



Just Transition to a Green Economy

Employment, Economic, and Social Consequences
of the Transition to an Ecologically Sustainable Economy
in Developing Countries

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This report has been commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Sector Project “Employment Promotion in Development Cooperation”, on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). The analysis, results and recommendations in this paper represent the opinion of the authors and are not necessarily representative of the position of GIZ or BMZ.

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ACRONYMS

BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)	kWh	kilowatt-hour
BRICS	Brazil, Russia, India, China, and South Africa	LCOE	levelized cost of electricity
CAD	Canadian Dollar	MNRE	Ministry of New and Renewable Energy (India)
CFA	West African Franc (currency in eight West African countries)	Mt	megatonne
CIL	Coal India Limited	MW	megawatt
CLEAN	Clean Energy Access Network (India)	MWh	megawatt-hour
DISCOM	electricity distribution company (India)	NDC	Nationally Determined Contributions
DRE	decentralized renewable energy	ODA	Official Development Assistance
e-waste	electronic waste	OECD	Organisation for Economic Co-operation and Development
ELMA	employment and labour market analysis	OHS	occupational health and safety
EPR	extended producer responsibility	PAGE	Partnership for Action on Green Economy
Eskom	state-owned utility company (South Africa)	PEMEX	Petróleos Mexicanos (Mexico's state-owned petroleum company)
EU	European Union	PES	payment for ecosystem services
EUR	Euro	PINE	Proyectos de Interés Nacional y Estratégico (Colombia)
FAO	Food and Agriculture Organization of the United Nations	PIRES	Proyectos de Interés Regional y Estratégicos (Colombia)
FFSR	fossil fuel subsidy reform	PLN	Perusahaan Listrik Negara (Indonesia's state-owned electricity utility)
FiT	feed-in tariff	PMKVY	Pradhan Mantri Kaushal Vikas Yojana (India Skill Development Initiative)
FOLU	Food and Land Use Coalition	PPCA	Powering Past Coal Alliance
GDC	German Development Cooperation	PROEZA	Poverty, Reforestation, Energy and Climate Change Project (Paraguay)
GDP	gross domestic product	Proparco	development finance institution (France)
GHG	greenhouse gas	PV	photovoltaic
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (implementing agency of German International Cooperation)	PWP	public works program
Gol	Government of India	REDD	reducing emissions from deforestation and forest degradation
GST	goods and services tax	SME	small and medium-sized enterprise
GW	gigawatt	SOE	state owned enterprise
IDR	Indonesian Rupiah	TVET	technical and vocational education and training
IEA	International Energy Agency	UN	United Nations
IISD	International Institute for Sustainable Development	UNEP	United Nations Environment Programme
ILO	International Labour Organization	UNFCCC	United Nations Framework Convention on Climate Change
IMF	International Monetary Fund	UPME	Unidad de Planeación Minero Energética (Colombia)
IRENA	International Renewable Energy Agency	USD	United States Dollar
JATAM	Jaringan Advokasi Tambang/Mining Advocacy Network (Indonesia)	VAT	value-added tax
KfW	Kreditanstalt für Wiederaufbau (German development bank)	YLKI	Yayasan Lembaga Konsumen Indonesia/ Consumer Association of Indonesia



PREFACE

Already some time ago, trade unions have introduced the concept of “Just Transition” into the debate about the transition to an ecologically sustainable economy. It looks at the effects of this transition on employment and social justice. The transition should be designed in a way that it makes positive contributions to more, better and decent work as well as social security and avoids negative effects in these areas. This should promote ecological change and increase its social acceptance. The International Labour Organization (ILO) has adopted the just transition concept at the 2013 International Labour Conference and has specified it in 2015 through the “Guidelines for a just transition towards environmentally sustainable economies and societies for all”. It was also included in the preamble of the Paris Agreement on Climate Change in 2015: “Taking into account the imperatives of a just transition of the workforce and the creation of work and quality jobs in accordance with nationally defined development priorities, ...”. This was reaffirmed and detailed in Katowice three years later by the Solidarity and Just Transition Silesia Declaration. The concept makes it clear that the transition to an ecologically sustainable economy can only succeed if the necessary climate, environmental and energy policy actions are designed in a way that they promote employment and social justice and are complemented by active employment, economic and social policy measures.

This report has been commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Sector Project “Employment Promotion in Development Cooperation”, on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) in order to substantiate the just transition concept for the relevant challenges in developing countries and emerging economies; to identify the options for action of governments and other political, economic and social actors in these countries to combine environmental change with the promotion of employment, economic and social development; to analyse and evaluate relevant policy and support instruments, and their impact on employment and social justice; to define possible support and advice contributions of German Development Cooperation. It is a desk study based on an extensive literature and document review and supplemented by interviews with experts within and outside GIZ. The final version of the report was completed in October 2020. The sector project would like to thank the study team of the International Institute for Sustainable Development (IISD) for its excellent work and the colleagues inside and outside GIZ who contributed to the report through interviews, references and comments. The report is intended to help operationalise the just transition concept in developing countries and in German Development Cooperation.

EXECUTIVE SUMMARY



The world is in the midst of a period of transformation motivated by climate change, moving toward carbon-neutral sectors, economies, and societies. This transformation has the potential to create upheaval in societies, particularly for workers in carbon-intensive sectors, as well as consumers of carbon-intensive energy. A just transition has gained increasing prominence as an approach that will incorporate the involvement of workers and employers in policy design and implementation for this transformation, gaining particular momentum since the advent of the Paris Agreement on Climate Change in 2015. A just transition is intended to ensure that the necessary changes occurring in the economy now, and those expected in the future to limit global warming to well below 2°C and pursuing efforts to limit it to 1.5°C, do not result in undue negative impacts on vulnerable stakeholders. A just transition can also assist with resiliency to other drivers of instability, such as the global COVID-19 pandemic and fluctuations in energy prices.

A just transition is a vision and a process that is negotiated between key stakeholder groups and subject to joint sense-making that includes workers, employers, and governments who are affected by changes in the economy. It is local in context and must be guided by what can be considered just in the country where the transition is occurring. The overall goal is that social, economic, and ecologic opportunities for positive developments are maximized, and negative impacts are minimized. A just transition also strives to ensure that the costs and benefits of the transition are justly shared. The costs of transition can be economic (e.g., decreased revenues in the fossil fuel sector), social (e.g., unemployment), and environmental (e.g., the level of ambition in climate policy), as can be the benefits (e.g., the emergence of new climate-friendly sectors with good and decent jobs).

The concept of a just transition is grounded in the International Labour Organization (ILO) publication, *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for all*. The principles for policies and process include:

- » Strong social consensus on the goals and pathways to sustainability
- » Respect, promotion, and realization of fundamental principles and rights at work
- » Strong gender dimensions of environmental challenges and opportunities
- » Coherence across economic, environmental, social, education/training, and labour portfolios
- » A just transition framework for all to promote the creation of more decent jobs
- » Policy and program design in line with specific in-country conditions, including stage of development
- » Fostering cooperation among countries.

In Germany, the concept of a just transition has become well known by the public and mainstreamed into government policies and programs. However, this is not necessarily the case in developing and emerging economies. While in some, such as South Africa, the concept is also well understood, in many countries, it is a relatively new notion that has not yet been introduced.

In a developing country context, labour market policies and social protections are not as well developed. There may be needs for increased investment in labour market policies like reskilling, training, and placement services for workers in transitioning sectors. Unemployment benefits, investments in the education system, and programs to prevent and alleviate poverty are necessary for all countries to facilitate a just transition. This often occurs in countries as part of national development plans, but, in many cases, it is not explicitly linked to efforts for a just transition.

Often, a just transition has been associated with the energy sector, but principles for a just transition can be considered across other sectors that may undergo difficult reforms that affect tripartite partners (workers, employers, and government) and stakeholders as countries look to achieve the Agenda 2030, the Sustainable Development Goals, the Paris Agreement on Climate Change (and its Nationally Determined Contributions [NDCs]), and national development and climate strategies.

Transition Situations and Challenges

Based on research into a series of case studies related to a just transition in developing and emerging economies, suggestions emerge for both stakeholders in these countries participating in and supporting just transitions and for German Development Cooperation (GDC) as it looks to support efforts on a just transition at the partner country level. Coal phase-out, fossil fuel subsidy reform, the development of renewable energy, circular economy and waste management, and sustainable agriculture and land use are examined, with case studies in Bangladesh, Colombia, India, Indonesia, Nigeria, South Africa, and other countries.

With respect to coal phase-out, the study team was able to identify three countries that rely heavily on coal, where discussions about transitions are emerging. In South Africa, the precarious financial position of the state-owned electricity company has necessitated a just transition process to ensure the viability of the electricity sector, with labour as a key stakeholder in defining the process of transition. In Indonesia, the trilemma of keeping energy prices low, ensuring energy access, and a desire for cleaner energy has, in the past, led policy makers to favour the first two of these three items over the third due to a concern that renewable energy cannot be delivered effectively across the country and in a cost-effective manner. This is starting to change, however, as the true cost of coal power (including health and climate impacts) is becoming more widely understood. In addition, there is an increasing belief that renewables can be delivered more cheaply than in the past, leading to ambitious new renewable energy targets. Many in Colombia see coal as the engine driving development, but, at the same time, market trends indicate potential future risks for the sector. Labour and civil society have identified these risks and a need to consider future transition in the sector, despite its historically central role in economic development and employment. In all three of these coal-producing countries, this leads to a situation where these countries can no longer rely on coal exports for economic development; instead, they have to invest in renewable energies and look for sustainable alternatives outside the energy sector.

Both successful and unsuccessful examples of fossil fuel subsidy reform were examined. In Indonesia, successful fossil fuel subsidy reforms were undertaken in 2014, which led to massive revenue savings for the government. A combination of fortuitous timing, transparent communication and engagement with the public, and a concerted effort to utilize savings from subsidies to be re-invested in areas with clear public benefits created momentum and buy-in from the stakeholders required to ensure that reforms would be successful. In Mexico and Ecuador, challenges arose from a lack of engagement, abrupt policy changes, and major price increases with a lack of compensatory measures. In both countries, this led to major opposition to reforms. In Mexico, it was only after an acceptable set of complementary and compensatory measures were negotiated and introduced that reforms stabilized. In Ecuador, the backlash was so strong and immediate that reforms were abandoned shortly after they had been introduced.

In the renewable energy sector, India is a good example of a country that has considerably increased renewable energy electricity generation in a short time span and has put a host of supportive policies in place to that end. India has also sought to increase green jobs through its Skill Council for Green Jobs and other platforms, such as the Clean Energy Access Network (CLEAN), which is more tailored to off-grid jobs. Yet, the government's planning for renewable energy stands in stark contrast to its lack of planning for a just transition and the future employment impacts of a downturn in coal production and demand. The need for a just transition is compounded by a geographical mismatch, with western states (that tend to also be higher income) standing to gain the most from the energy transition in contrast to coal-rich eastern states (which also tend to be lower income). That being said, India has many lessons to share with other developing countries, such as Senegal, on how to access public and private sector finance to scale renewable energy investments and how to de-risk renewable energy projects. In Senegal, however, there are no just transition discussions yet, and the inclusiveness of renewable energy is mostly seen in terms of its capacity to increase energy access, create local economic multiplier effects, and reduce energy costs, including in the informal sector.

Countries, such as Nigeria, are witnessing exponential growth in imports of electronic waste (e-waste) (some illegal) with little domestic capacity to cope with it. Many e-waste workers (apart from those working in refurbishing and remanufacturing sectors) are not well aware of the occupational health and safety (OHS) risks they face while manipulating such waste, and there is a missed opportunity to re-use it more efficiently while creating jobs in the process. A just transition is particularly important, as the vast majority of e-waste workers operate informally and are not well represented by any labour unions or waste associations. While progress has been made in recent years in adopting new e-waste and circular economy legislation, it is not always well implemented at lower governmental levels. The first significant step in the right direction would be funding the capacity development of environmental agencies to monitor e-waste flows and providing technical and financial support to circular economy small and medium-sized enterprises (SMEs) that could absorb a portion of the informal workforce.

In the agricultural sector, the just transition discussion is relatively new, although some of its principles have been recently endorsed at the international level, through the Food and Land Use Coalition (FOLU), for example. Bangladesh is a particularly relevant case study for a just transition, as its economy is still highly reliant on agricultural production, and particularly on rice cultivation. The high use of pesticides and chemical fertilizers, along with intensive groundwater usage, have led to increasing water scarcity, which in turn threatens the livelihoods of farmers dependent on rice cultivation. As such, while not yet discussed, a just transition would be particularly important to developing alternative farming techniques, such as rice-fish farming or other forms of integrated farming, that would support small-holder farmers in increasing their incomes and reducing stress on the environment. More remains to be done to support farmers in such a shift through micro-credit, training, and other forms of public and private sector support.

Options for Action for Governments and Other Stakeholders

While recognizing that every just transition is locally rooted and that there is no “blueprint” for a just transition, there are some options for governments and other stakeholders to consider that can contribute to just transitions. Stakeholders looking to support the specific efforts and policies of a just transition can consider the following.

Sector Policies

The first step is for policy makers to level the playing field so that fossil fuel subsidies and other supports are progressively reduced and redirected to affected workers and communities and to support renewable energy development.

Green industrial policy can be used to build sectors that will be resilient under a just transition, with examples outlined by several organizations, including the Partnership for Action on Green Economy (PAGE).

Developing a supportive regulatory environment is also critical to creating policy certainty (for all groups, including workers and investors) and accelerating public and private sector investments in new green economy sectors. This includes developing the right legislative framework to disincentivize fossil fuel production and consumption.

Employment and Labour Market Policies

GDC has designed an integrated approach to employment promotion that addresses the main employment and labour market challenges. Individually, the aspects of this approach include:

- » Creating labour demand through private sector development and access to financial services.
- » Strengthening labour supply with a focus on technical and vocational education and training.
- » Matching labour supply to demand via information, guidance, and placement through active labour market policies.
- » A conducive economic and employment policy framework.

Technical and vocational education and training (TVET) are critical in many sectors so that the workforce is ready to fulfill the new jobs— particularly the highly skilled positions. Electrical engineering is an area where TVET can be beneficial to assist transitioning workers to fit into new jobs. The education and training system must also be tailored to preparing the new entrants on the labour market (i.e., youth) for jobs that emerging sectors will offer. These jobs could be quite different from jobs that were prominent in the past.

Workers need to be informed of the skillsets that will be required for new green jobs. In India, the 2014 development of CLEAN is a good example of where renewable energy companies and training institutes can post job openings online, including for off-grid renewable energy jobs.

Public Works Programs (PWP) are another way to provide paid employment for poor and vulnerable people who are affected by sectoral reforms and transition processes. These programs can involve infrastructure projects and rehabilitation and resilience activities that are consistent with climate action and a just transition. Providing income to those who need it, as well as promoting the construction of infrastructure that supports and accelerates low-carbon and climate-resilient development, can result in a “double dividend” for society.

Coordination between governments, companies, and civil society is central to achieving a just transition and ensuring that the employment potential of the labour force does not remain untapped.

Process Management and Sensitization (Including Social Dialogue)

Governments should know what they are getting into, who their stakeholders are, and which ones will be most affected by a just transition. These stakeholders include workers, employers, communities, and consumers of products and services. Formalized workers are a key tripartite group in a just transition, along with employers and the government (as exemplified in the South Africa Eskom reform process), but, given the prevalence of informal work in developing countries, these workers need to be included in just transition processes as well.

Throughout the case studies presented in this report, the role of multi-stakeholder engagement has been highlighted as an important policy that contributes to the effective implementation of a just transition. FOLU in the agricultural sector and the major public engagement before fossil fuel subsidy reforms in Indonesia are good examples of such efforts. The ongoing Eskom restructuring process, which engages labour as a partner, is another example of the critical need for engagement, while fuel price reforms in Mexico and Ecuador highlight the risks of not engaging.

Broad and transparent engagement of stakeholders and the public builds legitimacy and credibility for the process and sensitizes groups to the coming transition, as well as the rationale for it. Ideally, it also builds momentum or at least anticipates and allows for the ability to respond to potential opposition that could come up during the process.

The notion of a just transition is not well known in most developing countries examined or in many developing countries in general. Because a just transition explicitly focuses on ensuring that vulnerable groups are not left behind, when this is communicated, there is often broad support for this type of process. While all just transition processes are unique, a good first step for governments is to undertake broad communication and sensitization processes on how just transitions would be conducted and the types of principles that these entail. Sharing the results of impact assessments would also build acceptance among stakeholder groups for such policy plans.

Social Policies and Impacts on Workers, Communities, and Consumers

Social impact assessments are a first step to understanding the social impacts of reform and enabling governments to better prepare for such changes while developing complementary measures to mitigate possible negative impacts.

Certain groups may be particularly affected, such as contractual or informal workers that have less visibility from the state and enjoy less social protection (e.g., contractual coal workers in India or coal workers in small scale mines in Colombia, among others).

For some workers, social protection instruments like cash transfers and payment for ecosystem services (PES) can be a double win, for example, in the agricultural sector, protecting farmers while incentivizing them to develop more sustainable farming practices.

Impacts on Investors and Companies (Including Stranded Assets)

For the private sector, subsidies for renewable energy (such as feed-in tariffs [FiTs]), as opposed to fossil fuel subsidies, are another common tool to drive the transition to lower-carbon energy and provide an incentive for private investment in the renewable energy subsector. This is most effective when private markets are not yet mature enough. These subsidies can spur initial investments and allow markets to mature and then can be phased out over time when technology and investment costs decline. Public investment in support for clean sectors also reduces risks for lenders and private investors in these sectors (e.g., through loan guarantees).

Asset stranding can occur for a number of reasons, not all linked to the cost competitiveness of renewables (although the latter certainly plays an important role). In India, for example, asset stranding in the coal sector is linked to many factors, including water shortages, the inability of energy distribution companies (DISCOMs) to pay for supply, and air pollution regulations. Asset stranding is not only about financial assets, as in the agricultural sector, where it affects a wide range of human, capital, and natural assets linked to on-farm production. State-owned enterprises (SOEs) also have a key role to play in diversifying away from fossil fuel to clean energy. In turn, this also reduces government exposure to the risks of asset stranding.

Funding and Resources for a Just Transition

There are several measures for using direct fiscal incentives to support behaviour change or build support for transition measures. In particular, revenues from fossil fuel subsidy reform can incentivize changes in the market to support transition while removing market distortions.

Green fiscal policies can be an effective tool to mobilize domestic revenues. One option is waste collection charges, taxes on agricultural production, and carbon taxes used as a means of financing the reconversion of workers. While earmarking should not be viewed as a long-term solution, once fossil fuel revenues dry up, it can be one way in the medium run to fund a just transition or increase the budget of environmental agencies. Revenues from taxes can also be redirected to regions that will suffer the most from a transition.

State investment banks can also support funding for a just transition. By de-risking renewable energy projects or other types of green projects, state investment banks can crowd in private finance, enable financial sector learning and provide risk advisory services. Development cooperation aid is also an effective means of freeing up international funds, where they are needed for a just transition. Currently, international aid is not always well tied to a just transition and ensuring the protection of workers through the ILO's decent work principles. More directly tying international finance and development aid to a just transition—for example, as just transition is explicitly referenced in the Paris Agreement on Climate Change—could ensure more protections for workers in a low-carbon transition.

Suggestions for German Development Cooperation

GDC, together with other partners, can play a crucial role in supporting just transitions in developing and emerging economies. While not directly exportable, the experience that Germany has had in just transitions can provide useful advice and guidance for developing countries looking to undertake similar, locally tailored approaches. Technical assistance is needed to provide an analysis on future scenarios for sectoral development, identify potential outcomes, and assist policy development. GDC can also share insights on green industrial policy options that may be best suited to the local context, as well as suggestions for levelling the playing field for low-carbon sector development, including fossil fuel subsidy reform.

Regarding employment promotion, GDC follows an integrated approach that addresses issues broader than just direct labour market measures, such as the supply and demand of certain products. This can serve as a good guiding principle for addressing employment

issues that occur as a result of transitions. In addition, GDC's employment and labour market analysis (ELMA) is a useful tool for analyzing labour demand, labour supply, the matching process in the labour market, and the economic, and employment policy framework. It could therefore be integrated with just transition processes to understand potential employment challenges arising from a just transition and how to overcome them. GDC should also continue supporting TVET programs that help workers in sectors that undergo a transition to access new skills, thus enhancing the just transition efforts.

To build public support in countries that undergo transitions, GDC should promote social dialogue that is consistent with the tripartite nature of just transition, but that also includes other key stakeholders affected by the transition, such as civil society or consumer groups. Moreover, many governments still lack the tools to understand the benefits of a just transition or are concerned with the potential negative impacts they have observed in other countries, such as mass protests in France, Mexico, or Ecuador. GDC can contribute to overcoming these barriers by supporting the capacity development of national governments and stakeholders on the benefits of and risk mitigation for a just transition. By all means, GDC should promote a government-wide approach to a just transition where all ministries concerned are engaged, following the lessons from the German model. This encourages the buy-in of critical ministries and can help create broader momentum over the long term.

Social impact assessments are crucial for evidence-based policy making. GDC should therefore regularly promote such assessments to be integrated into social policy dialogues. This contributes to a stronger overall process that looks at the costs and benefits of transition and identifies ways to have just transitions that achieve the desired goals on employment and social development. Support should focus on developing local capacity for detailed analysis, as this encourages the mainstreaming of this type of analysis. Similarly, there is also a strong need for technical assistance on the analysis of future sector development scenarios (including business as usual, as well as green economy/green growth/just transition scenarios) to assist policy decision making, which GDC can provide. Nevertheless, poverty alleviation remains the

focus of many developing countries. GDC is already invested in many activities for developing green skills, strengthening social protection, and building jobs (particularly in green sectors). GDC should therefore scale up these activities and look to integrate them into programs in a larger number of countries.

The potential for stranded fossil fuel assets is a major risk in low-carbon development, with impacts on investors, companies, national governments, and workers. GDC's technical assistance on energy demand scenarios with a focus on identifying the risk potential of asset stranding would greatly benefit both governments determining future energy development plans and potential investors who may be at risk of seeing their investments become stranded.

Hand in hand with avoiding stranded assets is also the need to identify and promote green and inclusive business models and opportunities that arise under a just transition to a low-carbon economy. These models are needed to spur green development and promote private sector investment, and GDC can play an important role in their promotion.

With regard to funding and resources for a just transition, there is a need for technical advice on the scale of funding required as well as identifying sources of funding. Areas for exploration include identifying roles for state investment banks, issuing green bonds, engaging institutional investors, promoting community-based finance, and creating risk mitigation finance facilities, but all require careful consideration in terms of design and implementation. GDC can provide advice and assistance with regard to accessing suitable finance options and generating sufficient funding to support just transitions, building on the guidance of the BMZ's Development Policy 2030.

Finally, GDC also has a role as a regional and global supporter of collaboration on a just transition, bringing together countries to share knowledge and best practices and to ensure that the transitions that are proposed are just, well developed, and support the desired outcomes. In countries where the notion of just transition is not yet well understood, GDC can use the concepts of green growth or green economy as a gateway to just transition.

