequalities are a critical factor in just energy transitions to ensure access to clean energy for all. Differences in energy needs among women and men, largely a function of societal norms that result in different responsibilities, have resulted in inequitable access to energy services between men and women (CSIS, 2020; ENERGIA, 2019). While the gendered-dimension of energy poverty is generally discussed in international fora, national energy plans rarely address the specific needs of women. The IUCN-Global Gender Office found that only one-third of national energy frameworks include gender considerations (SEforALL, 2017). Furthermore, a cross-country analysis of the gender dimensions of just energy transitions by ENERGIA (2019) found that "even in cases where gender-aware policy is in place, the implementation may lag behind, mainly because of the approaches adopted and processes within the organisation implementing the policy".

Inequalities in access to employment in the energy sector have also be identified as an important factor to be addressed as part of just transitions (ENERGIA, 2019; ILO, 2018; IRENA, 2018,). Women's participation in labour markets is lower in LICs and MICs in general, and the energy sector is one of many that has lost out on the potential skills, productivity and innovation of women, as well as perpetuated damaging norms in hiring practices and training. Research by IRENA found that gender discrimination tends to be lower in renewable than non-renewable energy sectors in the countries they studied (IRENA, 2018). While there are global initiatives in place to address women's employment as a 'transformational' element of energy transitions, there has been limited engagement among LICs and MICS. For example, the Clean

Energy, Education, and Empowerment (C3E) initiative, launched in 2010 to “enhance collaboration and promote the participation of women in the clean energy transformation.” has had no LICs or MICs as members to date (CEM, 2020).

5. References

Bataille, C., Waisman, H., Colombier, M., Segafredo, L., Williams, J. & Jotzo, F. (2016) The need for national deep decarbonization pathways for effective climate policy. *Climate Policy*, 16:sup1, S7-S26.

Bridle, R. (2019). *South Africa: Is a transition away from coal just around the corner?* International Institute for Sustainable Development: Winnipeg. https://www.iisd.org/articles/south-africa-coal-transition

Canonge, J., Schmitt, V., Abdulrehim, S., & De, L. (2016). *Social protection and climate change: how has the removal of fuel subsidies in Egypt affected its people and the climate?* International Labour Organization: Geneva. https://www.ilo.org/wcmsp5/groups/public/---africa/---ro-abidjan/---sro-cairo/documents/publication/wcms_467290.pdf

CEM (2020). *Overview*. Clean Energy Ministerial http://www.cleanenergyministerial.org/initiative-clean-energy-ministerial/clean-energy-education-and-empowerment-c3e

Chrysolite, H., Juliane, R., Chitra, J. & Ge, M. (2017). *Evaluating Indonesia’s Progress on its Climate Commitments*. World Resource Institute: https://www.wri.org/blog/2017/10/evaluating-indonesias-progress-its-climate-commitments

Climate Action Tracker (2020). https://climateactiontracker.org/countries/

Climate Transparency (2019). Indonesia. https://www.climate-transparency.org/countries/asia/indonesia

Cooper, R. (2019). *Fossils fuels and job creation in Africa*. K4D Helpdesk Report 697. Brighton, UK: Institute of Development Studies. https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/14987/697_Fossil_Fuels_and_Job_creation_in_Africa.pdf?sequence=1&isAllowed=y

CSIS (2020). *Just transitions: Progress to Date and Challenges Ahead*. Center for Strategic and International Studies https://www.csis.org/analysis/just-transitions-progress-date-and-challenges-ahead?gclid=Cj0KCQjwp4j6BRCRARIsAGq4yMHBjw31vfJ830Xr6UD9fj7eA-jmuzexaEpOvIozSNO0_GFReds-JRAaAqPsEALw_wcB

CAIT Climate Data Explorer (2016). *Indonesia Climate Data Explorer*. World Resource Institute: Washington D.C. http://cait.wri.org/indonesia

CAIT Climate Data Explorer (2019). *Country Greenhouse Gas Emissions*. World Resource Institute: Washington D.C.