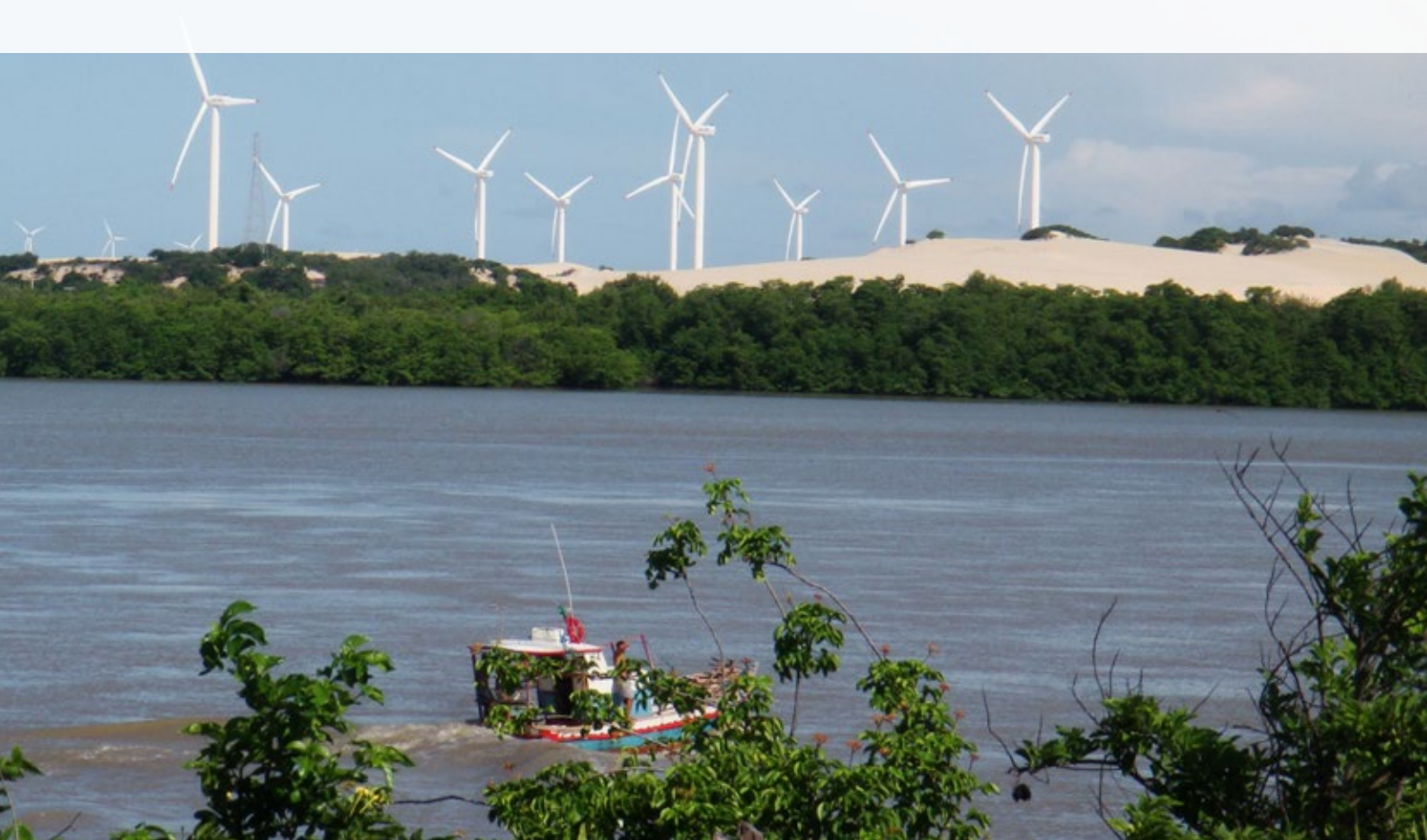
Implications of the COVID-19 pandemic for just transitions

It is critical for just transitions in developing countries to consider the impacts of a low-carbon transition on consumers as well as producers and the communities they support. This is true not only in the energy sector, where the majority of just transition discussion has taken place to date but also in other sectors where a transition is needed as part of a shift to a global low-carbon, climate-resilient economy. Given the impact of the COVID-19 pandemic unfolding around the world, the stresses on workers and employers will only increase. According to data from the ILO, 14% of worldwide working hours (equivalent to 400 million full-time jobs) were lost in the second quarter of 2020 relative to the last quarter of 2019, after a 5.4% loss of working hours (equivalent to 155 million full-time jobs) in the first quarter of 2020.

Research from 14 expert organizations into COVID-19 recovery packages shows that USD 151 billion from G20 governments has been pledged in support of fossil fuels, with only 20% of those policies making financial support conditional on green requirements consistent with a just transition. Using a different methodology and examining non-energy sectors as well, analysis from Vivid Economics and the Finance for Biodiversity initiative confirm that, so far, a majority of economic stimuli does not come with climate strings attached.

It is more critical now than ever to promote just transition approaches that highlight the impacts that such transitions will have on employment, that engage stakeholders in social dialogues, and that come up with policies and programs to maximize economic, social, and climate benefits while ensuring affected stakeholders are not left behind. What the current employment crisis and lack of concerted green stimulus highlight is that there is still a lot of work necessary to drive the transition to economic models that are sustainable and that support good and decent jobs.

1. INTRODUCTION



Transformation of the economy occurs when there is a major shift—for example, one driven by the global climate crisis. The process of how participants in the economy react to this transformation is the transition process that occurs as a result. The concept of a “just transition” has had a number of different connotations based on the perceptions of different organizations (including the International Trade Union Confederation, the International Labour Organization [ILO], the Organisation for Economic Co-operation and Development [OECD], the European Union [EU] and others) and stakeholder groups. The historically accepted approach is a tripartite process of workers, employers, and governments that negotiate an economic transition in response to the aforementioned transformation. Building upon social dialogue and stakeholder engagement, they ensure that all parties share the costs and opportunities associated with the transition and that this process is negotiated equitably and agreed in a tripartite manner.

The ILO *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All* outline this process and its key elements (ILO, 2015). The Silesia Declaration on Solidarity and Just Transition decided at the 24th Conference of the Parties to the Paris Agreement on Climate Change recalls these guidelines and stresses that “the creation of decent work and quality jobs are crucial to ensure an effective and inclusive transition to low greenhouse gas emission and climate resilient development” (Parties to the Paris Agreement, 2018). The declaration also notes the importance of a “participatory and representative process of social dialogue involving all social partners to promote high employment rates, adequate social protection, labour standards and wellbeing of workers and their communities, when developing nationally determined contributions [to the Paris Agreement on Climate Change], long-term low greenhouse gas emission development strategies and adaptation planning processes” (Parties to the Paris Agreement, 2018).

A broader consideration of just transition is a focus on the workers as well as the communities that they are supporting through their employment. The impacts of climate change have social implications, including on employment, education, and social protection systems. Finally, consumers of services and products are also ultimately affected by transitions (for example, as the costs of these services/products increase due to measures like carbon pricing); so, in the widest consideration, just transition plans should also be cognizant of the impacts on these consumers.

1.1 Key Terms and a Methodological Approach to Assessing Just Transition

There are several key terms used within this paper. These terms are central to the methodological approach of the study and are defined as follows:

- » A **transition**, in the context of this study, is a shift that occurs within a sector or at an economy-wide level that fundamentally changes the structure of that sector or economy from its historical makeup to a new paradigm. These shifts can be policy driven (e.g., regulating a coal phase-out), economically driven (e.g., fossil fuels becoming economically non-competitive with renewable energy), or driven by other factors (e.g., climate change or COVID-19 pandemic impacts). The transition means that the future of this sector or economy will be fundamentally and unavoidably different from its historical pathway.
- » A **just transition** is a vision and a process that is negotiated between key stakeholder groups who are affected by the transition (Zinecker et al., 2018). Just transition is local in context – what is just in one instance may be unjust in another – and guided by a set of principles such as the ILO’s guidelines (ILO, 2015). Additionally, “justice itself cannot be prescribed...but should be subject to constant joint sense-making” with key stakeholders (Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ], 2020). To be considered just, conditions for a transition could include securing employment, creating alternative employment opportunities, facilitating the transfer of employees from previous to new jobs and adequate

social protection systems. At a more general level, it could include a commitment to improved access to basic resources and poverty alleviation.

Drawing on past research, the approach on “energy transitions” and “just energy transitions” is defined as follows (Zinecker et al., 2018):

- » **Energy transitions** are shifts in the way societies produce and consume energy using different technologies and sources. A low-carbon energy transition is a type of energy transition involving a shift from high-carbon energy sources such as oil, gas, and coal to low-carbon and zero-carbon energy sources such as renewables.
- » A **just energy transition** is a negotiated vision and process centred on dialogue and supported by a set of guiding principles to shift practices in energy production and consumption. It aims to minimize the negative impacts on workers and communities with stakes in high-carbon energy subsectors that will wind down and to maximize positive opportunities for new decent jobs in the low-carbon growth sectors of the future. It strives to ensure that the costs and benefits of the transition are equitably shared.

A just transition is also relevant for sectors other than the energy sector, for example (covered in this study) the circular economy and waste management as well as agriculture and land-use.

In order to properly assess just transition approaches, while adopting this broad focus, it is important to maintain a link to a grounding set of guidelines. The ILO’s *Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All* provide this basis. These guidelines reference the four pillars of the Decent Work Agenda (full and productive employment, rights at work, social protection, and the promotion of social dialogue). They include (ILO, 2015):

- » Strong social consensus on the goal and pathways to sustainability
- » Respect, promotion, and realization of fundamental principles and rights at work
- » Strong gender dimensions of environmental challenges and opportunities

- » Coherence across economic, environmental, social, education/training, and labour portfolios
- » A just transition framework for all to promote the creation of more decent jobs
- » Policy and program design in line with specific in-country conditions, including stage of development
- » Fostering cooperation among countries.

These principles would be integrated into policy development processes for all aspects of transition, including policies related to employment, social protection, energy, education, industry, and other sectors affected by a transition.

Just economic and energy transitions are about people and include several stakeholder groups. Workers, consumers, businesses, and communities are all affected. For this reason, in this study, we adopt a model of just transition that is broadly inclusive of all affected stakeholders, prominently including persons who are already living in conditions of poverty and vulnerability and who may be disproportionately impacted by transitions. This means that the approaches to just transition that countries are adopting or looking to adopt are as inclusive as possible for all parties affected.

The goal of just transition is that the potential negative impacts and side effects of these economic and energy transitions, such as unemployment and exacerbated poverty, are avoided to the extent possible or at least otherwise mitigated, including through social protection. There is also a focus on seizing opportunities for positive development, including strengthening social protection systems and enhancing investment in public education and opportunities for good and decent jobs in emerging sectors that support action on climate change and the transition to a low-carbon, climate-resilient economy. Critically, climate and environmental action and just transition are not seen as either/or propositions and must go hand-in-hand (Tollman et al., 2018).

While much of the discussion of just transition to date has focused on the issue from a developed country perspective, this study chooses to examine the issue from the perspective of emerging economies and developing countries. This necessitates a slightly differentiated approach while still maintaining a fundamental link to the principles, goals, and guidelines for just transition mentioned above. It requires a deeper consideration of the social impacts of transition, as developing and emerging economies may not have the strength in their social protection systems that is present in developed countries. Transition could also potentially exacerbate poverty situations, given the potential for some job losses related to sector restructuring. Additionally, in some of these countries, the workforce may be far less formalized, meaning that it is primarily informal and non-unionized workers that are affected by the transition, as compared to unionized workforces. Basic economic development efforts and poverty alleviation also become a centrepiece of just transition discussions, and just transition has to be consistent with development plans in these countries. As the desk study shows, the concept of just transition is less understood or given less political priority (with the notable exception of South Africa) and is more recent, indicating that a certain level of capacity development and preparation is needed.

In addition to approaches like those of ILO, UNEP, and the World Bank on the topics of a just transition, green economy, and green growth, the Center for Strategic & International Studies and Climate Investment Funds (2020) also identify a framework for various definitions of just transition. They assess dimensions of scope (including distributional intention and impacts) and social inclusion (including recognition and procedural justice) as a means to characterize just transitions (Center for Strategic & International Studies & Climate Investment Funds, 2020).

BOX 1

THE RELATED TERMS OF JUST TRANSITION, GREEN ECONOMY, AND GREEN GROWTH

A green economy and green jobs are consistent with the concept of a just transition. A GIZ study indicates that there are different notions of a green economy and its employment effects (Jacob et al., 2015). According to the United Nations Environment Programme (UNEP, 2017), “an inclusive green economy is one that improves human well-being and builds social equity while reducing environmental risks and scarcities.” The World Bank defines green growth as a pathway to sustainable development/a green economy through policies designed to maximize benefits and minimize costs to the poor and vulnerable. This entails tracking indicators such as comprehensive wealth to ensure that growth and its benefits are sustainable (World Bank, 2012). Dercon (2014) adds that green growth prices environmental externalities, promotes investments in clean technologies, and makes growth more resilient to environmental shocks. For the OECD, “Green Growth means fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies” (OECD, 2019b). Green growth can also lead to the emergence of green and inclusive business models that sell products and services that have high social benefits, particularly for lower-income groups. These can include renewable energy products to increase off-grid energy access or micro irrigation systems for farmers, to name only a few (GIZ, 2017).

Yet, green growth does not always intrinsically lead to better social outcomes, and, despite the synergies that exist between the two, there can be certain trade-offs as well (GIZ, 2015). To minimize these trade-offs, green growth should be rigorously assessed with a systematic approach that examines both process (how people participate in growth) and outcome (the distribution of growth) dimensions. More specifically, a number of questions can be asked, such as how green growth affects specific regions and income distribution or how access to goods and services is changed (GIZ, 2015). These types of questions are very consistent with the notion of what a just transition looks to achieve. A comprehensive approach to measuring impacts not only accounts for opportunities in new and emerging “green” sectors but also losses in employment that may be found in “brown” sectors, and how to address this issue. There can be economy-wide or sector-specific approaches to a green economy, green growth, and just transitions.

A green economy requires inclusive social policies to be put in place, such as through social security and/or income transfers to protect workers and consumers most at risk. There is also a need within a green economy to promote social dialogue between labour unions, government agencies, and employer organizations in order to increase the acceptance of a shift in green practices and to develop a skilled and trained workforce that is ready for jobs that will emerge through a just transition (ILO, 2014).

A just transition is not restricted to environmental industries but is inclusive of them. A job created through the just transition to a green economy may not necessarily be in an environmental industry, and there is also strong consideration for mitigating job losses in “brown” sectors. When a green economy is linked to the ILO’s Decent Work Agenda, which focuses on quality of work, there is clear compatibility between green economy and just transition concepts (ILO, 2020a).

One contrast in the notion of just transition versus green economy/green growth is in the history and formal link to tripartite negotiations in the framework of a just transition, which are not specifically referred to in the green economy discussion. However, green economy approaches would ideally be tripartite and inclusive of all stakeholders.

Inclusive green economies and the principles they entail (Partners for Inclusive Green Economies, 2019) are consistent with the goals of a just transition. Justice is embedded in these principles for the achievement of the Sustainable Development Goals, with a focus on equity, inclusion, social justice, and a fast and fair transition. In some of the countries studied for this research, the term “green economy” was familiar, while the term just transition was relatively unknown. Despite being different notions, they are compatible concepts. When conducting interviews, it was noted that there were consistencies between interviewees’ perceptions of policies and projects focused on employment in a green economy and what would be considered under a just transition plan (e.g., training and reskilling efforts).

This study relies on the concept of the “window of opportunity” for a just transition and suggests that all elements critical to a sustainable energy transition can be clustered within four “panes” of this “window”: context, champions, concerns, and complementary policies (Figure 1).¹

FIGURE 1
WINDOW OF OPPORTUNITY FOR POLICY REFORMS



Source: Zinecker et al., 2018.



¹ The International Institute for Sustainable Development (IISD) adopted this approach in its analysis of just transition in the study *Real People, Real Change: Strategies for Just Energy Transitions* (Zinecker et al., 2018).

As the COVID-19 pandemic has affected countries worldwide in 2020, leading to increased vulnerability due to increased unemployment, economic hardships, and of course, the major public health crisis, the discussion of a just transition becomes even more critical. According to data from the ILO, 14% of worldwide working hours (equivalent to 400 million full-time jobs) were lost in the second quarter of 2020 relative to the last quarter of 2019, after a 5.4% loss of working hours (equivalent to 155 million full-time jobs) in the first quarter of 2020 (ILO, 2020b). As countries move from immediate relief to recovery and, over the longer term, reform of their economic systems, there is increased pressure to ensure that the recovery process is inclusive of vulnerable communities and those left recently unemployed due to the pandemic.

Additionally, countries are also looking at ways to increase green stimulus efforts in their relief and recovery plans, ensuring that stimulus measures incorporate efforts to achieve climate change and sustainability goals. This has the potential to accelerate the transition to low-carbon economies but also requires that the same just transition frameworks are applied to ensure that workers and other stakeholders are part of the policy process and that policies and actions support their integration into COVID-19 relief and recovery. Research from 14 expert organizations into COVID-19 recovery packages shows that USD 151 billion from G20 governments has been pledged in support of fossil fuels, with only 20% of those policies making financial support conditional on green requirements consistent with a just transition (Energy Policy Tracker, 2020). Using a different methodology and examining non-energy sectors as well, analysis from Vivid Economics and the Finance for Biodiversity initiative (2020) confirm that, so far, a majority of economic stimulus does not come with climate strings attached.

1.2 Substantiating the Notion of a Just Transition in Developing Countries

For this study of a just transition in developing countries, much of the focus will be on the complementary policies that governments can enact to support reform in the developing and emerging economy context, focusing on six policy fields, including sector policies; employment and labour market policies; process management and sensitization (including social dialogue); social policies and impacts on workers, communities, and consumers; impacts on investors and companies (including stranded assets); and funding and resources for a just transition. These complementary policies, developed before, during, and after the implementation of major transitions in the countries of focus, have proved critical to their success; in some cases, their absence is directly connected to the failure of major reforms.

Under the Paris Agreement, for the first time, all countries in the world are making contributions to reform their economies, with the aim of addressing mitigation and adaptation to climate change. The NDCs under the Paris Agreement are also undergoing a revision to increase ambition in 2020. Labour market policies, social protection efforts, sector policies, education policies, and the funding of investments are all crucial to implementing the changes necessary in a socially acceptable way to achieve these goals and having them also be widely supported (Györi et al., n.d.). These efforts are necessary for a just transition to be successful and lasting. Social protection measures can provide assistance to those who are affected by transitions and incentivize climate-friendly behaviours (Györi et al., n.d.).

Looking ahead, the following sections examine specific situations where a just transition is being considered in developing countries, as well as how countries and stakeholders are responding to the desire for a just transition across several sectors, with a particular focus on the six policy fields mentioned above.



2. TRANSITION SITUATIONS AND CHALLENGES

Coal phase-out, fossil fuel subsidy reform (FFSR), development of renewable energy, circular economy and waste management, and agriculture and land use² each represent a situation where a transition is undertaken in a country or several countries that should be managed according to the principles of a just transition, either explicitly or implicitly, in order to succeed. The cases in this chapter highlight some of the challenges and opportunities inherent in just transitions in developing countries and how countries

responded in these situations. The following chapters use the lessons of these cases to identify how opportunities can be leveraged, how risks can be mitigated, and how GDC may be able to play a role in assisting in the successful implementation of just transitions in developing countries.

While a just transition has often been considered in relation to energy sector transitions and workers, a broader consideration of just transition can foresee the implications of major transitions to a low-carbon economy in other sectors, notably for people whose livelihoods will be impacted by these transitions. With this in mind, we target the energy sector in three of the situations, look at the circular economy and waste management, and examine agriculture and land use.

² These five areas have been chosen as broadly representative of multiple sectors (including energy, transportation [through fuel price reforms], waste, agriculture, and land use), as well as representing imminent and prominent challenges in developing and emerging economies, including energy and food security. These are also areas where there has been a large focus internationally on transition (coal use, sustainable agriculture, waste management). There are certainly other prominent issues; this is not an exhaustive list of situations and challenges faced through a transition.

The primary focus is on major emerging economies like South Africa, Indonesia, and India, where a basic level of development is achieved, but strong goals exist for economic growth and social development. In addition to these, a broader group of emerging economies and middle-income countries is also included across the Global South. Principles of a just transition are inherent in some transformations but are explicitly missing in others. Just transition can be relevant in any country, including low-income countries where there are often greater challenges in delivering basic support services. This study, however, focuses on a subset of emerging economies and middle-income countries undergoing transitions in various areas.

Each situation will seek to examine the following challenges, as applicable:

Sector Policies

Including consideration of which policy tools to utilize to support a transition. Contextual policies, such as industrial and regional policies, will also be considered.

- » Several risks and opportunities are presented with each of these options, including their financial impacts, the potential to create employment or unemployment, alleviation and exacerbation of poverty challenges, and competitiveness impacts for domestic industry. There are also direct side effects for governments that could be borne out of the implementation of these policies, including risks of protests, strikes, and a negative public opinion of governments looking to implement a just transition.
- » Collaborative policy approaches will also be examined, including with labour groups, civil society, academics, community leaders, municipalities, and industry.

Employment and Labour Market Policies

Employment and labour market policy instruments (including education and training/skills development approaches and decent work criteria) and their role in supporting a transition in developing countries will be examined. This will include an assessment of

the four fields of action of the integrated approach to employment promotion: labour demand, labour supply, active labour market policies and labour market services, and economic and employment policy framework.

Process Management and Sensitization (Including Social Dialogue)

Is just transition a known and understood concept in target countries, or is it a foreign concept, and how does this level of sensitization help or hinder transition? If not formally considered, are the principles of a just transition still part of the broader conversation in the country. What social dialogues and tripartite discussions have to occur for a just transition to be successful?

- » The sense of what is perceived as just among the affected populations will differ with national circumstances. It is possible to identify, through that local lens, a sense of what is considered just and recognize that just transition processes will ultimately be local and focused on the stakeholders affected.

Social Policies and Impacts on Workers, Communities, and Consumers

The principles and considerations for a just transition put workers at the forefront. For example, where workers cannot be transferred directly into new jobs, social policies and compensation plans need to be in place. An assessment of options and examples for worker-focused social policies to mitigate worker impacts will be conducted. However, these impacts also go beyond workers that are directly impacted. A just transition is also about the communities that these workers contribute to and are members of. There are impacts on secondary industries (e.g., services sectors) as well as infrastructure such as schools, hospitals, and other key aspects of social structure when there are major shifts in the economy. In addition, a transition process can create impacts on the incomes of workers as well as consumers of resources (e.g., energy). There can also be impacts on goods when supply chains change, with the potential for products to become more expensive.

Impacts on Investors and Companies (Including Stranded Assets)

An economic transition for investors and industries in developing countries with large domestic fossil fuel resources could result in stranded assets and the loss of potential economic opportunities. This transition may be asking countries and industries to give up on a major domestic energy and economic development driver, and consideration has to be made for how to mitigate negative side effects resulting from potentially stranded assets in order to make sure that these transitions are just. Industry assistance may be needed.

Funding and Resources for a Just Transition

One of the central challenges to a just transition in any country is the funding and resources needed to support the transition. The financial needs to support a just transition in developing countries are examined, as well is the potential for developing countries

to raise funds domestically through tools such as taxation and subsidy reform or participation in carbon markets.

Key messages and policy suggestions to support a just transition are identified based on the situations and challenges listed in Table 1, including appropriate issues and interventions for consideration of GDC.

Table 1 presents a summary of each of these situations in the selected countries, which will be examined in depth in the following sections.

TABLE 1
SUMMARY OF THE COUNTRY CASE STUDIES, SITUATIONS, AND CHALLENGES ADDRESSED IN THIS STUDY

COUNTRY	SOUTH AFRICA
SITUATION	Coal phase-out
RATIONALE	South Africa is facing significant coal and employment challenges. South Africa also has an active just transition process underway and can serve as a case study for other countries considering just transition.
SECTOR POLICIES	A restructuring effort is underway for Eskom, given the very precarious financial situation of the state-owned electricity enterprise.
EMPLOYMENT AND LABOUR MARKET POLICIES	There have been significant investments in reskilling workers and efforts to minimize job losses through Eskom restructuring.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	The concept of just transition is well known in South Africa, and workers' unions are key stakeholders in Eskom restructuring efforts.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	There are strong concerns about the potential social impacts that a collapse of Eskom would lead to. Compensation should be developed for workers who are affected by a transition.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	The sector is already in crisis, and the threat of job loss and potential economic collapse of the sector is imminent. In addition, there are several major coal facilities all reaching end of life in the same period, as well as institutional debt. Transition helps secure the future of the electricity sector.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Resources for a just transition are the number one issue, coupled with Eskom's precarious financial position.

COUNTRY	COLOMBIA
SITUATION	Coal phase-out
RATIONALE	Colombia is facing a global divestment away from coal in some of its main export markets, such as the EU. There is a strong rationale to pursue a just transition to avoid unintended economic impacts.
SECTOR POLICIES	There is currently no discussion at the governmental level about any coal phase-out or just transition plans. The government also plans to double coal-fired electricity generation to 12.5% by 2038.
EMPLOYMENT AND LABOUR MARKET POLICIES	While workers in large-scale mines in La Guajira and Cesar are formalized and relatively well represented by trade unions, this is much less so for the majority of coal workers that work in small-scale mines informally with little social protection. A larger shift to clean energy, accompanied by TVET, could benefit workers by repurposing them for renewable energy jobs, particularly in La Guajira and Cesar, which have the highest solar and wind potential in the country.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Just transition or coal phase-out are not discussed at the governmental level and mostly seen from an academic or community viewpoint.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	Despite the presence of coal mining as an employment source in coal regions, these regions still experience high levels of income and multidimensional poverty.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	From the point of view of coal industry associations in Colombia, there is no real transition occurring at the moment. Yet, some of the biggest coal-mining companies in La Guajira, including Anglo American and BHP, announced they could sell their stakes in such mines by 2020 (Burton, 2019; The Australia Associated Press, 2019). The risk of asset stranding is exacerbated by the lack of economic diversification in Cesar and La Guajira.
FUNDING AND RESOURCES FOR A JUST TRANSITION	A just transition could be funded through the inclusion of coal as part of Colombia's carbon tax in the future, earmarking coal royalties for that purpose or reforming Colombia's onerous fossil fuel subsidies.
COUNTRY	INDONESIA
SITUATION	Coal phase-out
RATIONALE	Indonesia is one of the world leaders in coal production and is also a significant user of coal for electricity; coal is the dominant electricity source.
SECTOR POLICIES	Renewable energy policies and targets (23% of the energy mix by 2025) are in place, but coal is still a strong part of the energy mix and will be for a long time. The focus is on approaches that allow for a long-term transition of the sector, extending the life of coal use and production but in a more efficient way that protects workers and the environment as the shift to renewable energy goes on.
EMPLOYMENT AND LABOUR MARKET POLICIES	Employment in the sector is not an immediate concern because it is expected to continue for some time. There is, however, a longer-term concern for the future of coal sector workers, given the potential for the export market for coal to decline.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	The notion of a just transition is not well known, in contrast to the term green economy.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	The primary concerns in Indonesia related to energy policy are social: increasing energy access and keeping energy affordable for low-income persons (e.g., through subsidies). These concerns have led to hesitation to consider any form of a coal phase-out, given it is abundant and cheap.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	Coal is likely to remain dominant in Indonesia for some time, so immediate impact is less of a concern. However, there are concerns about longer-term implications, and it is suggested that the sector focuses on a slower transition, one with a longer timeline than other countries, and on efficiency technologies (e.g., technologies that allow for coal use but with strong environmental controls).
FUNDING AND RESOURCES FOR A JUST TRANSITION	Resources are not seen to be a barrier to a just transition.

TABLE 1
SUMMARY OF THE COUNTRY CASE STUDIES, SITUATIONS, AND CHALLENGES ADDRESSED
IN THIS STUDY

COUNTRY	INDONESIA
SITUATION	Fossil Fuel Subsidy Reform (FFSR)
RATIONALE	Indonesia undertook major FFSR efforts in 2014/2015 with respect to transportation fuels.
SECTOR POLICIES	Despite reforms on the consumer side, subsidies have remained for fossil fuel production.
EMPLOYMENT AND LABOUR MARKET POLICIES	The fuels that were subject to price reform in this instance were largely imported; as a result, there was not a major labour market policy effort for affected workers.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	The notion of a just transition is not well known, in contrast to the term green economy.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	FFSR reallocated revenue to infrastructure investments, and increased funds for social sector ministries and regional and village development funds.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	Losses at Pertamina (state-owned fuel distribution company) as a result of subsidies were covered by the state budget, so the state bore the impacts of transport fuel subsidies. FFSR did unlock investments in infrastructure that can benefit the private sector.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Resources for a just transition are not seen as a major issue; FFSR unlocked significant revenues for reinvestment.
COUNTRY	MEXICO
SITUATION	Fossil Fuel Subsidy Reform (FFSR)
RATIONALE	Mexico has undertaken subsidy reforms in recent years.
SECTOR POLICIES	Privatization in the sector led to concerns about employment security for workers.
EMPLOYMENT AND LABOUR MARKET POLICIES	One of the groups leading protests in Mexico was workers in the fossil fuel sector, who were concerned about privatization and job security. A lack of plans for job security was a major issue, and eventually changes were made to ensure certain groups of workers would have their jobs protected.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	FFSR lacked just transition elements, which contributed to difficulties in building support for FFSR, notably a lack of complementary policies and stakeholder engagement.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	There was a lack of social protection measures in place to help those impacted to absorb energy price increases.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	The economic results from these reforms are mixed. Mexico noted economic growth in the first quarter of 2017 and feelings that the liberalization of the sector and removal of fuel subsidies created a better investment climate. However, fuel smuggling and theft increased significantly.
FUNDING AND RESOURCES FOR A JUST TRANSITION	The scale of fossil fuel subsidies was large, and FFSR was seen as necessary to balance public finances, which were in a negative situation.

COUNTRY	ECUADOR
SITUATION	Fossil Fuel Subsidy Reform (FFSR)
RATIONALE	Ecuador attempted FFSR in 2019, which resulted in major public opposition
SECTOR POLICIES	Subsidies in the energy sector were targeted for removal, which would have led to energy price increases.
EMPLOYMENT AND LABOUR MARKET POLICIES	Employment and labour market policies were not seen as a major driver, as upheaval against FFSR was broadly driven and not specific to workers in the energy sector
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	FFSR lacked just transition elements, which contributed to difficulties in building support for FFSR, notably a lack of complementary policies and stakeholder engagement.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	Concerns about the social impacts of reform resulted in strong opposition; after intense opposition, the reforms were rolled back
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	A negative impact on the economy and investment environment in the short-term right after the FFSR plan was published that resulted in protests, arrests, and a declared state of emergency. No long-term impact, as plans to remove the subsidies were scrapped within two weeks to halt the strong opposition.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Scale of fossil fuel subsidies was large, and FFSR was seen as necessary to balance public finances, which were in a negative situation.
COUNTRY	INDIA
SITUATION	Renewable energy development
RATIONALE	India seeks to create decent green jobs and reduce the detrimental health impacts of coal pollution. India has expanded renewable energy but also has a strong commitment to coal in certain regions.
SECTOR POLICIES	While many subsidies have been put in place to benefit on-grid renewable development, more subsidies could be targeted toward off-grid solar energy, which can have higher community benefits.
EMPLOYMENT AND LABOUR MARKET POLICIES	Creating more off-grid jobs that emphasize learning by doing would be beneficial to those with lower educational attainments. Social and poverty impact assessments could also track these benefits over time.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Eastern and northern coal-rich states will be impacted the most by a shift to renewable energy development. More proactive discussions with labour unions representing coal workers in these states need to be put in place.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	While no phase-out is planned, the price competitiveness of renewables threatens the coal industry, which in turn poses risks for coal workers and particularly contractual coal workers, who enjoy less social protection.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	The cost competitiveness of renewable energy, air pollution regulations, water scarcity, coal shortages, and the inability of distribution companies to pay for supply are all increasing the risk of asset stranding in India.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Shifting subsidies away from coal to renewables and leveraging private finance are ways to fund a just transition

TABLE 1
SUMMARY OF THE COUNTRY CASE STUDIES, SITUATIONS, AND CHALLENGES ADDRESSED
IN THIS STUDY

COUNTRY	SENEGAL
SITUATION	Renewable energy development
RATIONALE	There is significant potential to improve energy security by reducing oil imports and to increase energy access. Renewable energy can also lead to local economic multiplier effects where investments can reduce energy costs and increase the productivity of firms, particularly in the agricultural sector.
SECTOR POLICIES	Renewable energy expansion is starting from a low base, even if it has increased considerably in recent years with the launch of solar parks and wind farms.
EMPLOYMENT AND LABOUR MARKET POLICIES	From an employment perspective, there is much to be gained in Senegal by increasing TVET and capacity development programs and tailoring them to informal workers.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	There is no discussion about a just transition as of yet in Senegal. The key focus is on increasing energy access in rural areas and improving energy security. More efforts are needed to increase awareness of the benefits that various renewable products have to offer.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	While renewable energy can increase energy access and reduce energy costs, it must be affordable to households. More efforts are needed to provide loans and credits to consumers.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	While renewable targets and policies are in place, more efforts can be directed to de-risking renewable energy investments and crowding in private finance.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Most renewable energy projects are donor financed by KfW, Proparco, and others. Increasing access to capital and credit for SMEs and leveraging private sector development are key priorities at the national level.
COUNTRY	NIGERIA
SITUATION	Circular economy and waste management
RATIONALE	Nigeria is reducing e-waste generation and imports and protecting informal e-waste workers.
SECTOR POLICIES	While e-waste legislation is in place in Nigeria to fight illegal imports of e-waste and to adopt circular economy principles, the low implementation rates of these laws is a major challenge. Additional sector policies, such as restrictions on planned obsolescence and shifting to service renting would be beneficial.
EMPLOYMENT AND LABOUR MARKET POLICIES	Circular economy activities, if linked to a just transition, can create more decent jobs for repair and refurbishing than landfilling.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Informal workers need to be included in decision-making processes and can be represented by cooperatives that can advocate for their interests.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	Better social protection for informal e-waste workers should be provided, and their awareness about OHS risks increased
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	While there are a few investors and companies interested in circular economy solutions, such as Green Compass Recycling, the lack of reliable e-waste data and enforcement of waste sector laws remain obstacles to the establishment of more companies and the formalization of the workforce.
FUNDING AND RESOURCES FOR A JUST TRANSITION	There are numerous ways to increase funding for a just transition, including by using fiscal policy through earmarking environmental taxation, planned obsolescence fines, or through extended producer responsibility (EPR) funding schemes.

COUNTRY	BANGLADESH
SITUATION	Agriculture and land use
RATIONALE	The rationale is to diversify the country's agricultural base and increase farmers' income.
SECTOR POLICIES	Connect smallholder farmers to markets through cooperatives and agro-based clusters. Integrated farming can also increase farmer income, yields, and soil quality
EMPLOYMENT AND LABOUR MARKET POLICIES	PWPs can provide income support to at-risk farmers or be tied to green jobs. Integrated farming can also reduce over-reliance on rice cultivation and offer job alternatives.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	A shift to integrated agriculture will not benefit all farmers equally. Lower-income farmers in particular will need additional capital and training. Discussions with farmers must take into account potential power balances and the over-representation of agribusiness interests.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	While shifting away from rice monocultures is imperative, social safety nets should also be in place, such as PES and conditional cash transfers to protect at-risk farmers and encourage sustainable land use and crop diversification.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	While the discussion of asset stranding in agriculture figures less prominently in the literature, some studies do show a number of assets at risk in the agricultural sector, such as financial instruments tied to agricultural production, on-farm infrastructure, or the value of farmland. These risks are heightened in flood-prone regions like Bangladesh.
FUNDING AND RESOURCES FOR A JUST TRANSITION	There are multiple ways to fund a just transition, including by redirecting agricultural subsidies to encourage sustainable land-use management and earmarking revenues from agriculture-related taxes.
COUNTRY	VIETNAM
SITUATION	Agriculture and land use
RATIONALE	Vietnam needs to reduce its reliance on rice cultivation.
SECTOR POLICIES	The enactment of Decree 35 in 2015 allows for more agricultural diversification. Vietnam's 2013 and 2017 agricultural restructuring plans lay the groundwork for a just transition to be implemented. The 2017 plan, in particular, seeks to support organic agriculture, reduce the use of pesticides and ineffective production, and increase access to training for farmers.
EMPLOYMENT AND LABOUR MARKET POLICIES	The 2017 agriculture plan includes increased access to training for farmers.
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Discussions on a just transition are still lacking, with most of the focus being on green growth.
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	The enactment of additional social protection measures that incentivize farmers to diversify their cultivations would also be beneficial. Rice farmers will benefit from agricultural diversification through increased incomes and yields.
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	Similar to Bangladesh, Vietnam is also highly reliant on agriculture and rice cultivation. Unlike Bangladesh, though, it is one of the largest rice exporters in the world. If rice production were to become stranded due to various factors, the risk for farmers and state revenues would be considerable.
FUNDING AND RESOURCES FOR A JUST TRANSITION	Similar to Bangladesh, reforming certain agricultural subsidies could unlock funds to finance sustainable agricultural practices.

2.1 Coal Phase-Out

Much of the global discussion has focused on coal phase-out as one of the front lines of a just transition. Commitments to phase out coal-based electricity generation have been growing in international development. There are currently 97 members of the Powering Past Coal Alliance (PPCA) (including 33 national governments and 27 subnational governments) (PPCA, n.d.). However, there are some concerns about the impacts of coal phase-out in developing countries. In addition, the shift away from coal-based generation has a knock-on effect for major coal-producing countries, which are also forced into a transition as their export markets diminish and the economic benefit of coal production is reduced, jeopardizing employment in the sector. Domestic use of coal may look more attractive in these cases.

For some developing countries, there is not a clear rationale as to whether they should phase out coal, given the benefits coal has brought in terms of export revenues, jobs, and, importantly, energy access. Some countries may believe that there are more important development goals that need to be met before a coal phase-out, which may be seen as a “luxury problem” rather than a necessity. Coal-consuming and coal-producing countries have both considered, implicitly or explicitly, how a transition away from coal will impact their economies and the measures that have to be put in place to ensure that a transition is just. This chapter examines the impacts primarily on the production side, with some consideration of energy consumers. The impacts of energy price changes on consumers are considered more deeply in the following chapter on FFSR, which, like a coal phase-out, will have an impact on consumer energy prices.



2.1.1 South Africa

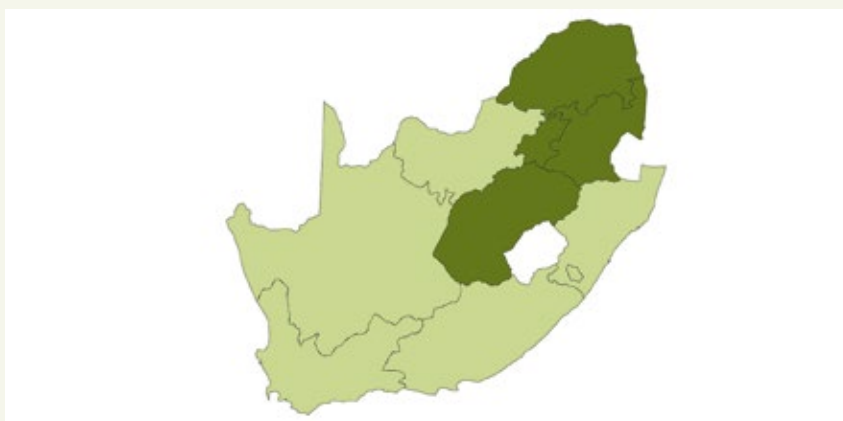
South Africa is pursuing a just transition in the electricity sector. Struggling with a debt of roughly EUR 25 billion (Sguazzin, 2020), the state-owned utility company (Eskom) would like to transfer the majority of this debt to the South African Government, with a proposal to use funds from the Public Investment Corporation to pay off some of the debt. However, the implementation of this plan will require buy-in from the Congress of South African Trade Unions and the National Union of Mineworkers, which has lost many members due to sector retrenchment and could face further job losses through the Eskom restructuring and debt reduction plan (Bloom, 2020). The Congress of South African Trade Unions submitted key intervention proposals to the Africa National Congress's Executive Committee that would be based on a social compact between government, labour, and industry to stabilize Eskom, including a commitment not to privatize the utility and that no jobs would be lost. A just transition strategy would be developed for workers and communities near power stations and mines (Bloom, 2020).

Additional dynamics driving the need for a just transition are the threat to South Africa's export markets for coal, lower prices for renewable energy globally, and the drive of the Paris Agreement to reduce emissions in South Africa and globally. South Africa has several coal-producing regions in the northeast part of the country (see Figure 2).

With this level of robustness of discussion on the concept of a just transition and the well-developed and active role of the labour movement, the issue is well past the basic consideration level it is in many other developing/emerging economies, in part due to the strength of South Africa's organized labour movement. The core issues in South Africa are how to finance and implement transition when the sector is already in crisis and the imminent threat of job loss and potential economic collapse.

FIGURE 2
COAL-PRODUCING REGIONS
IN SOUTH AFRICA

Source: Minerals Council South Africa, n.d.
Created with mapchart.net



Added to Eskom's debt issue is the additional cost for the just transition, which is a major challenge in South Africa, where the cost of the transition, including compensation, retraining, relocation, and rehabilitation, was estimated at roughly EUR 368 million (Cruywagen et al., 2019) by researchers at the Stellenbosch University's Centre for Complex Systems in Transition. The benefits of transition are less well defined, which adds to this challenge.

An additional challenge is a lack of parity between the strong labour representation in traditional energy sectors and the less organized labour representation in place for cleaner forms of energy. While Eskom has a large amount of fossil fuel electricity to be decommissioned by 2040 (Bloom, 2020), the private sector, including renewable energy, has also been developing. However, workers have concerns that renewable energy jobs may be of lower quality, with fewer benefits and a lack of

continuity compared to unionized jobs in the fossil fuel energy sector. This uncertainty makes workers hesitant to fully support a transition until it is proven not to be the case.

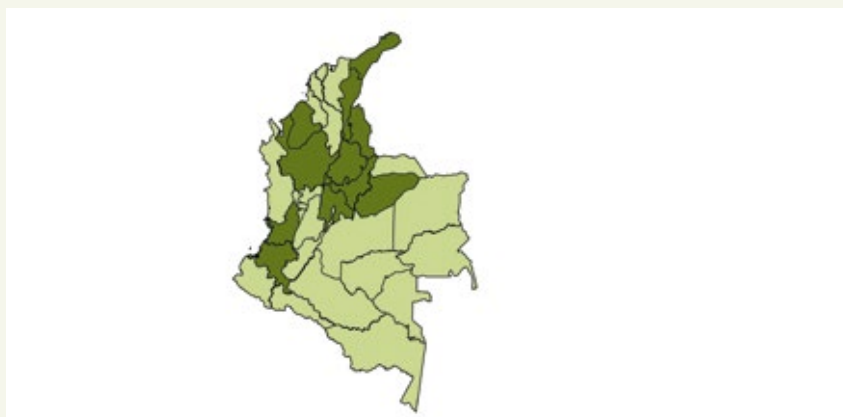
2.1.2 Colombia

Unlike other coal-producing countries, in Colombia, coal represents a relatively minor share of the electricity mix, with 69.18% of its electricity generated from hydropower, 9.61% from natural gas, about 8.74% from diesel and fuel oil, and 9.75% from coal in 2018 (SIMEC, 2018). However, Colombia is also the eighth-biggest coal producer in the world and the fourth-largest thermal coal exporter (OECD, 2019d). Its coal reserves are the largest in Latin America and have been severely depleted over the last 10 years, with 85% being exported mainly to the EU and the

United States (OECD, 2019d). In monetary terms, after crude oil, coal is the country's second-largest export good, valued at almost USD 8 billion in 2017 (Atlas of Economic Complexity, 2019; Unidad de Planeación Minero Energética [UPME], 2019). Coal is also a major economic contributor in the Cesar and La Guajira regions and, to a lesser extent, in other central departments such as Santander, Norte de Santander, Cundinamarca, Boyacá, and Antioquia (Figure 3), where it directly employs about 130,000 people (Daza, 2017). Although at the national level coal mining contributes to less than 1% of the gross domestic product (GDP), at the local level, it is a key economic contributor in the departments of La Guajira and Cesar, where it represents more than 40% of GDP (Oei & Mendelevitch, 2019).

FIGURE 3
COAL-PRODUCING REGIONS
IN COLOMBIA

Source:
Agencia Nacional de Minería, n.d.
Created with mapchart.net



Colombia's case study is relevant to a just transition, as there is a dichotomy in the way a wider coal phase-out could affect coal workers. While large-scale mines in La Guajira and Cesar employ about 30,000 people and are geared toward export, small- and medium-scale mines in other departments such as Cundinamarca, Boyacá, Norte de Santander, Santander, and Antioquia are geared toward domestic electricity generation and are much more labour intensive, employing roughly 100,000 workers directly (Daza, 2017). With declining demand for coal in some of its former export markets, such as Europe, and many coal workers in small-scale mines not benefitting from adequate social protection and unionization, it is important to bring just transition policies and economic alternatives for coal-producing regions to the fore.

2.1.3 Indonesia

Indonesia is the fourth-largest coal producer in the world behind China, India, and the United States, producing 549 megatonnes (Mt) of coal in 2018 (International Energy Agency [IEA], 2019). The issue of coal phase-out is complicated in Indonesia, where the country is a major user and exporter of coal. Indonesia is the world's leading coal exporter, with 30.9% of global exports on a tonnage basis in 2018 and 439 Mt of coal exported (IEA, 2019). The majority of Indonesia's coal is produced in South, Central, and East Kalimantan, and also in South Sumatera (Figure 4).

FIGURE 4
MAJOR COAL-PRODUCING
REGIONS IN INDONESIA



Source: Mursanti et al., 2019.

Created with mapchart.net

While many countries have considered the prospects of phasing out coal for electricity generation, this has a major potential impact on Indonesia, as not only a major user of coal but also a major supplier of coal to other countries.

2.1.4 Policies to Enable a Just Transition for Coal Phase-Out

Economic indicators are often found to drive the transition away from coal power. This can come from a collapse in export demand or the rise of more affordable domestic energy options (Caldecott et al., 2017). In South Africa, there are several major coal facilities reaching their end of life in the same period, in addition to institutional debt. In Indonesia, we do not see an immediate push to move away from coal, but we do see increasing concern about the impacts of coal and the social costs of coal power, as well as a pricing system that works to subsidize coal at the expense of renewable energy options (Attwood et al., 2017). We also see an openness to the concept of a transition away from coal but only on the terms of the specific country. In Indonesia, this means openness to technologies that will allow a longer life span for coal on lower-emitting and more efficient terms (while retaining a longer-term renewable energy transition aspiration), whereas in South Africa, agreement is necessary between strong coal-sector unions and the federal government.