Department of Mineral Resources and Energy (South Africa) (2020). *Coal Resources.* http://www.energy.gov.za/files/coal_frame.html

EIA (2018). *Country Analysis Brief: Egypt.* U.S. Energy Information Administration. https://www.eia.gov/international/content/analysis/countries_long/Egypt/egypt.pdf

ENERGIA (2019). *Gender in the transition to sustainable energy for all: From evidence to inclusive policies.* https://www.globalwomennet.org/wp-content/uploads/2019/03/Gender-in-the-transition-to-sustainable-energy-for-all_-From-evidence-to-inclusive-policies_FINAL.pdf

Fankhauser, S. & Jotzo, F., (2017). *Economic growth and development with low-carbon energy*. Centre for Climate Change Economics and Policy Working Paper No. 301. https://assets.publishing.service.gov.uk/media/5a2532fded915d458b922ee6/Working-paper-267-Fankhauser-Jotzo.pdf

Gass, P. & Echeverria, D. (2017). *Fossil Fuel Subsidy Reform and the just transition: Integrating approaches for complementary outcomes*. International Institute for Sustainable Development: Winnipeg. https://www.iisd.org/sites/default/files/publications/fossil-fuel-subsidy-reform-just-transition.pdf

Global Subsidies Initiative – IISD & Integrated Research and Action for Development (GSI-IISD & IRADe) (2019). *Gender and fossil fuel subsidy reform in India: Findings and recommendations*. Institute for International Sustainable Development: Winnipeg. https://www.iisd.org/sites/default/files/publications/gender-fossil-fuel-subsidy-reform-india.pdf

Graham, P. & Rawal, R. (2019) Achieving the 2°C goal: the potential of India's building sector. *Building Research & Information*, 47:1, 108-122.

Hivos (2020). *Sumba Iconic Island Initiative*. https://www.hivos.org/program/sumba-iconic-island-initiave/

IEA (2020a). *Value of fossil-fuel subsidies by fuel in the top 25 countries, 2019*. International Energy Agency. https://www.iea.org/data-and-statistics/charts/value-of-fossil-fuel-subsidies-by-fuel-in-the-top-25-countries-2019

IEA (2020b). *Coal Information: Overview*. International Energy Agency: Paris. https://www.iea.org/reports/coal-information-overview

IEA (2019a). *Africa Energy Outlook 2019.* International Energy Agency: Paris. https://www.iea.org/reports/africa-energy-outlook-2019

ILO (2018). *World employment social outlook 2018: Greening with jobs*. International Labour Organization: Switzerland. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf

ILO (2015). *Guidelines for a just transition towards environmentally sustainable economies and societies for all*. International Labour Organization: Switzerland. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf

IRENA (2019). *Renewable Energy and Jobs: Annual Review 2019*. International Renewable Energy Agency: Abu Dhabi. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jun/IRENA_RE_Jobs_2019-report.pdf

IRENA (2018) *Renewable Energy Outlook: Egypt*. International Renewable Energy Agency: Abu Dhabi. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Oct/IRENA_Outlook_Egypt_2018_En.pdf

IRENA (2017). *Renewable Energy Prospects: Indonesia, a REmap analysis*. International Renewable Energy Agency (IRENA), Abu Dhabi. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Mar/IRENA_REmap_Indonesia_report_2017.pdf

Khosla, R. & Janda, K. (2018). India's building stock: towards energy and climate change solutions. *Building Research and Information*, 47, 1-7.

Kumar, P. & Naik, A. (2019). India's Domestic Climate Policy is Fragmented and Lacks Clarity. *Economic and Political Weekly* 51:7. https://www.epw.in/engage/article/indias-domestic-climate-policy-fragmented-lacks-clarity

Minerals Council of South Africa (2020). *Coal: Key Facts and Figures*. https://www.mineralscouncil.org.za/sa-mining/coal

Ministry of Foreign Affairs (2018). *Climate Change Profile*. Ministry of Foreign Affairs the Netherlands: The Hague. https://www.government.nl/documents/publications/2019/02/05/climate-change-profiles

Morena, E., Stevis, D., Shelton, R., Krause, D., Mertins-Kirkwood, H., Price, V., Azzi, D. & Helmerich, N. (2018). *Mapping just transition(s) to a Low-Carbon World*. UNRISD. https://www.unrisd.org/80256B3C005BCCF9/(httpPublications)/9B3F4F10301092C7C12583530035C2A5?OpenDocument

Müller, N. & Harnisch, J. (2007). *How to turn around the trend of cement related emissions in the developing world*. WWF – Lafarge Conservation Partnership. https://wwfeu.awsassets.panda.org/downloads/cement_blueprint_climate_fullenglrep_lr.pdf

National Planning Commission (2012). *National Development Plan 2030*. National Planning Commission of South Africa. https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf

NewClimate Institute (2019). *Assessment of subnational and non-state climate action: Indonesia*. https://newclimate.org/wp-content/uploads/2019/09/19-9117_Factsheet_Indonesia_Country.pdf

OECD (2017), "Towards an inclusive transition", in Investing in *Climate, Investing in Growth*. OECD Publishing: Paris.