Several challenges have been identified, but there were also suggested solutions to support the coal phase-out in a manner consistent with a just transition.

2.1.4.1 Sector Policies

South Africa

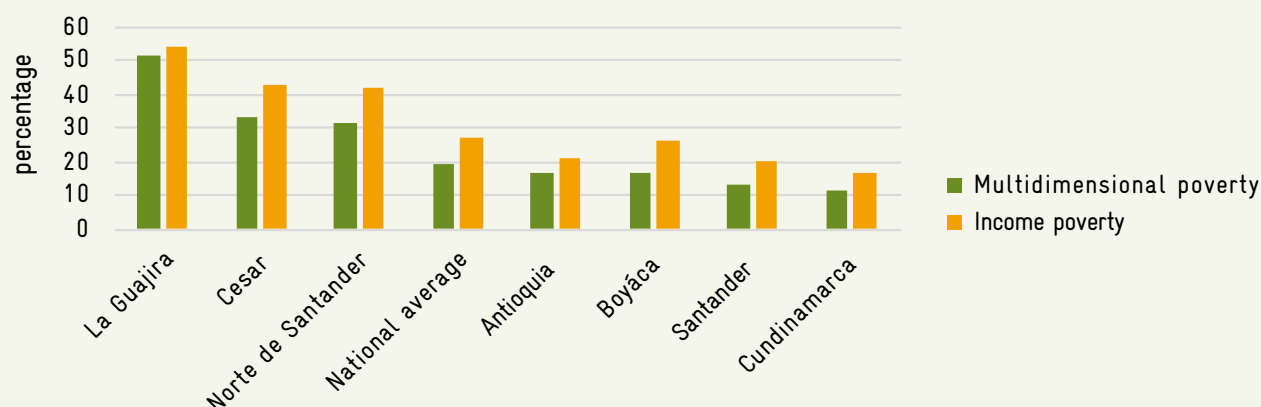
In South Africa, a national plan for transition is being developed by the Presidential Climate Change Commission and is expected to be published soon. The commission is to be a “platform” for facilitating just transition dialogues in South Africa (Creamer, 2019). In 2019, the National Planning Commission also published a proposal for a 2050 vision and pathway for a just transition (National Planning Commission, 2019); however, this process has been subject to many delays. This proposal included actions responding to job losses and plans for decommissioning coal-fired power stations. In short, there is a framework in place for a just transition, but it is slowly moving forward.

Colombia

In Colombia, despite the fact that certain mining companies are aware of the impact that a downturn in international demand for coal could have, there is currently no discussion at the governmental level about any coal phase-out or just transition plans. At the domestic level, the government also plans to double coal-fired electricity generation to 12.5% by 2038 (Lopez et al., 2020).

Currently, coal mining remains central to economic development, employment creation, and export-related growth. The government’s main approach is to try to formalize small-scale mines and end illegal mining, which it sees as mainly responsible for social and environmental harms. This can be seen in the UPME’s 2025 Mining Development Plan and

FIGURE 5
MULTIDIMENSIONAL AND INCOME POVERTY RATES AT THE NATIONAL AND REGIONAL LEVELS IN COAL-PRODUCING STATES (2018)



Source: DANE, 2018.

the government's *Proyectos de Interés Nacional y Estratégico* (PINE) and *Proyectos de Interés Regional y Estratégicos* (PIRES) plans, where oil, gas, and coal are all considered as sectors of strategic national and regional interest that require special incentives to increase production (EITI Colombia, 2016; UPME, 2017).

Discussions with government officials indicate a belief that there is no reason for coal demand to decline in the future. In the event that it did, Colombian coal would be able to find new markets in Southeast Asia. This view is also shared by some industry associations, which assert coal mining is an indispensable source of revenue in coal-rich states and, more than any other sector, such as tourism, agriculture or banking services, a strong engine for economic development. However, the high poverty rates in Cesar and La Guajira put this narrative into question (see Figure 5).

Despite the shared view that coal is here for the long haul, some government stakeholders concede that the transition that is occurring in Colombia is market driven, not policy driven like in Germany and Canada, where the governments created roadmaps to implement a just transition plan.

Despite the lack of planning at the government level, there are some encouraging signs for a just transition in Colombia. At the grassroots level, compared to other countries, there is less of a divide between the

opinions of labour and civil society groups, which are both supportive of better environmental practices and reducing the impacts of coal mining on communities, although the term “just transition” is seen less as a worker issue and is not connected to a divestment away from coal. Sintracarbon (one of the major coal labour unions), for example, opposes any divestment away from coal (Global Justice Now, 2015).

Renewable energy also has the potential to offer an avenue for economic diversification in the states of Cesar and La Guajira, which have some of the highest solar and wind potentials, respectively, in the country. Recent auctions for solar and wind have also led to historically low and competitive prices, at an average of USD 28 per megawatt-hour (MWh) with the allocation of 2,250 megawatts (MW) of wind and solar to be installed by 2022, which will mostly be concentrated in La Guajira and Cesar (Portafolio, 2019; USAID, 2020). Yet, in order to ensure that the scaling of renewable energy is accompanied by the creation of decent jobs, the Government of Colombia could go further by developing TVET programs through its National Training Service (SENA) (Strambo & Atteridge, 2018). Social protection and safety nets could also be expanded, building on proposals at the governmental level to include coal in the country's carbon tax and redirecting the proceeds to protect coal workers at risk. Colombia's carbon tax is set at a low rate of USD 5 per tonne of carbon emitted and still does not apply to coal production

or consumption, unlike in other countries (OECD, 2019e). Thirty percent of the proceeds from the carbon tax are redirected for forest conservation efforts (Barbier et al, 2020).

Indonesia

There has been a lack of consideration of the specifics of a just transition in Indonesia. An interview with a representative of the mining advocacy network Jaringan Advokasi Tambang (JATAM) identified that a discussion on just transition has not yet started. JATAM is focused on three key issues – societal well-being, conservation of nature, and workers’ well-being – which are all consistent with just transition ideals. However, a broader conversation has not emerged, and relationships with industry and government can be contentious. The Consumers Association of Indonesia (Yayasan Lembaga Konsumen Indonesia [YKLI]) has spoken in favour of FFSR for coal and other fossil fuels that is conducted in a “just” manner, with the reallocation of revenues going to support social benefits such as public transport investments (Lontoh & Beaton, 2015).

YKLI’s support for the energy transition is also rooted in the negative impacts that fossil energy can have on public health. They note that consumers should be pushing for environmentally friendly energy investment from the government (Syahni, 2017). Despite these civil society voices, however, there has not been a concerted just transition discussion nor even a broader conversation about the future of coal in a concerted way consistent with just transition principles.

Indonesia is facing the “energy trilemma” (Figure 6) of keeping electricity tariffs low, avoiding energy subsidies, and meeting renewable energy targets (Bridle et al., 2018). It has been perceived that two of the three elements can be achieved in tandem, but not necessarily all three, with access and low tariffs taking precedence in the name of ensuring affordable energy access and addressing energy poverty. Coal has been plentiful and relatively inexpensive historically, a source of export revenue and domestic energy for Indonesia. With affordable energy access a paramount concern for Indonesian government officials, there is a pull to stay with the usual sources of supply to meet this goal.

FIGURE 6
INDONESIAN ENERGY TRILEMMA



Source: Bridle et al., 2018.

Coal interests are also strong influencers in Indonesia. Perusahaan Listrik Negara (PLN) is the state-owned electricity company responsible for supply (largely coal) and transmission. With renewable energy representing largely private interests, PLN is not strongly drawn to a shift from coal to renewables. Speaking with experts and academics, it was also suggested that there would be strong opposition from coal companies to a transition, which is problematic because of their involvement in politics in Indonesia.

PLN has a major plan to expand its generating capacity by an additional 35,000 MW, which was originally announced in 2014 (Deloitte, 2016). However, it is expected that the majority of this new generating capacity would come from a combination of coal and gas power plants (Witular, 2016). Officials from the government have also indicated a position that Indonesia, as a country with abundant reserves of coal, should be able to use it responsibly in order to meet their domestic energy needs. The planned expansion of coal facilities would “lock in” coal as a dominant source of energy in Indonesia for decades, therefore also locking in several decades of significant greenhouse gas (GHG) emissions.

The Government of Indonesia also has its own medium-term development plan, and a target to increase the share of new and renewable energy supply to 23% (not just electricity, but all energy uses) in the national mix by 2025 (Bridle et al., 2018). This plan includes a low-carbon development scenario, but an interview with the Directorate General of Minerals and Coal indicates that significant changes will only happen once renewable energy is proved to be cheaper than coal. The latest Minister of Energy and Mineral Resources, Arifin Tasrif, has also spoken in favour of the expansion of renewables, in part to lessen reliance on imported oil and gas (Lontoh, 2019). This low-carbon development plan, while including measures for ensuring electricity access, is not a full just transition strategy. Social issues are largely dealt with in regard to the provision of affordable energy access.

Coal is likely to remain dominant in Indonesia for some time, so immediate job losses are less of a concern. However, there are concerns about longer-term implications and the viability of the sector if global coal demand decreases, resulting in impacts on regional GDP in coal-mining areas. It was suggested in interviews that a way into the just transition conversation for the Indonesian government and the state electricity company PLN could be to focus on a slower transition with a longer timeline than other countries that are looking to phase out coal. This type of transition can focus on efficiency technologies and technologies that allow for coal use but with strong environmental controls. This could be an entry point for discussion that is highly politicized and contentious, where the future of workers in the coal production sector is a growing concern, particularly in light of decreasing demand exacerbated by the COVID-19 pandemic (Harsono, 2020b). The impact of coal demand can be significant for some regions, for instance, in East Kalimantan where the coal sector contributed up to 35% of the provincial GDP in 2017 (Mursanti et al., 2019).

2.1.4.2 Employment and Labour Market Policies

Coal transitions have cross-sectoral employment impacts (Caldecott et al., 2017) and require an economy-wide vision and plan (Worrall et al., 2018). Coal phase-outs have impacts on workers who will be transitioning jobs, either within the energy sector

or between sectors. Environmental performance and public health will also be impacted by a phase-out of coal. In addition to the ministry of energy, also the ministries responsible for planning, labour, industry, environment, health, social protection, and others must be part of transition plans for energy. Longer-term solutions that are aligned with a just transition are needed, including protecting coal workers most at risk through retraining, early retirement schemes, and land rehabilitation. While there are diverging estimates, coal mining is thought to create from a half-million to 1 million direct jobs and up to 20 million indirect and induced jobs in surrounding communities in India³ (Chandra, 2018). Direct jobs are jobs linked to coal production, whereas indirect jobs support coal mining activity through inter-industry collaboration and input supplies such as coal transportation and disposal. Induced jobs are further created through the income generated by coal mining and the effect this has on consumption and investments in coal-rich states like Indonesia, India, and South Africa (ILO, 2013). More proactive planning from the federal and state-level governments is needed to ensure a roadmap is designed with a responsible agency in charge of retraining and protecting workers at risk.

In Delhi in 2018, the closure of the Badarpur Thermal Power Station, which led to the laying off of 450 contractual workers, also sparked protests from trade unions, requiring the government to compensate workers for their loss (Akhil, 2018). Currently, the Mahatma Gandhi National Rural Employment Guarantee Act is the main scheme available for unemployed workers, but it could be complemented with other measures to include the rehabilitation of coal mines at the end of their production life that employ former coal workers, early retirement schemes, and the utilization of the Clean Energy Cess on coal to fund retraining for workers in the medium term (Worrall et al., 2019). Research has shown that, beyond financial compensation, what is needed is anticipation and economic revitalization through investments in human capital development, infrastructural development, and job training, as well as the promotion of new sectors and industries, including outside

3 See Section 2.3.

the energy sector (Caldecott et al., 2017). This also corresponds to GDC's integrated approach to employment promotion (GIZ, 2016a), from which it can be deduced that industrial policies and private sector development are needed to create labour demand and jobs outside the energy sector.

Although such a diversification strategy is still missing in coal-rich states, the Government of India (GoI) could build on initiatives it has put in place in other northeastern states – in particular, the North East Special Infrastructure Development Scheme, which is funded by the central government and provides funds to kickstart various economic sectors, from tourism and manufacturing to education and health (Sharma, 2019). While it remains to be seen how this development scheme will play out in practice, it is noteworthy that, so far, USD 250 million in funds have been allocated to projects, and it has collaborated with state departments to build industrial clusters and attract more private investments (Ministry of Development of North-East Region, 2019; Sharma, 2019).

Across many countries where employment is considered in transition planning, it is often in terms of number of jobs gained or lost. There is less or no consideration given for indicators such as quality of work, the necessity for retraining, re-education requirements for workers to transition, or whether work is organized/unionized or not.

In South Africa, the difficulties facing the state-owned enterprise Eskom are well known. A just transition has been a key tenet of the discussion about how to secure the future of the electricity sector, driven in part by the active engagement of unionized workers in the process, who stand to gain or lose significantly pending the eventual outcome. South Africa's example also highlights challenges with shifting from coal to renewables, as jobs in the coal electricity sector are more highly formalized and unionized than jobs in renewable energy. Addressing this dynamic and ensuring job quality in emerging sectors will be critical to having workers support a coal phase-out. In short, if the jobs in renewable energy are not as good for workers as the ones in the fossil fuel subsector, it will be very difficult to achieve worker buy-in for reforms.

Setting aside the major issue of unionized versus non-unionized work, South Africa has made commitments to reskill workers to prepare for lower-carbon jobs, but a national plan is still lacking (Worrall et al., 2018). In an effort to support its labour market and reduce unemployment in general, South Africa has also put in place an Expanded Public Works Programme (South African Government, 2020). The Expanded Public Works Programme employs workers in short- and long-term assignments on projects with government, contractors, or non-governmental organizations. The focus is on increasing labour intensity and creating work opportunities in several areas, including infrastructure, culture, environment, and social programs.

2.1.4.3 Process Management and Sensitization (Including Social Dialogue)

The literature reviewed identified a need in developing and emerging economies to engage a wide group of actors beyond the government, including state-owned enterprises, trade unions, non-unionized and informal workers, civil society, and the private sector (Worrall et al., 2018). In South Africa, the agreement of workers is central to success; in Indonesia, there is a strong focus on the health impacts of coal-based energy. Creating awareness on the social impacts of public and private investment in the energy sector was highlighted as an area for further consideration, given that sensitization on these topics in developing countries is often lacking and that, in places like Colombia, coal energy production is still seen as a driver of social development.

Across all of the countries, a high degree of ministry “silos” was noted as an issue that will have to be confronted for a just transition to be more successfully approached. Coordination across government ministries is highly recommended, both by interviewees and literature, as the types of policies considered (employment, poverty reduction, environmental measures) cross ministries within governments, necessitating cross-sectoral approaches (Botta, 2018). Working on coal phase-out and a just transition in an economy- and government-wide manner is critical, but it is not an established practice, necessitating capacity development.

Understanding the impacts of reform also can serve the important goal of avoiding and refuting the notion that there is a link between actions to combat climate change and economic hardship (Botta, 2018). This can help within government ministries, as well as with broader public engagement efforts. In Colombia and Indonesia, the broader public does not have a firm understanding of the notion of a just transition and its benefits. There is a strong need to focus on how a just transition can support the achievement of the country's development goals (like poverty reduction).

2.1.4.4 Social Policies and Impacts on Workers, Communities, and Consumers

Several experts repeatedly raised the need for a stronger understanding of the social impacts of policy decision making in the energy sector. Social policies focusing on the health and safety of workers, as well as protections for workers in transition, are critical (Worrall et al., 2018). Economic considerations of policy options (e.g., impact on GDP) have regularly been conducted, and increasingly, environmental considerations (e.g., impact on GHG emissions) have also made their way into influencing policy. Consideration of the impacts of energy decision making on social policies, such as public health and social protection, should equally be mainstreamed in energy policy making.

The issue of compensation for the impacts of transition comes up frequently in the discussion of a coal phase-out and coal sector reform. This includes conditional and unconditional cash transfers to those affected (both workers and consumers) as well as programmatic investments in the reduction of poverty, targeted subsidies to low-income households to compensate for energy price changes, and budget transfers to local and regional governments to assist in alleviating poverty and enhancing energy access at a local level.

GIZ has already worked on some social impact assessments projects (for example, for Vietnam's Green Growth Strategy), and the feedback was that this work is well received by partner governments. The goal of this work should be to develop local capacity to undertake this type of assessment so that energy transitions will increasingly be mainstreamed in

the future. This need for social impact assessment is backed by literature, which highlights the need to anticipate energy trends and their impacts in coal phase-out experiences (Caldecott et al., 2017), as well as by many transitions to date where post-transition jobs have often been of lower quality than pre-transition jobs (Botta, 2018).

2.1.4.5 Impacts on Investors and Companies (Including Stranded Assets)

If a shift from coal to renewables leads to an energy price change, it will not only have an impact on residential consumers, who may see more or less disposable income depending on the direction of the change, but also on industry. Higher electricity prices will have an impact on the costs of manufacturing and other energy-intensive industries. If prices drop, it may open up the country to more private investment and spur market development.

There is also a risk of stranded assets in the coal sector. Much like the term "just transition," there is no single definition of what "stranded assets" means in the literature. In relation to the energy sector, stranded fossil fuel assets are generally understood as assets whose value has suffered from "unanticipated or premature write-downs, devaluations or conversion to liabilities" (Caldecott et al., 2014). It is important to note that stranded assets can refer to both past and future investments. They are not necessarily only linked to financial assets but can be more wide ranging, with stranding in relation to jobs at risk (stranded jobs), regulatory stranding due to legislative changes (e.g., coal phase-out), or in relation to fossil fuel reserves that are no longer economical to exploit and recover (e.g., due to more competitive renewable alternatives). In coal regions, coal-fired generating facilities could become stranded if renewable energy becomes cheaper, and coal mines could become stranded for the same reason. In India⁴, the terms stranded, stressed, and non-performing are used interchangeably, with "stressed assets" referring specifically to assets where the principal/interest payments, either in part or as a whole, are overdue for between 1 and 90 days; here, stranding has been influenced by the increasing competitiveness of renewables.

⁴ See Section 2.3.

When the energy transition is unplanned, there is a clear risk of fossil fuel asset stranding, which can impact not only private investors but also public sector budgets, particularly in countries where governments have a higher share of fossil fuel ownership (Gerasimchuk et al., 2019). In India, it is estimated that about 40 gigawatt (GW) of coal-fired power capacity is non-performing, representing approximately 21% of India's total installed capacity in 2018, with private developers representing a majority of those with stranded assets (Worrall et al., 2019). Some of the most important factors for asset stranding include the cost competitiveness of renewable energy, air pollution regulation, water scarcity, and coal shortages. In India specifically, the inability of DISCOMs to pay for energy supply has been noted (Worrall et al., 2019).

SOE diversification is one way to reduce the risk of stranding while increasing economic diversification. Certain BRICS countries (Brazil, Russia, India, China, and South Africa) are already thinking along these lines, with the establishment in 2014 of the BRICS New Development Bank, which provides sustainable infrastructure financing for its member countries (Silk Road Briefing, 2019). In India, the main coal subsidiary, Coal India Limited (CIL), has set up plans to increase its solar capacity by 20 GW in the next 10 years (Bhaskar, 2018).

2.1.4.6 Funding and Resources for a Just Transition

In some countries, the question of how to finance a transition was a major concern (e.g., South Africa and its state-owned enterprise debt challenge), while in others, it was a less immediate concern. What came across in a number of interviews and documents, however, is the need for transparency and consideration of the “true” cost of coal, including elements such as subsidies, health, and climate costs (Attwood et al., 2017). Making this true cost more transparent serves two purposes. First, it highlights some of the costs of continued coal use that are not born in the price paid by customers but are paid by governments providing subsidies, by the public in negative health impacts, and by the world in terms of climate impacts.

Second, transparency on coal costs supports cases of energy pricing reform. In Indonesia, the “true” cost of electricity has been identified as more than 100%

higher than the cost of the delivery of electricity itself when subsidies, air pollution, and climate and health impacts are included (IISD, n.d.).

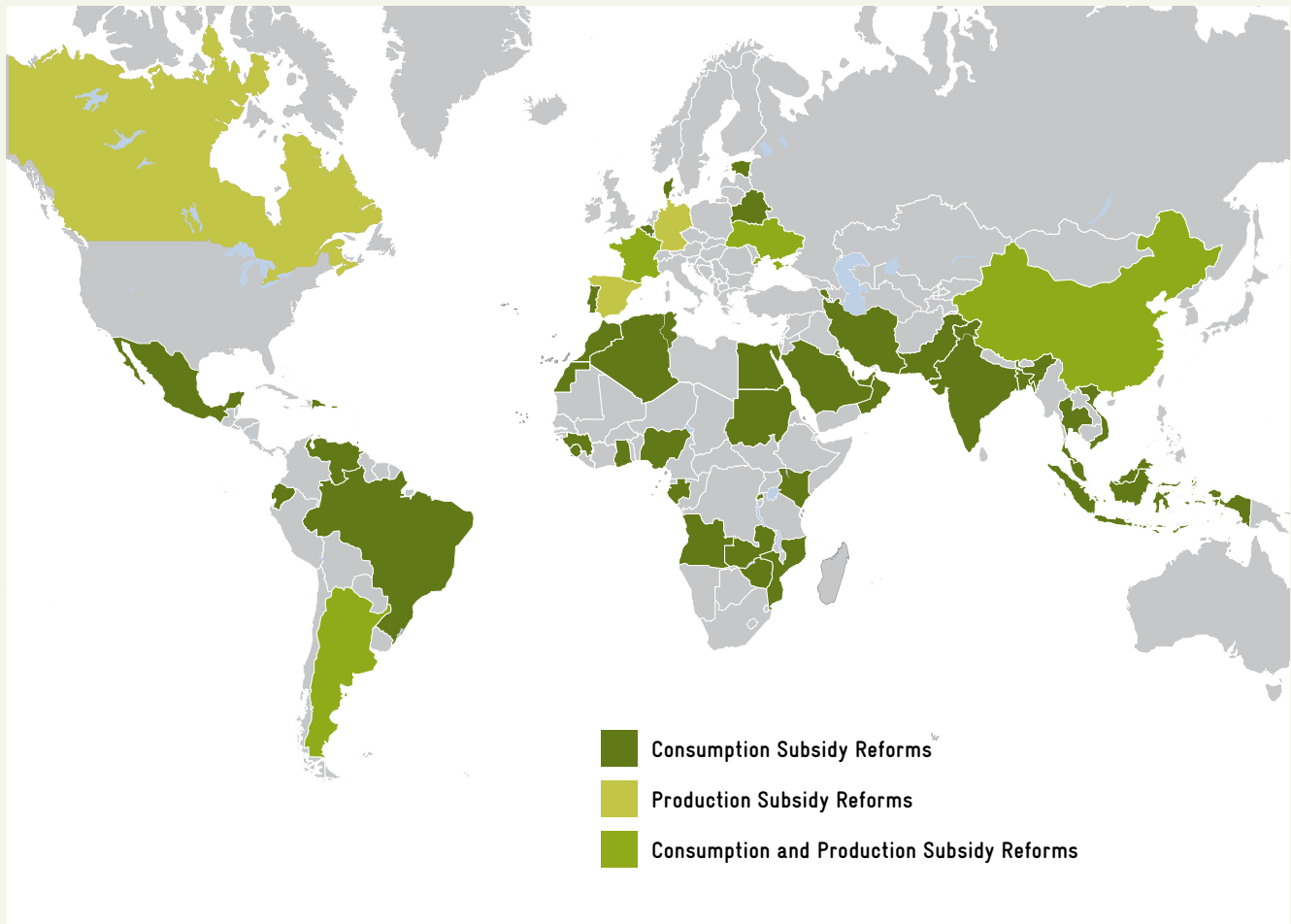
2.2 Fossil Fuel Subsidy Reform

Because one of the core issues with a just transition is how to fund it, FFSR represents a key situation where addressing a challenge related to transition – the fiscal regime in the fossil fuel energy sector – is directly linked to unlocking resources to fund the transition. Fossil fuel subsidies undermine climate action and a clean energy transition, while their reform is consistent with just transition principles (Gass & Echeverría, 2017).