Piggot, G., Boyland, M., Down, A. and Torre, A.R. (2019). *Realizing a just and equitable transition away from fossil fuels*. Discussion brief. Stockholm Environment Institute. https://www.sei.org/publications/just-and-equitable-transition-fossil-fuels/

Power, M., & Kirshner, J. (2019). Powering the state: The political geographies of electrification in Mozambique. *Environment and Planning C: Politics and Space*, 37:3, 498–518.

Power, M. Newell, P., Baker, L., Bulkeley, H., Kirshner, J., Smith, A. (2016). The political economy of energy transitions in Mozambqiue and South Africa: The role of the rising powers. *Energy Research and Social Science*, 17, 10-19.

Price, R. (2020). *Who drives green transformations in high emitting developing countries*? K4D Helpdesk Report. Brighton, UK: Institute of Development Studies. https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/15125/732_Green_developmental_state.pdf?sequence=1&isAllowed=y

Ritchie, H. & Roser, M. (2019). *CO_2 and Greenhouse Gas Emissions*. OurWorldInData.org. https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions

Schmitz, H. (2017). Who drives climate-relevant policies in the rising powers? *New Political Economy*, 22:5, 521- 540.

SEforAll (2017). *Women Rising Up on Sustainable Energy and Ending Energy Poverty*. Sustainable Energy for All https://www.seforall.org/news/women-rising-up-on-sustainable-energy-and-ending-energy-poverty

Shankland, A. & Chambote, R. (2011). 'Prioritising PPCR Investments in Mozambique: The politics of 'country ownership' and 'stakeholder participation''. *IDS Bulletin*, 42:3.

Sinha, S. (2020). *Why India is the new hotspot for renewable energy investors*. World Economic Forum. https://www.weforum.org/agenda/2020/01/india-new-hotspot-renewable-energy-investors/

UNFCC (2016). *Just transition of the workforce, and the creation of decent work and quality jobs*. Technical paper by the secretariat, FCCC/TP/2016/7. http://unfccc.int/resource/docs/2016/tp/07.pdf

Vanderborght, B., Koch, F., Grimmeissen, L., Wehner, S., Heersche, P., Degre, J. (2016). *Low-Carbon Roadmap for the Egyptian Cement Industry*. European Bank for Reconstruction and Development: London. https://www.thegreenwerk.net/download/Low_Carbon_Roadmap_for_the_Egyptian_Cement_Industry.pdf

Varia, N. (2013). *What is a house without food: Mozambique's coal mining boom and resettlements*. Human Rights Watch: https://www.hrw.org/report/2013/05/23/what-house-without-food/mozambiques-coal-mining-boom-and-resettlements

Walwyn, D. & Brent, A. (2015). Renewable Energy Gathers Steam in South Africa. *Renewable and Sustainable Energy Reviews*. 41, 390-401.

World Bank (2020). *Renewable electricity output (% of total electricity output). The World Bank Data.* https://data.worldbank.org/indicator/EG.ELC.RNEW.ZS?locations=EG

World Bank (2018). *The State of Social Safety Nets 2018*. World Bank: Washington D.C. https://openknowledge.worldbank.org/bitstream/handle/10986/29115/9781464812545.pdf?sequence=5&isAllowed=y

World Bank (2017). *Mozambique Economic Update: A two speed economy*. http://documents1.worldbank.org/curated/en/790351501245021584/pdf/117784-REVISED-MEU-2017-English-Digital-Version.pdf

World Steel Association (2020). *Global crude steel output increases by 3.4% in 2019*. https://www.worldsteel.org/media-centre/press-releases/2020/Global-crude-steel-output-increases-by-3.4--in-2019.html

Worrall, L., Roberts, L., Viswanathan, B., Beaton, C. (2019). *India's Energy Transition: Stranded coal power assets, workers, and energy subsidies*. International Institute for Sustainable Development: Winnipeg. https://www.iisd.org/sites/default/files/publications/india-energy-transition-stranded-coal-power-assets_0.pdf

Worrall, L, Roberts, L. & Whitley, S. (2018). *Enabling a just transition to a low-carbon economy in the energy sector: Progress and lessons in Emerging Markets*. ODI Report: https://www.sustainablefinance.hsbc.com/carbon-transition/enabling-a-just-transition-to-a-low-carbon-economy-in-the-energy-sector

Zinecker, A., Gass, P., Gerasimchuk, I., Jain, P., Moerenhout, T., Oharenko, Y., Beaton, C. (2018). Real People, Real Change: *Strategies for just energy transitions*. International Institute for Sustainable Development (IISD). https://www.iisd.org/sites/default/files/publications/real-people-change-strategies-just-energy-transitions.pdf

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