In addition to potentially unlocking resources to fund the transition, FFSR is also a mechanism that has been adopted in a number of developed and developing countries (Figure 7) as a means to open up fiscal space for other investments, reduce reliance on fossil fuels, combat climate change and environmental challenges, and restructure economic systems to promote low-carbon, climate-resilient development.

With that said, as case studies show, FFSRs can have significantly varied impacts on populations and engender either public support or outrage, depending on how they are implemented, as the following case studies indicate. There are key concerns with subsidy reform because of the potential negative impacts on poor and vulnerable households (Györi et al., n.d.). Even if poorly designed subsidies give higher benefits to middle- or high-income households, the impact of reforms could be most serious for low-income households who spend a higher share of their income on energy. Concerns that these impacts may translate into a loss in public support has also made some governments reluctant to implement subsidy reforms (Györi et al., n.d.). Taken together, these dynamics mean it is essential: (i) for a clear understanding of the impacts of specific reform measures, engaging the public, and putting in place the complementary policies to ensure that these impacts are mitigated, and (ii) that saved public revenues from redirected subsidies present benefits to the public (for example, investments in social protection to compensate poor and vulnerable households).

FIGURE 7
COUNTRIES UNDERTAKING FFSR BETWEEN 2015 AND 2018



Source: Global Subsidies Initiative, 2019.

There are real benefits to be realized through subsidy reform. One of the fundamental benefits related to the link between FFSR and a just transition is the potential for the former to be a way to create budgetary space for the latter. The amount of fiscal space available for a just transition is not clearly known and varies by country, but it is expected to be in the order of many billions of dollars (Gass & Echeverría, 2017). We also understand that country pledges for the Paris Agreement in terms of financing for international climate action – the largest potential source of funds for low-carbon transition – are below suggested targets (Buchner et al., 2019). Even if this funding is accessed, there is no guarantee it would be utilized in a manner consistent with a just transition.

Subsidies and their reform can have different impacts based on income levels and are not an efficient way to deliver benefits to those who most need support through poverty alleviation (the primary goal of many subsidies) (Sovacool & Jewell, n.d.). An International Monetary Fund (IMF) study across 20 countries indicated that, on average, the top income quintile in these countries captured six times the benefit of the bottom quintile, indicating major inefficiency in subsidies where the goal is poverty alleviation (Arze del Granado et al., 2012). In fact, there are multiple studies that show that universal energy subsidies disproportionately benefit the rich and come with significant opportunity costs, with some research indicating that they provide no better benefits to the poor than handing out benefits at random (Sharma et al., 2019).

If subsidies are removed, there is the potential for a regressive effect (Jiang et al., n.d.), meaning that poor households suffer the most. This necessitates the development of complementary policies, moving from the largely inefficient distribution of benefits that have negative side effects under fossil fuel subsidies to more effective measures that target poor households that require economic relief.

While there has not been a lot of study on the subject, fossil fuel subsidies and their reform also have gendered impacts (Kitson et al., 2016). This is particularly the case for subsidies for fuels used in home cooking by low-income families. Reliance on subsidized fuels can drive the motivation to use these cheaper fuels (whether they have positive or negative health impacts), with women, who do the majority of cooking, most affected. Reform should not drive the use of dirtier fuels (e.g., biomass) that may have less GHG impact but greater public health impacts (Kitson et al., 2016).

This reality, coupled with estimates that fossil fuel subsidies total at least USD 425 billion per year (Gass & Echeverría, 2017), indicates why FFSR is such a fundamental tool for financing a just transition. Even where subsidies take the form of indirect measures, such as price controls (see Indonesia below), it is still possible to create space as, often, government revenues have to be set aside to cover losses associated with selling fossil fuels at below-market prices. However, as the following situations indicate, this is a delicate process. Protections for energy consumers (who may suffer real income losses) and for workers in the energy sector (who may face job losses if fossil fuel prices climb due to subsidy removal, making these fuels less economically competitive) are critical. These may come in the form of social measures (e.g., cash transfers) or other direct supports (such as reskilling) for both the successful implementation of these efforts and their long-term effectiveness.

2.2.1 FFSR in Indonesia

Having already once undergone a massive FFSR effort in 2014–2015, the mechanisms to finance a just transition are well understood in Indonesia. Leading into the first election of President Jokowi, Indonesia had long-established fossil fuel subsidies in several sectors, including electricity and transport fuels.

The annual performance of the state-owned electricity company (PLN) fluctuates between losses and profits (The Insider Stories, 2019) and is much stronger, for instance, compared to South Africa's Eskom. IISD conducted an assessment of subsidies in the coal electricity sector in 2015 and identified USD 644 million in subsidies for that year (Attwood et al., 2017), resources that could theoretically be redirected to support a just transition.

Indonesia's reforms were successfully implemented, and the government was able to enjoy broad public support rooted in a commitment to social improvements as well as fortuitous timing that took advantage of a fall in global fossil fuel prices.

2.2.2 Challenges with FFSRs: Mexico and Ecuador

In other countries, the process of reform has been much less successful, highlighting the challenges inherent in reforming fuel prices.

Ecuador is one example of unsuccessful reform, where, in 2019, a lack of careful design and cautious implementation resulted in mass protests (Funke & Merrill, 2019). In October 2019, President Moreno announced a rapid removal of subsidies for gasoline and diesel as part of a broader austerity package (rather than a concerted move for FFSR). Earlier that year, Ecuador had accepted an IMF loan of USD 4.2 billion and was proposing the removal of subsidies as a way to address debt and deficit levels in the country (Brown, 2019). Moreno stated that he was removing these subsidies that had been in place for 40 years, valued at roughly USD 1.4 billion (Margolis, 2019), because they were perverse for the economy.

Mexico also faced challenges resulting from reforms. Mexico had implemented subsidies for local fuel consumption at a time when costs were particularly high, surpassing USD 100 per barrel (Gass & Echeverría, 2017). Over time, these subsidies came to represent a significant portion of the public deficit, totalling 1.95% of GDP in 2011 (Arlinghaus & van Dender, 2017).

As explored in the following section, both of these attempted reforms were met with strong resistance and opposition, in part because of a lack of necessary engagement and complementary measures to support the transition.

2.2.3 Policies to Enable a Just Transition for FFSR

FFSR is a critical part of the transition to a low-carbon economy, but, as the examples show, there are inherent challenges with enacting these reforms that will certainly lead to increased energy prices. Examples of how to proceed with reforms – and how not to proceed – quickly become evident.

2.2.3.1 Sector Policies

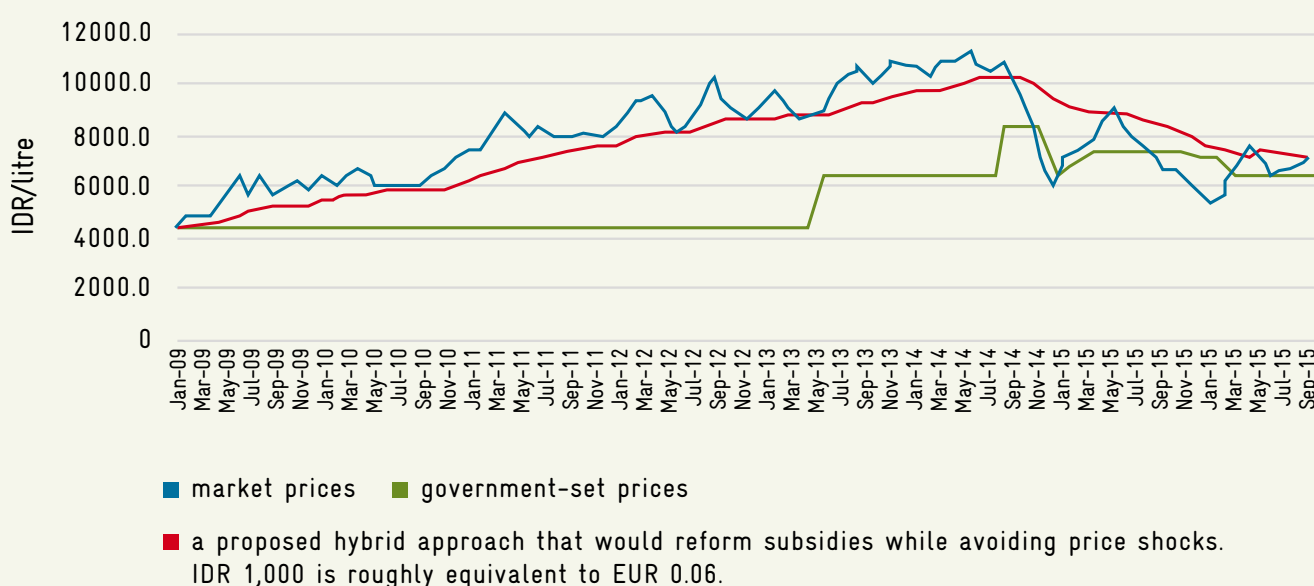
Indonesia

Gasoline and diesel fuel had also been subject to long-entrenched subsidies in Indonesia that had locked in prices at below-market rates for consumers (Pradipto et al., 2016). The goal of these policies had been to encourage affordable energy access; however, the associated impacts included increased GHG emissions and pollution, as well as distorting the true cost of these energy sources. As energy prices increased, these subsidies became an increasing strain on the public budget. It was estimated, prior to reform, that these subsidies would have accounted for roughly 10% of the state budget (subsidies totalled roughly USD 15.6 billion) in the year they were reformed (Pradipto

et al., 2016). As Figure 8 indicates, the gap between government-set gasoline prices (green line) and international market prices (blue line) grew to be significant, as oil prices rose between 2009 and 2014, before international oil prices declined late that year. The gap between the green and blue lines indicates the value of the government subsidy. In the past, even when the government had adjusted the fixed gasoline price, it was not adjusted to a level that would preclude a subsidy (for example, using the hypothetical red line), indicating that subsidies had become entrenched.

As a result of these subsidies being a major drain on the public budget and the potential fiscal space that they could open for other investments, they were a target of President Jokowi's first presidential campaign. President Jokowi's proposal during his first presidential election was to eliminate gasoline subsidies and install a fixed-rate diesel subsidy. At the time, President Jokowi indicated well in advance that, if elected, reforms would be coming (Gass & Echeverría, 2017). He also campaigned on activities that would result in benefits for Indonesians, such as investing in improvements to the health care system.

FIGURE 8
ASSESSMENT OF GASOLINE PRICES IN INDONESIA 2009–2016



Source: McCulloch et al., 2017.

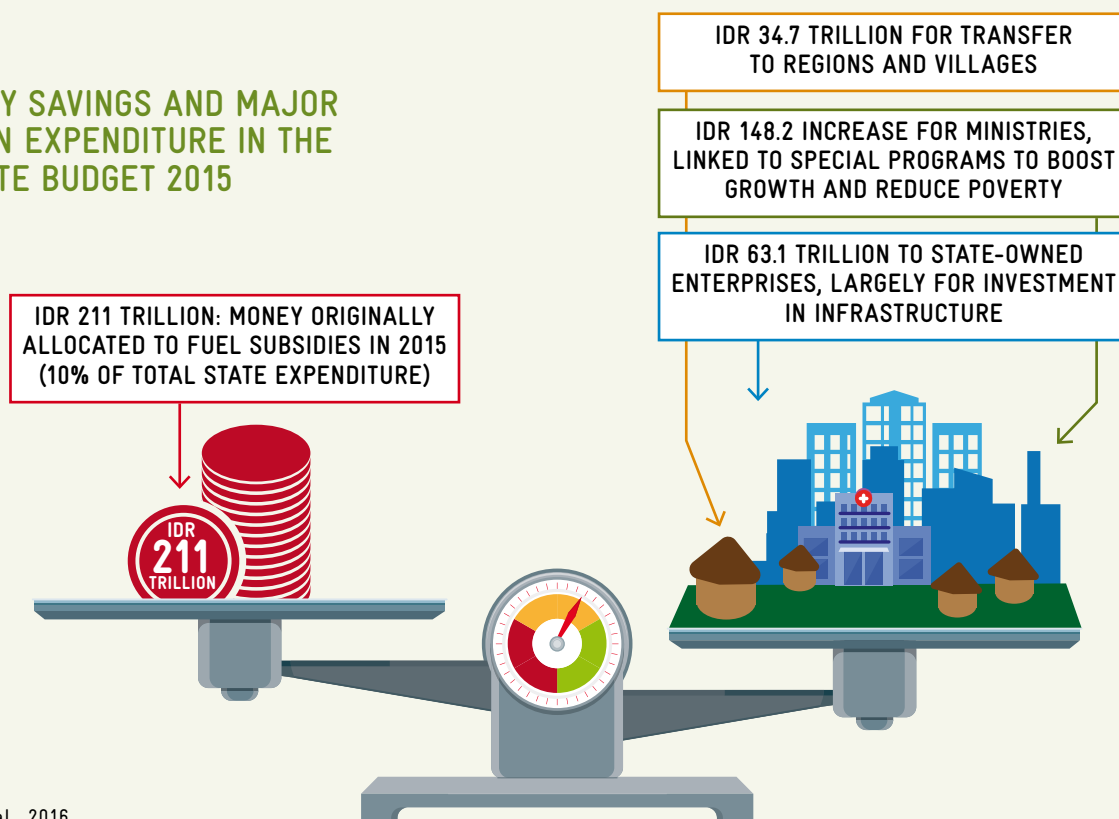
As a result of the strong push on social investments linked (directly or indirectly) to FFSR (Figure 9), as well as frankly fortuitous timing in enacting FFSR as global fossil fuel energy prices were declining, President Jokowi was successful in reforming fossil fuel subsidies and also enjoyed broad public support while doing so.

While directly linked budgetary transfers related to FFSR are not allowed under the Indonesian system, the changes made to the 2015 draft National Budget before and after the reforms indicate what was done with the created budgetary space (Figure 9). In short, the reforms indicated roughly EUR 11.6 billion (IDR 211 trillion) in savings, as this amount was budgeted for subsidies in the draft 2015 budget. In the final budget, after these subsidies were removed as line items, there were significant increases in budgeted amounts for funds transferred to regions and villages (EUR 1.9 billion), programs to boost growth and reduce poverty (EUR 8.2 billion), and investments in infrastructure (EUR 3.5 billion). All of these initiatives would be considered consistent with a just transition, with the poverty measures directly addressing

social protection. One specific social protection option is the idea of targeted subsidies for those most in need, for instance through smart card technology for low-income households (linked to the unified poverty database in Indonesia) that would allow them access to subsidies but not allow this access to middle- and high-income households (Lontoh & Gass, 2018).

The distributional impacts of potential subsidy reform in Indonesia were modelled by the OECD in a 2015 study (Durand-Lasserve et al., 2015) to see what would occur if all fossil fuel subsidies, not just transport fuel subsidies, were phased out between 2012 and 2020. This study indicated potential GDP gains of 0.4%–0.7% in 2020, as well as reductions in GHG emissions of 8.3% in 2020 with respect to the baseline (Durand-Lasserve et al., 2015). While the scope of this modelling is larger than the actual reforms that occurred, and 2020 impacts will certainly be influenced by the COVID-19 pandemic, this type of analysis does indicate a correlation between positive GDP impacts and reductions in emissions associated with FFSR in Indonesia.

FIGURE 9
FUEL SUBSIDY SAVINGS AND MAJOR INCREASES IN EXPENDITURE IN THE REVISED STATE BUDGET 2015



Source: Pradipto et al., 2016.

This indicates that there is a historical track record of reinvestment of the additional budgetary revenues realized through the impact of FFSR, as well as the government successfully implementing a massive reform while still enjoying public support afterwards.

Mexico and Ecuador

Initially, subsidy reform in Mexico occurred gradually with the idea of slowly phasing out subsidies between 2010 and 2015, with minimal price increases occurring over time. Over the five-year period, fuel prices increased 43%, but this did not lead to large public upheaval (Scott, 2017). However, the public deficit remained high, and more drastic measures were proposed for 2017 when, in an effort to close the gap between local (subsidized) and international prices, price increases of between 14% and 20% were proposed (Gass & Echeverría, 2017).

In Ecuador, the shift was very abrupt, with transport fuel prices rising quickly and sharply after the October 2019 announcement, which marked the end of 40 years of subsidy-controlled prices. No gradual measures were adopted, and the resulting shock and negative response was so strong that the policies were reversed after 11 days, and the potential for meaningful price reforms was lost.

2.2.3.2 Employment and Labour Market Policies

Past research has indicated that labour market rigidity has delayed positive effects that can be achieved through energy price reforms that are coupled with using associated gained revenues to relieve labour challenges (Jacob et al., 2015). These rigidities include a lack of skill-development opportunities and bottlenecks in job placement. This hampers the transition of workers from declining “brown” sectors to growing “green” ones. As a result, in any form of pricing reform, be it taxation or subsidies, labour markets should be designed to be dynamic and flexible enough to be resilient to the changes that sectors are undergoing in a just transition. Explicitly, this includes the adaptation of education and training programs to reflect the skill requirements of emergent sectors (Jacob et al., 2015). For sectors where job losses are associated with transition, revenues found from FFSR can be invested in mediation, retraining, and public employment services (Jacob et al., 2015).

2.2.3.3 Process Management and Sensitization (Including Social Dialogue)

In Indonesia, while the principles of a just transition were consistent with the type of FFSR that occurred, the formalities of a just transition itself were not well understood. Related concepts, like green economy and green growth, were better understood, but just transition was still a foreign concept, indicating that sensitization could lead to greater outcomes. In particular, social impact assessments were not regularly carried out on potential energy transitions but were seen as potentially useful activities to build broad understanding (for government and among the broader public) about the potential benefits of just transitions in the energy sector in the country.

President Jokowi’s campaign on these reforms effectively amounted to a broad public and stakeholder engagement campaign, giving voters the opportunity to support or oppose his entire platform, giving significant advanced notice what would be occurring, and giving them a voice in whether reforms would happen or not. Following the election, President Jokowi was provided with the mandate to move forward on these reforms, a mandate that was never formally sought or obtained in Mexico and Ecuador.

Again, taking into account the current global pandemic, coupling FFSRs with investments in public health care infrastructure and economic recovery measures can help countries respond to and recover from the pandemic, as well as prepare for future health emergencies.

Timing was also key to Indonesia’s successful reforms. Undertaking them at a time when fuel prices were low made it considerably less stressful for energy consumers. When subsidies were removed, fuel prices did not climb. By the time adjustments were needed, they were minor, and price shocks (which drove revolts in Mexico and Ecuador) were completely avoided. In light of the current COVID-19 pandemic and the corresponding low price of oil globally, the window for reforms in tune with low fuel prices is again open. Undertaking reforms now could ease subsidy removal and allow governments time to make alternative investments with the recovered revenues normally dedicated to subsidies. New investments



can be made in energy security and access, as well as poverty reduction, so that if prices rise again, there is still protection from shocks for consumers instead of simply cheap fossil fuels.

The lack of advanced notice, planning, and communication were cited as clear reasons behind the strong, immediately negative reaction in Ecuador (Funke & Merrill, 2019; Margolis, 2019) and are important issues to consider for any country considering reform. Ecuador's example is a worst-case scenario regarding the sensitization for FFSRs, indicating a lack of process management that would have mitigated potentially negative outcomes.

2.2.3.4 Social Policies and Impacts on Workers, Communities, and Consumers

In Indonesia, there has not been a major discussion on the impact of the FFSR of transport fuels from a social standpoint. This is, in part, because when the reforms were made, the prices of fuels remained stable

or even declined, a factor of the fortuitous timing of enacting reform at a time of very low oil prices. There has been discussion about the importance of maintaining energy access, which could become a more influential discussion if oil prices were to rise significantly again in the coming years and reforms were maintained.

The reaction to Ecuador's subsidy reforms was swift and negative. Wide-scale protests, arrests, and a declared state of emergency all happened as fuel prices more than doubled overnight (Chappell, 2019), and people were immediately and significantly impacted in terms of their exposure to price increases. After two weeks of strikes and protests, Moreno was forced to scrap the plan to remove the subsidies despite plans to at least partially offset the impact through a family benefit and housing development plan (Margolis, 2019). The rapid and drastic change in fuel prices sparked national opposition that was too difficult to overcome.

Mexico's subsidy reforms were always intended to be implemented as a way to address the public deficit, rather than decarbonize the economy or invest in other social programming or complementary measures. As a result, there was little stakeholder consultation and no complementary social, economic, or education/training instruments included with the reforms as a way to support either workers or energy consumers affected (Gass & Echeverría, 2017). This lack of complementary policies, coupled with sharp, rapid increases in energy prices (like in Ecuador) created the potential for negative social impacts. The lack of stakeholder engagement meant energy workers and consumers did not provide input about how to structure reforms, and they were not prepared for this situation.

Social impacts were widely considered negative. Increased smuggling and theft of fuel also resulted in violence and protests, with at least 15 people reported to have died in operations to break up fuel theft rings (Stillman, 2017). While these impacts are very acute and related to smuggling, there were much broader social impacts resulting in negative responses from the public. Civil unrest erupted over the price increases and their impacts on the provision of basic goods such as food, creating shortages (Gass & Echeverría, 2017). Petroleum workers protested and disrupted the operations of *Petróleos Mexicanos* (PEMEX) over concerns about job losses due to sector restructuring and their opposition to price reforms and the liberalization of the oil and gas sector (Carriles, 2017).

The Mexican and Ecuadorian cases clearly show how enacting FFSR and energy transition without considering the social impacts and just transition principles can lead to unrest, and, in the worst cases, security risks due to protests and even violence. On a policy level, significant opposition to reforms by those impacted can lead to their reversal. This can not only halt a chance for a transition to a low-carbon economy, but, in fact, it can create a situation even worse than if the reforms had not been attempted, as now both the population and the government (if it even remains in power) have soured on the experience of FFSR due to negative impacts.

A just transition in developing countries is as much about those who consume energy as it is about those who produce it, and their concerns must be addressed. The Mexican example highlights the need for implementation plans that consider workers' voices, noting that they were one of the strongest protest groups. Just transition considerations for energy consumers are also critical: they were influential in Mexico and completely derailed reforms in Ecuador because not enough effort was made to anticipate and mitigate the impacts on stakeholders compared to the status quo.

In Mexico, private fuel distributors were required to contract PEMEX workers to deliver fuel, lessening the potential for job loss. This ensured that PEMEX workers would remain employed and not see their jobs threatened by private fuel distribution. If this had been resolved up front rather than after the fact, some degree of unrest and social/economic disruption could have been avoided.

While not presented in these case studies, cash transfers are another potential mechanism for compensation for those who are impacted by energy price increases associated with a just transition. These transfers can be more accurately targeted at those who have most need and/or are most affected by FFSRs than through the price regulation of fuels, which can give the largest financial benefits to those who consume the most fuel, not those most in need of economic relief.

2.2.3.5 Impacts on Investors and Companies (Including Stranded Assets)

In Indonesia, losses associated with fossil fuel subsidies in the state-owned fuel distribution company Pertamina were covered directly through the government budget, so there was no private sector loss for these fuels. It is worth noting that only Pertamina could sell subsidized fuels, so there may have been a lost economic opportunity for other private fuel distribution companies competing against subsidized fuels.

On the positive side, investments were made in growth and infrastructure using revenues that had been previously dedicated to fossil fuel subsidies. These investments could have private sector benefits, though specific benefits or impacts have not been identified.

There were mixed economic results from reforms in Mexico. Mexico noted economic growth of 2.8% in the first quarter of 2017 and felt that the liberalization of the sector and removal of fuel subsidies created a better investment climate (Gass & Echeverría, 2017). However, fuel smuggling and theft increased significantly (Albarrán, 2017; Stillman, 2017).

2.2.3.6 Funding and Resources for a Just Transition

In Indonesia, the successful case of FFSR was tied to a number of factors, including the opportune timing of oil prices being low at the time government removed subsidies.

However, it is not enough just for prices to be low. It is critical to show where saved fossil fuel subsidy revenues will be used and that there will be benefits for those affected by potential energy price increases. Mexico and Ecuador, which were undertaking the reforms for reasons related to public debt and deficits, had less public buy-in, in part because the populace saw only the costs of these reforms for them without perceiving any benefits. In Indonesia, President Jokowi was clear that he would be investing in poverty reduction, health care, and infrastructure at the same time that reforms would be occurring. In short, while there would be potential costs for the public from reforms, there also would be significant benefits and reinvestment of the saved revenues in ways the public could understand and see.

2.3 Development of Renewable Energy

Fossil fuels remain the dominant source of energy globally, yet renewables, and particularly solar photovoltaic (PV) and onshore wind, have witnessed tremendous growth in the electricity subsector in the past decade. The global installed capacity for solar PV, for example, increased more than 10-fold, moving from around 40 gigawatts (GW) in 2010 to 580 GW in 2019 (International Renewable Energy Agency [IRENA], 2020). Yet, this global figure hides

important regional differences. By disaggregating the global installed capacity by region, one realizes that most of the growth has occurred in Asia, and particularly in China, with India and Brazil also standing out among emerging and developing economies. Global investment trends show that, while investments have shifted away from Europe since 2011 to the East Asia Pacific region and particularly to China, there is yet largely untapped potential in many developing and emerging economies (IRENA, 2018).

Modelling for Vietnam has indicated that there is potential to largely replace jobs in the fossil fuel sector with jobs in clean energy over the long term (Institute of Science, Labour and Social Affairs, 2019). This modelling has indicated that an effort to shift from fossil fuels to renewables between 2020 and 2030 in Vietnam would create roughly 120,000 additional renewable energy jobs (direct, indirect, induced) while coal and gas jobs would fall by roughly 94,000. Additional studies in Vietnam have also shown significant increases in renewable energy jobs that help to make up for losses in fossil fuel jobs when commitments are made for a low-carbon transition (Sauerborn et al., 2019). For wind and solar in particular, a factor of more than two can be applied to the number of jobs created through coal power, per MW capacity. In short, there are more than double the number of jobs per MW capacity for wind and solar compared to coal.

There are many challenges to upscaling renewable energy in emerging and developing economies, such as underdeveloped capital markets, uncertain regulatory or policy frameworks, grid management issues, the need for a skilled (or reskilled) labour force and trained workers, and the requirement to plan a just transition to protect fossil fuel workers and communities from a downturn in demand. Yet, if well planned and aligned with just transition principles, the development of renewable energy can lead to many co-benefits, including reduced air pollution, access to decent green jobs, increased energy security for countries that import a large share of fossil fuels, and improved energy access. India, in particular, is an interesting case study of a country that has considerably expanded its renewable energy capacity in a short time span and can share important lessons with other developing and emerging economies.

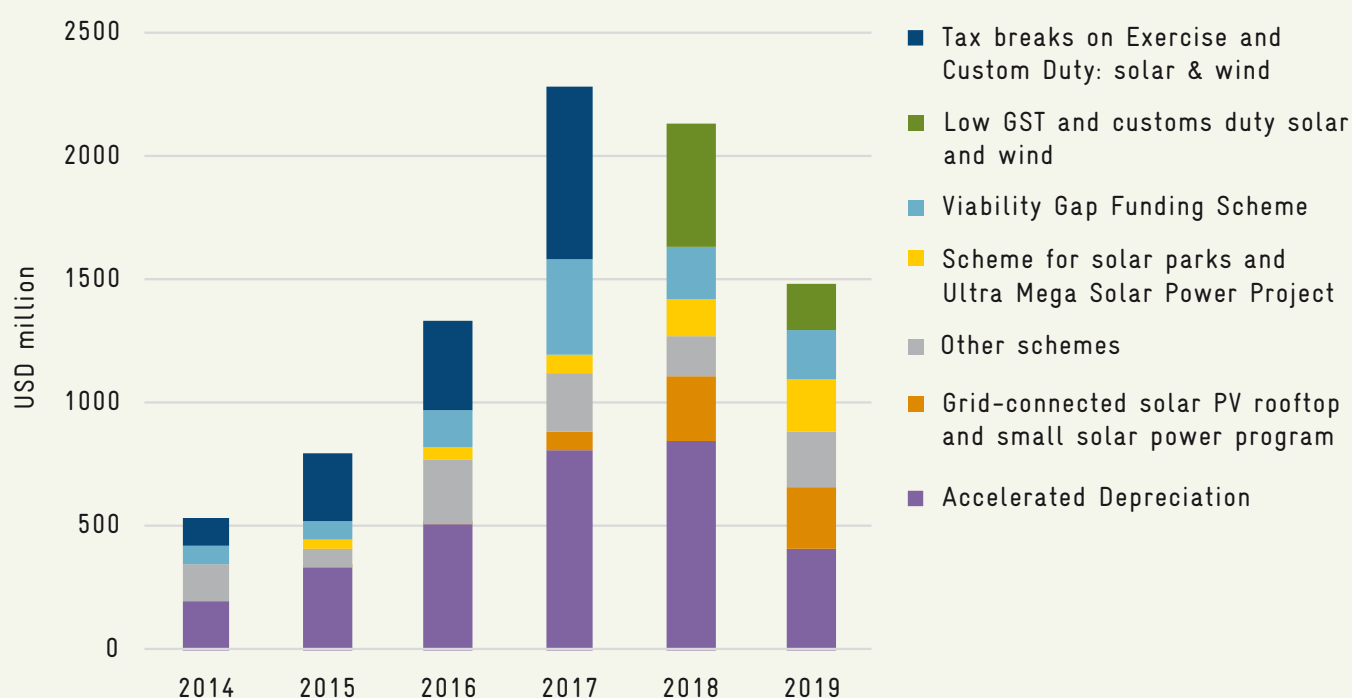
2.3.1 Development of Renewable Energy in India

India has set an ambitious target to reach 175 GW of renewable energy by 2022, which it pledged to further increase to 450 GW at the 2019 UN Climate Summit (Farand & Sauer, 2019; United Nations Framework Convention on Climate Change [UN-FCCC], 2015). As part of its NDC, the government also committed to reducing the carbon intensity of its GDP (measuring emissions per unit of GDP) by 33%–35% by 2030 compared to 2005 levels (UN-FCCC, 2015). A marginal share of the electricity mix a decade ago, renewables now account for 81 GW of installed capacity or about 22% of India's generation mix (Central Electricity Authority, 2019). In India, renewables also present many health and environmental benefits. A 2018 study led by the Health Effects Institute (2018) has shown that coal is responsible for approximately 1.3 million deaths per year, in large part due to respiratory and other illness associated with pollution from coal-fired power plants. There are further estimates that, by eliminating harmful emissions from power plants, 11 million years of life could be saved in India (Gao et al., 2018). Achieving

the 175 GW target further offers the potential to create up to 1 million direct and indirect green jobs by 2022, which could absorb a portion of the informal workforce (Kuldeep et al., 2019). These narratives are central elements to ensuring a just transition in India.

To this end, the GoI has set specific incentives with a dedicated Ministry of New and Renewable Energy (MNRE) to accelerate renewable energy development. These incentives (see Figure 10) are wide ranging (Thapar et al., 2016) and include accelerated depreciation, where, since 2018, a depreciation of 40% annually can be claimed for investments made in solar and wind energy projects; a Viability Gap Funding scheme of up to 30% of the project cost, where a capital grant is provided by the government for renewable energy projects that are not financially viable; and other more recent measures, such as a grid-connected solar PV rooftop and a small solar power program to increase the use of decentralized renewable energy (DRE) for agriculture and households (Garg et al., 2020; Gonsalves, 2018; Shrimali, 2018; Soman et al., 2018). A host of other subsidies exist at the state level,

FIGURE 10
CENTRAL GOVERNMENT SUPPORT TO RENEWABLE ENERGY (USD MILLION) 2014–2019



Source: Garg et al., 2020.

such as net metering (where consumers are compensated for the surplus power they generate), FiTs, and other tax and duty exemptions (Shrimali, 2018).

Reverse auctions were also introduced to considerably increase the cost competitiveness of renewable energy. Reverse auctions are different from other auctions in that they encourage bidders to propose the lowest price for electricity for renewable energy projects (Cozzi, 2012). By gradually shifting to reverse bidding, the cost of renewable energy was considerably reduced. In 2018, utility-scale solar tariffs were in the range of USD 3.6 cents to 5.3 cents per kilowatt-hour (kWh) (Altenburg & Assmann, 2017; Bridge to India, 2019). Reverse auctions also eased the financial burden of the government, which was subsequently able to reduce FiTs.

The GoI finally used green fiscal policy to increase the funds available for renewable energy projects. In 2010, India introduced a Clean Energy Cess on coal (a tax on coal production earmarked for research and development of clean energy), which started at USD 0.8/tonne in 2010 and reached USD 5.9/tonne in 2017–2018 (the equivalent of a carbon price of USD 4/tonne) (Gerasimchuk et al., 2018). The tax was levied on the dispatch of lignite and coal production and was meant to increase its costs for producers and earmark a certain portion of its revenues to fund research and development in clean energy projects as part of its National Clean Energy and Environment Fund, although revenues are no longer earmarked for this purpose. In total, it generated nearly USD 12 billion in revenue between 2010 and 2018 (Gerasimchuk et al., 2018).

In order to further mobilize public and private finance, the GoI developed the Indian Renewable Energy Development Agency. It provides key financing for renewable energy projects through low-interest rates, soft loans, and green bonds, the latter financing renewable energy projects up to a value of almost USD 7 billion as of August 2019 (Gupta, 2020).

However, one of the main challenges of scaling up private finance remains the high cost of debt and the lack of long-term debt financing, which increases the cost of renewable energy financing by 24%–32% compared to costs in Europe and the United States (Shrimali, 2018). In order to overcome these barriers,



Shrimali (2018) suggests several solutions. These include developing a foreign exchange hedging facility to reduce exchange rate fluctuation costs, increasing payment security mechanisms as a guarantee that payments under power purchase agreements are delivered on time, and developing innovative financial instruments, such as mutual funds and partial credit guarantees.

Although renewable energy has flourished in many southern and western states that have large wind and solar potential, this has not been the case in central and eastern states such as Jharkhand, Odisha, West Bengal, and Chhattisgarh, which have lower renewable energy potential and a higher dependency on coal. This geographical mismatch is particularly relevant for a just transition, since eastern states also tend to have lower income levels than western states (World Bank, 2018). This means that renewable energy jobs will not benefit Indian states equally and that lower-income eastern states might be disproportionately left out. As will be mentioned in the sections below, enabling policies for renewable energy should not only be evaluated based on their potential to increase installed capacity. Such policies should be coupled with reskilling and retraining, provide decent green jobs, not lead to green land grabs (where land required for renewable projects is acquired without consent from adjacent communities), and consult with labour unions and fossil fuel workers that are most at risk.

BOX 2

SHARED LESSONS FROM SENEGAL

In a short time span (2016–2017), Senegal has increased its renewable energy electricity generation through the opening of new wind farms and solar parks. In the case of solar, it moved from 18 GWh in 2015 to 137 GWh in 2017 (IEA, 2018). While Senegal's 2017 renewable energy electricity generation stood at 12% of its electricity mix, the country seeks to boost this to 30% by 2025 as part of its National Action Plan for Renewable Energies (Ba, 2018; IEA, 2018).

Senegal has a window of opportunity to increase its energy security by reducing its oil imports while decreasing its energy sector emissions, the second-largest source of GHG emissions after agriculture (Ministry of Environment and Sustainable Development of Senegal, n.d.). Currently, Senegal is still mired by a high energy-dependency rate⁵ that reached almost 60% in 2011 (UNEP, 2014). Oil use in diesel power plants accounts for more than 80% of Senegal's current electricity generation (IEA, 2018). Senegal's government is keenly aware of the need to increase energy security, a key priority of the country's 2019–2023 Plan Emergent (Government of Senegal, 2018). The high reliance on imported oil for electricity generation is one of the reasons why Senegal has some of the highest electricity prices in West Africa (Proparco, 2017). To cushion the effect of these high prices on consumers, according to the IMF, the government spends about 2% of its GDP on energy subsidies (IMF, 2019). Redirecting these subsidies to incentivize DRE is one promising avenue for future reform.

The discovery in 2014 of significant offshore oil and gas reserves poses a risk that the government will seek energy self-sufficiency through increased oil and gas production (Ward, 2018). However, in the context of the current COVID-19 pandemic, any future investments in Senegal's offshore oil and gas projects remain highly uncertain (Africanews, 2020).

The benefits of scaling up renewable energy in Senegal are wide ranging. A sustainable asset valuation assessment of the N'Diaye wind farm led by IISD shows that, in contrast to oil and coal, which have leveled costs of electricity (LCOE) of CFA 155,728 per MWh and CFA 52,998 per MWh, respectively, wind energy has the most attractive LCOE standing at CFA 43,266 per MWh (Bassi et al., 2019). Compared to a coal-fired power plant with the same electricity generation capacity of 158.7 MW, the N'Diaye wind farm creates six times more full-time-equivalent jobs per year (with 66 full-time-equivalent jobs per year across the life cycle of the project). However, there is currently no research examining how decent renewable energy jobs are compared to jobs in the coal, oil and gas industries or how the former might threaten the latter.

As a result, there are no just transition discussions as such in Senegal yet, and the inclusiveness of renewable energy is mostly seen in terms of its capacity to increase energy access, to create local economic multiplier effects, and to reduce energy costs, including in the informal sector (Coetzer et al., n.d.). Several projects, mostly donor financed, have already taken root at the community level, including with the creation of multi-services energy enterprises (enterprises that use renewable energy for various applications, such as solar-powered heat pumps and electricity sourced from solar or biogas) via KfW-, Proparco- or World Bank-led financing (Coetzer et al., n.d.).

While donor-based financing is one way for Senegal to meet its climate targets, it can also learn from India to develop more extensive green fiscal policies at home. Senegal has put in place certain incentives to scale renewable energy deployment, such as income tax exemptions of up to 30% for renewable energy investments or net metering (Gora, 2012). However, examining the case of Senegal more closely, Coetzer et al. (n.d.) argue that these subsidies could be complemented with other policies, such as reduced import duties for imported solar equipment that is currently prohibitively expensive for low-income households.⁶

Looking at international best practices, countries should strive to develop a more diversified mix of market-based and market-creating instruments, such as FiTs, direct grants, and green procurement, which will benefit a clean energy transition on multiple fronts by promoting innovation, reducing emissions, and potentially developing competitive domestic industries that can employ a higher share of the population (Jacob et al., 2015).

Scaling up private sector investment is also an area where Senegal can learn from India and where GDC has a role to play.

5 Energy-dependency rate is the proportion of energy that the economy must import, measured as net energy imports divided by gross available energy expressed as a percentage.

6 Positively, on August 5, 2020, the Ministry of Oil and Energy of Senegal announced that renewable energy equipment would be exempted from VAT, which is expected to reduce the acquisition costs of renewable energy equipment by 18% (Takoulev, 2020).

2.3.2 Policies to Enable a Just Transition for Renewable Energy Development

Renewable energy is one of the end goals for a just transition in the energy sector. There are a number of ways in which the shift from fossil fuels to renewable energy can be supported in a manner consistent with a just transition.

2.3.2.1 Sector Policies

In India, renewable energy subsidies increased almost six-fold between 2014 and 2017, from USD 431 million to USD 2.2 billion (Soman et al., 2018). However, despite some of the progress made in advancing FFSR, subsidies to fossil fuels still remain seven times higher than subsidies to renewable energy and electric vehicles (Garg et al., 2020). While India is far from being alone in providing fossil fuel subsidies, such subsidies provide an unfair playing field for renewable energy and are often highly socially regressive (Coady et al., 2019). In contrast, renewable energy subsidies tend to have higher social, economic, and environmental benefits in the long run when they are tied to performance standards and consider energy access and poverty issues (Grantham Institute, 2018). Like fossil fuel subsidies, renewable energy subsidies can come in various shapes and sizes, either as tax credits, direct grants, or other forms of support, such as for research and development, and play a key role in not only increasing the cost competitiveness of renewables vis-à-vis fossil fuels but also leading to clean innovation (Grantham Institute, 2018). However, as renewable energy reaches grid parity (when the LCOE from renewables is on par if not lower than that of fossil fuels), as is the case in India, it is important to review these subsidies to redirect them and incentivize other pressing domestic needs, such as to encourage grid balancing and the storage of renewable energy (Garg et al., 2020).

2.3.2.2 Employment and Labour Market Policies

From a just transition perspective, renewable energy jobs tend to be more labour intensive than fossil fuel jobs, both during the construction and installation (temporary jobs) and operations and maintenance (permanent jobs) phases (Blyth et al., 2014). It is also noteworthy that women compose, on average, a higher share of the workforce in the renewable energy sector (Blyth et al., 2014). Renewable energy jobs do

not necessarily require a completely new skill set; in certain cases, a top-up of an already existing skill set might be sufficient (Botta, 2018). The quality of jobs can depend on the type of work and is not uniformly better or worse than fossil fuel jobs, which come with their own risks (i.e., coal mining). However, as noted in the South Africa case study in the coal phase-out section of this report, there are local concerns about workers being shifted from highly unionized sectors to ones with less formalized employment.

In India, a study led by Kuldeep et al. (2019) shows that, from 2014 to 2019, the renewable energy workforce increased five-fold, from almost 20,000 to 100,000 direct workers. Achieving the 175 GW target by 2022 could increase the number of direct renewable energy jobs to 330,000 and create up to 1 million direct and indirect jobs (Kuldeep et al., 2019). Yet, to ensure a just transition, there are several challenges to overcome, including ensuring that renewable energy jobs are decent and provide community benefits. The government has to put in place inclusive training programs and provide alternatives to coal workers in eastern states, possibly outside the energy sector. The GoI's Skill Council for Green Jobs, created in 2015 by MNRE, already provides certain training programs for renewable energy jobs such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme, which provides certification and training, particularly for youth (Kuldeep et al., 2019; Ministry of Skills Development and Entrepreneurship, n.d.).

Focusing on off-grid renewable energy job promotion can also lead to wider community benefits. Based on interviews with stakeholders, training institutes, and employees, Jairaj et al. (2017) argue that off-grid renewable energy jobs, while currently less numerous, can provide decent social protection for workers through healthcare, social insurance benefits, OHS policies, and long-term contracts. By increasing DRE installation there is also an opportunity to increase community benefits, as DRE jobs tend to be more locally embedded (Dewan, 2015; Jairaj et al., 2017). It is also noteworthy that certain technologies, such as rooftop solar, are more labour intensive than utility-scale solar and wind projects (Kuldeep et al., 2019). Other applications of DRE, such as solar-powered charkhas (spinning wheels used for weaving), have

been particularly beneficial in rural areas. Pilot projects undertaken in Tamil Nadu and Gujarat show that this application of DRE has increased the labour productivity of weavers and their monthly wages by more than 200% on average (Clean Energy Access Network, 2019).

Considering that a high share of workers is unskilled, semi-skilled, and working in the informal economy, beyond increasing the number of DRE jobs, the GoI needs to emphasize more “learning by doing” rather than solely relying on formal training and apprenticeship programs. Some steps are being taken in this direction, with the PMKVY scheme, for example, which contains a prior-learning component that enables workers that have learned by doing to obtain a certification for their skillset and provides skill upgrading opportunities (Ministry of Skills Development and Entrepreneurship, n.d.). Developing social and poverty impact assessments to measure the impact of renewable energy jobs on poverty reduction and ensuring project developers disclose the number of renewable energy jobs created over time could also increase political support for renewable energy while ensuring community benefits (through enhanced community employment and disposable income) in a way that is aligned with a just transition (Jairaj et al., 2017).

Critically, awareness and sensitization to the availability of new renewable energy jobs are increasing in India. The development of CLEAN in 2014 and the Surya Mitra mobile phone application are good examples. The former is composed of both renewable energy companies and training institutes and enables employers to post job openings (Jairaj et al., 2017). The Surya Mitra mobile phone application works in a similar way by posting renewable energy job opportunities in each locality (Jairaj et al., 2017).

2.3.2.3 Process Management and Sensitization (Including Social Dialogue)

However, sensitization to a just transition specifically and the risks faced by workers and communities are still low. In India, the first step for policy makers would be to engage more actively with labour unions that represent fossil fuel and renewable energy worker interests, such as Bharatiya Mazdoor Sangh, Indian National Trade Union Congress, All India Trade Union Congress, and Hind Mazdoor Sabha (Zinecker

et al., 2018). Raising awareness among wider communities dependent on fossil fuel production, as well as those who could benefit from an increase in renewable energy development, should also be a key priority for the GoI, considering the high amount of indirect and induced jobs in these sectors.

2.3.2.4 Social Policies and Impacts on Workers, Communities, and Consumers

While enabling policies for renewables will be beneficial for western states, other social protection measures, such as unemployment insurance and adequate pension and healthcare schemes, among others, are necessary in order to protect coal workers at risk in eastern states. While coal workers affiliated with CIL benefit from high wages and social protection, the increasing shift to contractual labour since 2010 in order to decrease production costs poses a risk that, in the advent of job losses, an increasing number of workers will not benefit from adequate social protection measures (Bose, 2018). Ensuring contractual workers are not omitted from just transition considerations is key. The GoI has made some steps in that direction by planning to include 70,000 contractual workers under the Coal Mines Provident Fund Organization (the official pension scheme for coal employees at CIL) (ET Bureau, 2018). Yet, more can still be done to ensure contractual workers benefit from higher wages and safer working conditions. Some of the existing unemployment insurance schemes, such as the Rajiv Gandhi Shramik Kalyan Yojana scheme (unemployment allowance support), could also be expanded to include contractual coal workers most at risk. Cash transfers could be expanded in the event that such workers lose their jobs, as was the case with the closure of the Badarpur Thermal Power Station (Board HR, 2019). The adequate social protection of coal workers is particularly urgent, considering that some job losses are already occurring due to the mechanization of production. This is likely to increase in the future as coal becomes more stranded and uneconomical.

To ensure renewable energy projects do not face delays in their implementation and are accepted by adjacent communities, they also need to respect land rights and consult with local communities and villagers to avoid so-called “green land grabs.” In India, as in other emerging and developing economies, the construction of certain solar parks has not

always been aligned with such practices. For example, Yenneti and Day (2015) detail how the construction of the Charanka Solar Park in Gujarat faced delays in its implementation, as project developers did not consult sufficiently with local communities when implementing the project. As a result, the final installed capacity of 260 MW was half what it could have been. Additional sources (Viscidi, 2018) corroborate this point, arguing that the same project delays and community opposition have plagued wind development in the community of Oaxaca in Mexico. It is important to note, though, that consultation with local communities is not always sufficient due to the complex nature of land tenure regimes in several developing and emerging economies, which makes land acquisition particularly challenging. In India, this is still the biggest impediment to large-scale renewable energy development (Bajaj, 2019).

While resolving land access issues can be difficult in emerging and developing economies where land tenure is often complex, several solutions are possible. Some of these include enhancing community-led renewable energy projects that increase energy democracy and ensure that communities have a sense of ownership in the building of renewable energy projects. Germany's *Energiewende* is a good example where the remunicipalization of energy distribution in cities such as Berlin and Hamburg played a central role in the acceptance and diffusion of renewable energy technologies (Routledge et al., 2018). In emerging and developing economies, auctions for renewable energy development could set aside a certain percentage of the targeted generation capacity for community-led projects (Viscidi, 2018). Increasing off-grid targets and incentives, such as net metering for rooftop solar PV in India, could also achieve similar results (Bridge to India, 2019). Striking a balance between on- and off-grid renewable energy incentives is important from an equity standpoint. Off-grid renewable energy subsidies can increase energy access and reduce energy poverty, particularly in remote rural regions where grid extension is more complex.

2.3.2.5 Impacts on Investors and Companies (Including Stranded Assets)

FFSR is one way to enable more renewable energy investments and create more policy certainty. Apart from India, in Indonesia, one of the major roadblocks to renewable energy advancement remains the lack

of favourable pricing for renewable energy and the uncertain regulatory environment, as the price for renewable energy generation is capped in a non-transparent way that is not profitable to project developers and does not take into account the environmental benefits of renewable energy (Bridle et al., 2018). In contrast, the Government of Indonesia still favours coal-fired power through several policies, including a coal price cap that ensures that coal sold to power plants cannot go beyond a certain price (Bridle et al., 2018).

2.3.2.6 Funding and Resources for a Just Transition

India's case study shows that one of the hurdles that remains in many emerging and developing economies is having access to long-term, low-cost debt in order to finance renewable energy projects. Geddes et al. (2018) show that state investment banks, in particular, have a major role to play in crowding in private finance by increasing private investor trust and de-risking renewable energy projects. In addition, state investment banks enable financial sector learning and provide technical and risk advisory services that can ensure that renewable energy projects are brought to completion. In Germany, KfW has played a major role in financing the country's *Energiewende* through USD 120-130 billion in funding from 2012 to 2017 (Scoones et al., 2015). Interestingly, the BRICS countries are now joining forces with the creation of the New Development Bank in 2015, which provides sustainable infrastructure financing to its member countries, including for renewable energy (Gerasimchuk et al., 2019).

Subsidy swaps, where the money from FFSR is redirected to finance renewable energy, is another way to fund alternative energy sources. Such a swap could result in savings for both households and the government. There will be savings for the government if the promotion of renewable energies is more effective and efficient than the subsidization of fossil fuels in order to achieve the defined goals in the area of energy access and socioeconomic development. For the Indian government, savings are estimated at almost USD 2 per month per household, if solar lanterns were to replace kerosene lighting sources (Laan et al., 2019). This policy would also reduce indoor air pollution by avoiding 4.4 million tonnes of imported oil (Laan et al., 2019).

2.4 Circular Economy and Waste Management

The circular economy has existed as a concept since the 1980s but has really gained traction in recent years (D'Amato et al., 2017). While there is no fixed definition of what a circular economy is, the most common definitions are those from the Ellen MacArthur Foundation and the Finnish innovation fund Sitra, which define it as a closed-loop economic model that, in contrast to a linear economic one, reduces waste and pollution significantly, decouples economic growth from GHG emissions, and enables the regeneration of natural ecosystems (Ellen MacArthur Foundation & McKinsey, 2015; Sitra, 2016; Wijkman & Skånberg, 2016).

An increasing number of studies show that, while difficult, such a shift can lead to many economic and environmental benefits (Dobbs et al., 2011). However, while there is a growing body of literature examining the economic impacts of a shift to a circular economy, few of these studies examine the circular economy in relation to a just transition and its social implications. This connection between the circular economy and a just transition is particularly relevant in emerging and developing economies where resource extraction employs a higher share of the population than in developed countries and where social policies and social protection can be less well developed. In order to be truly just, the transition to a circular economy will need to provide decent jobs to workers respecting the ILO's Decent Work Agenda, which emphasizes full and productive employment, rights at work, social protection, and the promotion of social dialogue (ILO, 2015).

While 24 million people work in the solid waste management and recycling sectors globally, around 80% of them do so in the informal sector with little or no social protection (Women in Informal Employment: Globalizing and Organizing, 2013). Informal workers are also not one of the three formal partners in just transition processes (employers, organized workers, governments), requiring a slightly different approach to transition plans for these workers. Many of these workers are exposed to dangerous working conditions and harmful chemical substances without access to the appropriate equipment to sort and recycle waste.

While there are many ways to explore the relationship between the circular economy in the waste sector and a just transition, this chapter will focus on Nigeria and the growing emergence of e-waste, along with the social challenges it poses. Nigeria is an interesting case study, as it has become one of the fastest-growing e-waste destinations in Africa. In the e-waste sector, the high level of informality and the low awareness of workers about the OHS risks they are exposed to makes the concept of a just transition particularly salient.

2.4.1 Creating a Socially Inclusive E-Waste Management in Nigeria

E-waste is one of the fastest-growing waste streams in the world, reaching 50 million tonnes in 2018 and projected to reach 52 million tonnes by 2021 (World Economic Forum, 2019). Only a fraction (20%) of that waste is currently recycled, with the remaining 80% undocumented, often resulting in landfills with serious detrimental health and safety outcomes for informal workers and the local population (Baldé et al., 2017). Open burning of waste is responsible for 260,000 premature deaths per year (Kodros et al., 2016).

The e-waste sector is also of particular relevance to a just transition, as it is emblematic of the asymmetric trade relationship that can exist between developed and developing countries. Baldé et al. (2017) show that the vast majority of e-waste is generated and exported by developed countries while developing and emerging economies are those importing the highest amounts. As an order of comparison, countries in Europe created, on average, 16.6 kg of e-waste per inhabitant in 2016, which is almost nine times more than what was created in Africa during the same year (Baldé et al., 2017). While this general trend remains accurate, it is important to caution that, with growing urbanization and populations, several developing and emerging economies are seeing increasing domestic e-waste generation as well (ILO, 2014).

Nigeria is the third-largest e-waste destination in Africa, after Egypt and South Africa, generating and absorbing (from domestic and imported sources) 277,000 tonnes of e-waste in 2016, with large volumes of that waste coming from abroad (ILO, 2019b). While Nigeria is one of Africa's fastest-growing econ-

omies, accounting for almost 30% of the continent's GDP, it is also marked by high inequality, with a Gini coefficient that is above the sub-Saharan African average and an unemployment rate of almost 19% in 2017 (African Development Bank, 2018; Deloitte, 2014; National Bureau of Statistics of Nigeria, n.d.; Oxfam, n.d.). This high unemployment rate is, among other factors, linked to a skill supply and demand mismatch with too few jobs being created in the formal sector and a lack of people with the right skills to fill these jobs (ILO, 2019b). As a result, the economy is characterized by a high level of informality: about 80% of workers in the waste sector operate informally (ILO, 2019b).

Up to 100,000 workers are thought to work in the e-waste sector, with many more indirect and induced jobs in surrounding communities for the supply of food and water and assisting in transporting e-waste scrap to waste recyclers (ILO, 2019a; Ogungbuyi et al., 2012). Jobs in the e-waste sector can vary, including occupations such as waste collectors, recyclers, repairers/refurbishers, distributors, and final disposers. While poor working conditions and a high level of informality tend to characterize Nigeria's e-waste sector, it is important to make distinctions between different types of e-waste occupations (ILO, 2019b). Refurbishers tend to be the most highly skilled and educated, with a higher share of formal workers. Their work is also highly specialized and consists of repairing used electronic devices. In contrast, collectors and recyclers mostly work in the informal economy and can face hazardous working conditions, especially recyclers who dismantle e-waste in order to extract valuable materials such as aluminum, copper, and steel.

Nigeria is an early mover on the continent in terms of acknowledging the challenges posed by a growing e-waste sector and a need for stronger practices to protect health, environment, and safety. Municipal solid waste management efforts began as early as the 1980s with the creation in 1988 of the Federal Environmental Protection Agency (Mbah & Nzeadibe, 2016). With the change from a military to a democratic regime in the 2000s, the Federal Environmental Protection Agency was subsumed into the Federal Ministry of Environment. Progress on the legislative front has been made, including the 2011

passing of the National Environmental Regulations for the Electrical and Electronic Sectors. This legislation was the first of its kind to specifically address e-waste and to embody the circular economy and life-cycle approaches. This legislation also complies with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes that bans the imports of used electrical and electronic equipment that is not functional (Institute for Environment and Human Security, 2018).

Nigeria's 2011 legislation was a stepping stone for the adoption in 2016 of an EPR scheme requiring electronic producers to take into account the disposal of their products in their business models by developing schemes such as mandatory take backs, recycling fees, or fees on disposal (Wellesley et al., 2019).

Yet, Nigeria's case study shows that enacting legislation to push for circular economy adoption and to reduce waste is not sufficient on its own. Capacity development, training, and cooperation among different actors are key to reinforcing the ability of central and local governments to track and manage e-waste. Capacity development can also be a way to ensure safer and more decent working conditions for informal workers.



BOX 3

AN EXAMPLE OF CAPACITY DEVELOPMENT FOR E-WASTE WORKERS IN GHANA

Partnering with the Ghanaian Ministry of Environment, Science, Technology and Innovation, GIZ conducted activities in Ghana to improve sustainable e-waste management from 2016 to 2020 (GIZ, n.d.). Commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), this project enhances the government's capacity to implement e-waste legislation and supports the dissemination of best waste management practices in the informal sector.

While GIZ's 2019 e-waste training manual is tailored to Ghana, its recommendations are applicable to countries such as Nigeria. Some of GIZ's recommendations include extracting cooling gases before dismantling fridges for recycling, using cable strippers (one of the least costly options) to recover copper and plastic from cables as opposed to open cable burning, or selling printed wired boards to metal refineries and smelters rather than resorting to chemical leaching (GIZ, 2019). In order for these recommendations to be adopted at a grassroots level, it is essential to develop awareness-raising campaigns to ensure that workers know about these best practices; have access to protective equipment; and learn how to mitigate environmental, health, and safety risks (GIZ, 2019).

2.4.2 Policies to Enable a Just Transition in the Waste Sector

Waste management is one of the sectors that potentially changes the most under a transition to a green, low-carbon economy. Critically, worker, industry and stakeholder impacts must be considered when there is a push for efficiency and waste reduction in the sector and a shift to complicated new subsectors like e-waste management.

2.4.2.1 Sector Policies

There is a host of supportive sector policies that Nigeria and other emerging and developing economies could adopt to encourage a just transition in the e-waste sector. These can include combating planned obsolescence (where products are designed to have a lower lifespan), such as France did in 2015 (ILO, 2019a). This could be useful in Nigeria, where many electrical and electronic products have a very short lifespan (Obaje, 2013). Other policies could include buy-back schemes to ensure consumers can return electronic products to producers, developing reverse logistics infrastructure to send materials back into production once products have reached their end of life, and selling electronic products as a service (World Economic Forum, 2019). These latter policies could be particularly useful in Nigeria as the domestic demand for electrical and electronic devices increases in the future.

2.4.2.2 Employment and Labour Market Policies

Some of the jobs created, particularly for refurbishing and remanufacturing, can be good and decent jobs, and they usually require TVET. A study conducted

by RREUSE (2015) shows that, for 10,000 tonnes of material waste, one job can be created for incineration, six jobs for landfill, 36 for recycling, and up to 296 for refurbishing and reuse. Similarly, Sampson (2015) reveals that, for every 1,000 tonnes of e-waste processed, 200 jobs can be created in repairing in contrast to 30 jobs created in landfilling.

Job creation, even in the advent of circular economy adoption, does not happen in a policy vacuum. Ensuring workers are aware of the required skillset for different waste management jobs is a first important step to avoiding a skills shortage. France did precisely this by developing an inventory of the skills needed for different waste sector jobs (ILO, 2018). GDC's integrated approach to employment promotion (GIZ, 2016a) could serve as a guide to promoting targeted labour demand and supply policies. Such policies could be beneficial to SMEs like Green Compass Recycling, which works in Nigeria to increase the formalization of workers in the e-waste industry while respecting circular economy principles. It enhances TVET opportunities, learning by doing, and access to capital through reducing bureaucratic hurdles (Sunray Ventures, n.d.). Such an approach would also serve as a basis to create more decent green jobs and protect a higher number of e-waste workers.

Government-backed waste management projects can lead to the creation of many direct jobs. The opening of Rwanda's first e-waste dismantling and recycling facility in 2017 led to the creation of 1,000 formal jobs while enabling the processing of 7,000 tonnes of e-waste per year (Wellesley et al., 2019). Similarly,

the establishment of an e-waste recycling facility in Nairobi in 2013 through a public-private partnership between the government, Hewlett-Packard, and recycling experts led to the creation of 2,000 decent jobs where workers had access to training, equipment, and fair wages (Fox, 2014). In Nigeria, the opening of Hinckley Recycling, the first e-waste recycling facility in the country, has also facilitated the absorption of informal workers into its business operation (Uwaegbulam, 2018).

While formalization can be aligned with a just transition, it is important that it does not displace informal workers. Creating linkages between the informal and formal sectors may be more desirable in many developing and emerging economies. In India, where 95% of e-waste is collected informally, Chintan (a local non-governmental organization) has partnered with GIZ and other private and public groups to advocate for the gradual formalization of e-waste workers (ILO, 2014). In order to achieve this, it has supported the organization of informal e-waste workers into groups while developing capacity-development workshops and supporting inclusive e-waste legislation.

Another relevant aspect to consider for employment and labour market policies is which waste management model is best suited to deliver decent working conditions and offer employment opportunities that are aligned with a just transition. Research shows that, in some cases, public rather than private-led models of waste management can be more effective while providing more decent jobs. In Germany, the remunicipalization of waste management services led to an improvement in working conditions and longer-term contracts while lowering waste collection prices for consumers (Weghmann, 2017). While it is clear that many developing and emerging economies do not have the same level of funding and capacity development in their waste management services, lessons from Europe can be useful in order to consider which waste management model may be most appropriate, given the local context.

Finally, it is important for policy makers to develop a holistic approach to waste management and recognize the importance of the informal sector. In Nigeria, informal e-waste recyclers have yet to be fully integrated into municipal solid waste management

(Mbah & Nzeadibe, 2016). Developing a human rights-based approach is one way for the state to require that companies using the services of informal workers provide them with decent wages and social security (Jallow, 2017).

2.4.2.3 Process Management and Sensitization (Including Social Dialogue)

The lack of capacity development is not the only roadblock to implementing a just transition in the waste sector. There is also a need in Nigeria for policy makers to develop a more extensive social dialogue with the informal sector and, particularly, to inform workers about the OHS risks they are facing. A research study conducted in 2017 (Ohajinwa et al., 2017) reveals that 88% of e-waste workers could not mention a single harmful chemical substance in e-waste, and only 12% had knowledge about OHS issues.

Social dialogue should also involve consumers. Developing adequate waste treatment infrastructure could increase consumer awareness, thereby reducing the amount of e-waste that is improperly handled and that goes to the landfill (Nduneseokwu et al., 2017). The lack of representation of informal workers in labour unions or cooperatives is also of concern for a just transition. Mbah and Nzeadibe (2016) note that, while certain informal associations do exist, such as the National Association of Scavengers, which seeks to enhance the status of informal waste pickers, few actually have any connections with formal labour unions, such as the Nigeria Labour Congress. Some exceptions exist for higher-level waste activities, such as repair and refurbishing, which include the Nigeria Association of Refrigerator and Air-conditioning Practitioners and the National Electronics Technician Association of Nigeria (ILO, 2019b).

Multi-stakeholder coalitions can also play a role in building partnerships between governments, civil society, and the private sector while sharing lessons on how to promote decent jobs and a just transition in the waste sector. The 2018 UN E-waste Coalition, which was endorsed by seven UN agencies, including the ILO, the UN Industrial Development Organization, UNEP, and the Secretariats of the Basel and Stockholm Conventions, is one example that supports the development of formal waste collection systems and waste treatment infrastructure (UNEP, 2019b).

Other multi-stakeholder coalitions include the United Nation's Solving the E-waste Problem (StEP) Initiative or the Basel Convention Coordinating Centre for the African Region (United Nations University, 2018).

2.4.2.4 Social Policies and Impacts on Workers, Communities, and Consumers

Joining cooperatives is one way for informal waste workers to increase their visibility and social protection. In doing so, they can increase their bargaining power vis-à-vis private or public service providers, ensure they are included in decision-making processes, and increase their incomes (Wilson et al., 2006). In turn, cooperatives increase the social protection of their members by negotiating better working standards, fighting for higher wages for workers through collective bargaining and better prices, and enshrining workers' rights into legislation.

In Colombia, after years of advocacy, the National Association of Recyclers was able to obtain recognition in 2009 from the government, which granted its members the right to sort and recycle waste (ILO, 2014). After their recognition, in 2013 the government started remunerating informal waste pickers, who are now registered as public service providers. Similarly, in Brazil, through its advocacy, the National Movement of Recyclers (which has 600 members and provides jobs to more than 80,000 recyclers) was able to include informal workers in the country's 2010 National Solid Waste Policy (ILO, 2014). As a result, informal waste pickers obtained formal recognition from the government. The other added benefit of cooperatives is that they can negotiate better prices for the waste they sell to waste traders (ILO, 2014). By joining cooperatives, informal workers can obtain a higher income while the cooperative retains funds to train its members, provide equipment, and increase their members' awareness of the OHS risks they face.

2.4.2.5 Impacts on Investors and Companies (Including Stranded Assets)

One of the major roadblocks so far in Nigeria remains the low enforceability of waste sector laws. The lack of implementation is linked to several factors, including low fines, corruption, low financial resources and knowledge on how to tackle these issues within

environmental enforcement agencies, incomplete data on waste management activities, and missing policy coordination and implementation at lower government levels (Ladan, 2015).

Despite many of the challenges noted above, progress has increased in recent years, although it has been somewhat more led by the private sector than the public sector. One example, Sunray Ventures, is an African venture builder that created Green Compass Recycling (Sunray Ventures, n.d.). So far, the company has formalized about 40 informal waste collectors by providing them decent wages, access to bank accounts, and safe working conditions (ILO, 2019b). The company also seeks to promote vocational training and educational assistance to its members and their relatives but has faced challenges in upscaling its work due to the lack of enforcement of legislation and e-waste data.

At the government level, some progress is also noticeable, such as the opening of the first formal e-waste recycling facility in 2018 in Lagos (Okeke, 2018). In 2019, the government also collaborated with UNEP and the Global Environment Facility as part of a USD 15 million project to work with the private sector and civil society to accelerate the deployment of EPR, to better dispose of toxic e-waste, and to share best practices with other African countries (UNEP, 2019a).

2.4.2.6 Funding and Resources for a Just Transition

There are multiple ways emerging and developing economies can finance a just transition in the waste sector. One way is mentioned above in the case of Nigeria: countries can partner with national or multilateral development banks in order to access innovative funding, such as impact financing, that can scale circular economy and fund recycling and capacity-development projects (UNIDO, 2019). Development cooperation aid can also be tied more closely to financing inclusive waste management infrastructure. In other words, a higher proportion of development aid that is geared toward waste management financing in developing countries could be tied to a just transition and inclusive waste management by conditioning such aid to the protection of workers through minimum wages, labour standards, and other forms



of social protection. The EU's ongoing SWITCH-Asia program, for example, funds various circular economy projects, including supporting SMEs to integrate eco-labelling and environmental management schemes and resource efficiency in the construction and food industries (Adephi, 2018; SWITCH-Asia, n.d.). Scaling up circular economy measures in the waste sector also means ensuring SMEs have access to funding, which remains a challenge in many countries (Wellesley et al., 2019).

Much can also be done at the domestic level. Fiscal policy can be used as a means of mobilizing domestic revenues. As an example of fiscal policy linked to the circular economy, waste collection charges or other environmental taxes (including carbon taxes) can also be partially or fully earmarked to train informal workers to adopt circular practices and to increase the budgets of environmental agencies (Altenburg & Assmann, 2017). In Ghana, the EPR scheme is intended to finance a recycling fund, which, if successful, should increase recycling rates for various materials (Linnenkoper, 2019). Yet it remains to be seen how this fund will be effective and distribute revenues. Similarly, in China, the government has given value-added tax (VAT) rebates to companies that have higher recycling rates (World Business Council for Sustainable Development, 2019). In order to make fiscal policy more aligned with a just transition, policy makers could redirect the proceeds from such taxes not only to increase recycling rates but also to support the better inclusion and protection of informal workers.

2.5 Agriculture and Land Use

Agriculture, including livestock, represents about 14% of global emissions and land-use change about 18% (with about 75% of emissions from land-use change attributable to agriculture) (Caldecott et al., 2013). The need to change agricultural practices is particularly urgent, considering how agriculture has evolved over the last decades, with the world's cultivated areas growing by 12% over the last 50 years and agricultural production increasing by nearly three times during the same time period due to yield-enhancing technologies (Caldecott et al., 2013).

Although this expansion is necessary to meet growing food demand as populations grow, particularly in emerging and developing economies, over-investments in large-scale agriculture have also come at a hefty cost. Currently, about 70% of all water from aquifers, streams, and lakes and 37% of land is used for agricultural purposes (including livestock). Small-scale farmers find it increasingly difficult to compete on the international market (Anderson, 2019; Caldecott et al., 2013; World Bank, 2019b). It is also important to ask how the shift from one mode of production to another will impact workers, communities, and consumers. The impact of a shift to sustainable agriculture is particularly relevant for a just transition, as agriculture is more labour intensive than the energy or transport sectors, employing around 1 billion people globally (UNFCCC, 2016). While transforming the agricultural sector in a socially just way has implications in many emerging and developing economies, this chapter will focus on Bangladesh while also drawing lessons from other countries.

2.5.1 Transforming the Agricultural Sector and Rice Cultivation in Bangladesh

Bangladesh is a particularly relevant case study for a just transition, as it is one of the most agriculture-intensive countries in South Asia (Tisdell et al., 2019). Rice cultivation contributes to about 48% of total rural employment, and agriculture represented 13% of GDP in 2018 (Food and Agriculture Organization of the United Nations [FAO], 2018; World Bank, 2019a). However, Bangladesh's agricultural model, which is over-reliant on rice cultivation, has also increased water scarcity and threatened the livelihoods of farmers. As farmer incomes and agricultural yields decline, just transition policies and more sustainable agricultural practices are needed to protect farmers at risk and diversify Bangladesh's agricultural production.

Bangladesh's high agricultural intensity can be traced back to the government's 1970s policy of achieving self-sufficiency in rice in order to ensure food security for its population (FAO, 2018). In order to achieve this objective, the government's main approach consisted of developing new varieties of high-yield variety rice and embracing the principles of the green revolution (FAO, 2018).

As a result of these policies, the application of chemical fertilizers rose drastically from less than 10 to more than 238 nutrient kg per hectare of the net-cropped area from the 1970s to 2017 (Tisdell et al., 2019). Similarly, the application of pesticides to crops grew from 234 g per hectare in the late 1990s to 375g in 2017. In 2018, almost 75% of Bangladesh's cropland was devoted to rice cultivation. In addition, with the onset of the green revolution, the government heavily subsidized agricultural inputs and credit and developed irrigation systems that favour rice cultivation (FAO, 2018). While reducing food insecurity and providing reliable wages for rural workers, in the long run, these policies have also exacerbated water insecurity, leading to increased groundwater usage, reduced crop diversification, and the increased dependency of many households on rice cultivation (Tisdell et al., 2019).

As the environmental and economic sustainability of rice yields is reaching its limits, a new agricultural production model is needed in Bangladesh to avoid threatening the livelihoods of the millions of small-

holder farmers that depend on rice production. The emergence of a middle class since the onset of the green revolution and a shift in consumer food preferences has led to some crop diversification (Tisdell et al., 2019). However, more efforts are needed to shift away from the mechanization and specialization of agriculture. Although there is no single way to achieve this goal, several measures are possible, including favouring crop diversification and rotation or developing more holistic forms of integrated farming, such as combined aquaculture and rice farming, which work in symbiosis to reduce input costs to farmers while increasing soil quality (Islam, 2016). Numerous studies, including research by Solidarités International (2017), show that integrated farming increases not only agricultural production but also agricultural diversity in the long run. Agroecology is also aligned with circular economy principles where waste, such as crop residues or animal waste, can be recycled and used as an organic fertilizer.

Despite the knowledge of other sustainable farming techniques, many barriers exist. Beyond the high initial capital costs and low government support for such new farming techniques, a shift in agricultural practices also has just transition implications (Solidarités International, 2017). Without the appropriate consultation with farmers and communities, these shifts can have detrimental socioeconomic outcomes. A good example occurred in Bangladesh in the 2000s when agronomists encouraged smallholder farmers to shift from rice to mango cultivation (Anderson, 2019). The belief at the time was that such a shift would be beneficial to farmers, as mango farming requires less labour and water and would thus reduce input costs to farmers. However, this shift was not well planned, as mango cultivation produces only one harvest per year in contrast to two for rice. Rice cultivation also has a higher share of women employed and is the source of many indirect and induced jobs in processing, marketing, and other secondary activities. While this shift has benefited certain higher-income farmers, it has increased unemployment for certain ethnic groups, such as the Oraon, who traditionally made their living as farm labourers or sharecroppers (Islam, 2019). It is also not entirely clear whether mango cultivation will remain profitable in the long run, as more farmers are lured by its prospects and as prices fluctuate on the international market (Financial Express, 2018).

Other shifts, such as the shift to aquaculture, could also prove detrimental to smallholder farmers or wage labourers formerly dependent on rice without the necessary just transition considerations. Research conducted by Gurung et al. (2016) in northern and southern Bangladesh using focus group discussions and surveys from 400 sample households reveals that commercial aquaculture farming mostly benefits higher-income groups that can afford the high initial investment costs. It is also less labour intensive than rice cultivation and has fewer community benefits, as it tends to increase inequality and lessen women's

participation in agricultural activities. In order to ensure that such an agricultural transition is more equitable and just, several recommendations are offered (Gurung et al., 2016). These include encouraging farmers to develop integrated farming techniques to increase their land productivity, food security, and income; ensuring lower-income farmers have better access to credit to overcome the high initial investment costs; and that farmers at risk receive targeted training, including field demonstrations, farmer-to-farmer extension, or the adoption of new technologies through women's groups.

BOX 4

Vietnam's AGRICULTURAL SECTOR IN COMPARISON TO BANGLADESH

Similar to Bangladesh, Vietnam is also a country where rice production plays a very important role in the agricultural landscape. Starting in the 1990s as a means of promoting agricultural exports, the government developed restrictive land-use policies that designated much of the country's irrigated lowland areas for rice cultivation (World Bank, 2016b). Although the expansion of rice as a staple crop has also been key to reducing food insecurity and enable its consumption at affordable prices, its expansion has come at a high environmental cost, with the heavy use of fertilizers and agro-chemicals, and increasing water scarcity.

Partly as a legacy of such policies, Vietnam's agricultural productivity and growth rate have been declining in recent years. Rice monoculture no longer provides a reliable source of income for many smallholder farmers, who have turned to non-farm activities (World Bank, 2016b). Vietnam has also reached a large rice export surplus, which means the time is potentially ripe to diversify its agricultural production. Aware of these challenges, the government has acknowledged the issues facing the agricultural sector. In its 2013 Agricultural Restructuring Plan, the government developed a roadmap that embodies just transition principles (such as creating decent jobs and increased incomes for farmers) by seeking to develop a triple bottom line, where environmental, social, and economic goals are fused together. These objectives are also emphasized in Vietnam's more recent 2017 Agricultural Restructuring Plan (Ministry of Agriculture and Rural Development of Vietnam, 2017; Prime Minister of Vietnam, 2013).

While it remains to be seen how these plans will play out in practice, it is noteworthy that they seek not only to improve the management of resources and agricultural productivity but also to ensure farmers have decent jobs. As part of this strategy, the government has enacted certain policies to enable crop diversification, such as Decree 35 on the Management and Use of Paddy Land in 2015, which enables farmers to convert some of their paddy lands for the cultivation of crops other than rice (Socialist Republic of Vietnam, 2015). The more up-to-date 2017 Agricultural Restructuring Plan, which runs until 2020, also includes targets to retrain workers for organic farming while seeking to limit the use of pesticides and encouraging crop diversification. However, in the long run, more efforts will be required for farmers to develop the knowledge to enter new product markets. Interviews with GIZ staff also indicated that the notion of green growth is well known in Vietnam, while the notion of a just transition is relatively new. Leveraging the experience on green growth could be a bridge to just transition considerations in agriculture and other sectors.

2.5.2 Policies to Enable a Just Transition in the Agricultural Sector

A just transition in agriculture needs to ensure that food production is prioritized in ways that are sustainable for future generations. Workers and companies involved in food production need support to pursue sustainable production practices that also deliver on goals related to a just transition, including providing decent employment and low-carbon development.

2.5.2.1 Sector Policies

Beyond crop diversification and integrated farming techniques, there are many other policies that developing or emerging economies such as Bangladesh can use in order to support a just transition in agriculture. Farming cooperatives are an example whereby farmers form associations, similar to labour unions for fossil fuel workers, that play a key role in supporting farmers and surrounding communities to access inputs, finance, know-how, and the ability to enter new markets at better prices (UNFCCC, 2016). In the United States, the National Family Farm Coalition is a good example of a cooperative that has challenged the notion that protecting the environment is detrimental to farmers (Anderson, 2019). The National Family Farm Coalition has been active since the 1980s, supporting policies consistent with a just transition and incentivizing small and medium-sized farmers to develop organic and agroecology practices. It is important to recognize that cooperatives may not always represent the interests of all farmers, as they sometimes align with agribusiness interests and crowd out small and medium-scale farmers in the process.

Similar to farming cooperatives, there are a multitude of public and private sector-led initiatives and policies that can support a just agricultural transition, including contract farming, agro-based cluster development, eco-certification or eco-labelling schemes, and multi-stakeholder approaches to farming, to name only a few (World Bank, 2016b). Contract farming enables farmers to better connect with food processing and trading firms in order to both reduce transaction and input costs and ensure farmers can meet more stringent environmental and social consumer standards. By building long-term contracts in advance, contract farming also enables smallholder farmers to be better connected to international markets and

increases the predictability that they will be able to sell their products at fair prices. Agro-based clusters are similar to contract farming but somewhat more extensive, as they seek to increase the connections between all actors within the agricultural value chain in a spatial context. In these clusters, the public sector often has a more important role to play by supporting the development of such clusters through investments in research and development, human capital development, education and training, and industry collaboration.

Aligning mitigation and adaptation to climate change and income support efforts can be a way to develop effective sector policies. In Bangladesh, the World Bank has supported the 2015 National Agriculture Technology Program, which helps the government increase food security through crop diversification, increases the resilience of farmers to climate change, and gives farmers, including smallholders, access to more efficient and sustainable farming technologies (World Bank, 2016a).

At the international level, collaborative approaches, including multi-stakeholder taskforces, have a role to play. Similar to PPCA, there are also just transition coalitions in the agricultural sector, such as FOLU, which was created in September 2019 during the UN Climate Summit (FOLU, n.d.). This coalition, composed of governments, civil society, the private sector, farmer groups, and indigenous people, has endorsed a “Just Rural Transition” (essentially, agricultural practices consistent with a just transition), which seeks to attain food security by 2030 while developing more sustainable land-use and agricultural policies that support decent livelihoods and jobs in the rural sector (FOLU, 2019). The Just Rural Transition is a very new development and, to date, only a handful of countries have endorsed it, including Zambia, the United Kingdom, Togo, Switzerland, the Netherlands, Ghana, Ethiopia, and Colombia. Although FOLU is the first to explicitly mention a just transition, it was not the first coalition of its kind.

In 2009, New Zealand launched the Global Research Alliance (in the field of agriculture), which is also a collaborative task force composed of 61 member countries and which seeks to share lessons across countries, including efforts in research and devel-

opment and new technological developments such as breeding low-methane sheep and cattle (Global Research Alliance, n.d; Tyndall, 2015). The aim of this alliance is to reduce GHG emissions; the link to jobs and social aspects is less clear than in FOLU's 2030 vision statement.

2.5.2.2 Employment and Labour Market Policies

While agricultural shifts can be detrimental to rural employment if not well planned, such as in the case of the shift from rice to mango cultivation in Bangladesh, several studies show that organic farming can be more labour intensive than conventional farming (UNFCCC, 2016).

In India's Punjab state, organic farming uses more labour for several activities, including irrigation, fertilization, and plant protection, while not decreasing yields (Sharma & Pandove, 2010). Projecting the results obtained in Punjab to the rest of India (Sharma, 2011) shows that the shift to organic farming could create up to 2.68 million additional jobs in India. Similarly, in South India, organic farmers earn 200% more net income than farmers growing genetically modified cotton, linked to lower input costs with no need to purchase chemical fertilizers and pesticides (Tirado, 2010). In Bangladesh, integrated agricultural systems, namely rice-fish farming, are more labour intensive than monoculture rice farming, with a labour requirement of about 209 person-days/ha for the latter in contrast to 286 for the former (Islam, 2016). Rice-fish farming is also more conducive to decent green jobs, employing a higher share of women for operations such as feeding, supervision, feed preparation, and reducing income and food insecurity (Islam, 2016).

There are many other socioeconomic and environmental benefits to this type of integrated farming, including creating economic opportunities during lean agricultural seasons where fish farming can be practised more extensively, increasing food security and soil fertility, and supporting low-income farmers. Other economic models also confirm the findings of these studies. In Uganda, which has the largest organic farmland area in Africa, organic farming has not only reduced GHG emissions by 64% per hectare compared to conventional farms, it has also improved the incomes of many farmers who were able to sell to

the market at better prices – and food exports grew for the country overall (UNFCCC, 2016). At the global level, Herren et al. (2011) ran a macroeconomic model for green investments in the agricultural sector that reveals that sustainable agriculture could create up to 200 million full-time jobs worldwide across the entire food production value chain by 2050.

Yet, despite the promising results of these studies, it is important to caution that changes in agricultural practices will often require a transition period with initially lower yields for farmers and lower incomes. It is during this phase that just transition policies are particularly important.

In terms of employment and labour market policies, PWP's can also be very effective, as they can both provide income support to vulnerable groups and deliver public and environmental services, which increases benefits to surrounding communities and the wider economy (Györi et al., n.d.). South Africa's 2003 Climate Change Response Public Works Flagship Programme is a good example that sought to curb the country's rampant unemployment while offering decent green jobs in order to restore watersheds, establish community-based fisheries, develop on- and off-farm infrastructure, and rehabilitate degraded lands (Department of Environmental Affairs South Africa, n.d.).

2.5.2.3 Process Management and Sensitization (Including Social Dialogue)

There can be no just transition without social dialogue. Sensitization is a cornerstone element that ensures that stakeholders with different visions support a just transition roadmap. Research shows that policy makers that developed early communication and campaigning strategies have been more successful in getting these measures accepted by the public (Zinecker et al., 2018). However, in order to develop effective sensitization and communication strategies, it is central for policy makers to map the various stakeholders affected by climate reforms. In the agricultural sector, these can be varied and include input suppliers, aggregators (cooperatives that distribute agricultural inputs and products), processors, seasonal non-unionized workers, and informal or formal farm workers (Anderson, 2019).

It is also key to be aware of the gender, class, ethnicity, and other barriers that may prevent certain segments of the population from participating in discussions. Bangladesh, for example, has a very high proportion of workers in the informal economy, up to almost 90% of the workforce, which is concentrated in rural areas (Islam, 2017). The higher share of informality means that such workers will not necessarily be aware of the latest policy developments occurring and might feel less confident raising issues and changing employment. Communication strategies put in place solely by the government might be less effective and need to be bolstered by grassroots engagement. In these instances, the participation of civil society organizations who are sometimes more aware of local actors and the constraints they face may be particularly beneficial to increasing acceptance among certain sectors of the population.

Finally, policy makers need to be aware of the power imbalances that might exist within certain coalitions, for example, with the over-representation of agribusiness interests. In the agricultural sector, farming unions also operate very differently to labour unions in the energy sector, as they tend to be disaggregated among many small- and medium-sized farms rather than representing the interests of employees at a single or few large energy or mining companies (Anderson, 2019).

2.5.2.4 Social Policies and Impacts on Workers, Communities, and Consumers

Social policies are an essential element of any just transition. They ensure that workers and communities threatened by climate mitigation policies are protected from adverse income shocks while, in some cases, incentivizing these groups to adopt more climate-friendly policies.

In the past, the World Bank has financed projects in Bangladesh such as the 2015 Nuton Jibon (translates to “New Life”) Livelihood Improvement Project, which supports low-income farmers in gaining access to international markets, enables their participation in producer groups or cooperatives and also supports their access to new agricultural technologies (World Bank, n.d.).

Payments for ecosystem services – fiscal incentives offered to farmers to manage their land more sustainably – are also a way of aligning environmental and social objectives by paying smallholders and farmers for reforestation efforts or sustainable land use. Smallholder farmers can be reluctant to change practices without fiscal incentives, and cash transfers such as PES can help drive this shift in practices. In Paraguay, the Poverty, Reforestation, Energy and Climate Change (PROEZA) project promotes reforestation in Eastern Paraguay while supporting local households to diversify their agricultural production and increasing their resilience to climate change. It also provides beneficiaries with environmental conditional cash transfers made conditional on good agricultural practices and agroforestry initiatives (Green Climate Fund, 2018).

2.5.2.5 Impacts on Investors and Companies (Including Stranded Assets)

Although the discussion of asset stranding in the energy sector figures prominently in the literature, this is much less so in the agricultural and land-use sectors. A study by Caldecott et al. (2013) is one exception. In their research, Caldecott et al. (2013) developed a value at-risk assessment to measure the risk of lost investments due to asset stranding in agricultural supply chains. In the agricultural sector, asset stranding examines how climate-related risks, such as land degradation, biodiversity loss, and water scarcity, among other risks, can affect a variety of natural, physical, social, human, and financial agricultural assets, be they financial instruments tied to agricultural production, on-farm infrastructure, or the value of farmland, to name only a few.

The authors’ research shows that the risk of asset stranding depends on the time horizon of environmental risks and the speed at which these risks are occurring. For example, biofuel policies and short-term trade laws are both short-term risks that are fast-moving, whereas land degradation, changing production zones, and declining ecosystems are all slow-moving and long-term risks. Biofuel policies, in particular, present a risk, as they can quickly evolve with, for example, a shift in requirements from first-generation to second-generation biofuels (such as from agricultural

crops to biomass feedstock). In turn, without the appropriate planning, this can increase the risk of asset stranding for certain biofuel producers (Caldecott et al., 2013).

The authors also developed three models of asset stranding with different rates of natural capital exhaustion. Intuitively, a higher rate of natural capital exhaustion leads to more agricultural asset stranding, as agricultural production is directly linked to the availability of natural capital. Their models show that, under the most severe scenario of natural capital loss, the global value of agricultural asset stranding could be USD 11.2 trillion, with an asset stranding range beginning at USD 6.3 trillion (Caldecott et al., 2013).

Depending on the agricultural threat, the risk of asset stranding might also increase. For example, weather variability has the highest effect on physical and natural assets, whereas land degradation also has a very strong effect on social assets. Other asset classes include financial (farm loans, financial derivatives of commodities) and human assets (management experience, research and development expertise, etc.) (Caldecott et al., 2013). Interestingly, in the agricultural sector, there is a high level of interconnectedness between these different types of assets. This is explainable, as many agricultural or climate shocks have multiple effects. Land degradation, for example, affects not only natural capital, including crops

harvested and the number of animals raised, but social assets as community ties might also be broken, and high emigration might affect other agricultural production areas.

Research led by Hoare et al. (2016) confirms the arguments put forward by Caldecott et al. (2013) but also shows that the risk of asset stranding will not be homogeneous across countries: countries that have the highest rates of deforestation and agricultural production stand to lose the most. Although there are no specific estimates available for Bangladesh, in Pakistan, which is also a country where agriculture employs a large share of the population, the 2010 floods caused losses and damages of USD 10.1 billion, which was then equivalent to about 6% of GDP, half of which occurred in the agricultural sector (UN World Conference on Disaster Risk Reduction, 2014).

2.5.2.6 Funding and Resources for a Just Transition

At the global level, developed and developing countries provided, on average, from 2016 to 2018, USD 528 billion per year in agricultural subsidies (OECD, 2019c). This global estimate can hide differences between countries, with some developing countries such as Ghana spending as much as 40% of their national agricultural budgets on subsidizing fertilizers (Anderson, 2019). Agricultural subsidies are wide ranging and often include incentives to reduce the costs of inputs to farmers for pesticides, nitrogen fertiliz-



ers, electricity, and agricultural vehicle diesel (New Climate Economy, 2016). Although in the short run these subsidies increase agricultural production and can generate some benefits to farmers, particularly when farming input costs are volatile on the international market, they can be environmentally harmful in the long run by encouraging the overexploitation of land. Similar to fossil fuel subsidies, agricultural subsidies also tend to be regressive, meaning that they do not benefit lower-income farmers the most (Osorio et al., 2011). Research by McFarland et al. (2015) shows that, in Brazil and Indonesia, agricultural subsidies undermine conservation efforts, with subsidies to palm oil, timber, beef, and biofuels between 2009 and 2012 being 120 times higher than international conservation aid. By reforming these subsidies, there is a window of opportunity for developing and emerging economies not only to reduce negative environmental externalities but also to use these funds to finance a just transition in the agricultural sector. Capacity development and retraining of farmers mean they can implement more sustainable agricultural practices. Redirecting subsidies encourages more sustainable land-use management, and environmentally sound technologies can be deployed.

Agricultural subsidy reform can also be tied to climate finance, as in Brazil, where Norway made REDD+ finance contingent on subsidy and rural credit reform. REDD+ is an international framework to reduce emissions from deforestation and forest degradation and to encourage sustainable forest management. In Brazil, this policy has been touted as widely successful, leading to an overall 40% decline in economy-wide GHG's from 2000 to 2012 and a five-fold decline in annual deforestation rates from 2004 to 2014 (New Climate Economy, 2016). Although REDD+ initiatives can be instrumental in reducing deforestation, it is important that they are aligned with just transition principles to ensure social and worker protections. When this is not considered,

these schemes can restrict indigenous groups' rights, limit their participation in debates, and increase carbon leakage by pushing deforestation to other non-regulated areas.

Beyond FFSR and agricultural subsidy reform, smart fiscal policies can also incentivize better land management. By taxing production areas rather than volumes or profits, governments can not only increase revenues but also discourage the wasteful use of land (New Climate Economy, 2016). The revenues from VAT, export, and other agricultural-related taxes could also be more equally shared among agricultural-producing regions (New Climate Economy, 2016). By doing so, these regions where the socioeconomic impacts of the transition are likely to be the most important would have more revenues at their disposal to engage in just transition efforts.

Beyond the domestic level, where fiscal policies have a major role to play, at the international level, climate finance and private sector finance can also fund just transition progress in the agricultural sector. In this respect, much remains to be done to scale up efforts. Only about 4% of Official Development Assistance (ODA) is geared toward the agricultural sector, and it is unclear what percentage of this is designated for sustainable agriculture (OECD, 2019a).

Similarly, private sector finance instruments such as green bonds in the agricultural and forestry sectors only accounted for about 2% of the green bonds issued in 2016 (Climate Bonds Initiative, 2016). One interesting development in this regard is the World Resource Institute's launch in 2018 of a rural prosperity bond that could help smallholder farmers adopt regenerative practices that conserve and rehabilitate farming systems, such as through agroforestry planning, drip irrigation, and other organic land amendments (The Global Innovation Lab for Climate Finance, n.d.).



3. OPTIONS FOR ACTION FOR GOVERNMENTS AND OTHER STAKEHOLDERS



Across these situations, we are able to find examples of sectoral transitions with varying degrees of links to just transition principles, with some consistent factors that have contributed to successes and failures. The result is a set of complementary measures that form a core part of just transitions that are successful. These situations help to identify what instruments are working to support just transitions, provide guidance for policy makers and stakeholders for ways to promote best practices, and fill identified gaps for supporting a just transition in developing countries. A number of specific options and measures for governments and stakeholders to consider for successful just transitions, regardless of the sector of focus, are highlighted below as well as in [Table 2](#).

3.1 Sector Policies

Sector policies can level the playing field for clean sectors, foster industrial development, and create a supporting regulatory environment to enable a just transition.

3.1.1 Level the Playing Field

Reforming fossil fuel subsidies is critical to level the playing field between fossil fuels and renewables. Even in countries such as India that have considerably increased renewable energy subsidies over time, fossil fuel subsidies remain seven times higher than those to renewable energy and electric vehicles.

TABLE 2
SUMMARY: OPTIONS FOR ACTION FOR GOVERNMENTS AND OTHER STAKEHOLDERS

AREA OF FOCUS	OPTIONS FOR ACTION
SECTOR POLICIES	Level the playing field
	Use industrial policy for the development of alternative economic sectors
	Develop a supportive regulatory environment
EMPLOYMENT AND LABOUR MARKET POLICIES	Integrated approach to employment promotion
	Technical and vocational education and training for green skills
	Increase worker awareness of the skillset required
	Public works programs
	Coordination between governments, companies, and civil society
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Know what you are getting into
	Stakeholder engagement is critical
	Policy making in a public forum
	Sensitize for a just transition
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	Social impact assessments
	Supports for those affected—social, education, training, and employment
	Payment for ecosystem services and cash transfers
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	Swap fossil fuel subsidies for renewable energy incentives
	Avoid stranded assets
FUNDING AND RESOURCES FOR A JUST TRANSITION	Use revenues to incent behaviour change and support a just transition
	Develop smart and inclusive green fiscal policies
	Examine the role of state investment banks and development cooperation aid

In Indonesia, we have seen that FFSR can also create resources for investment in critical infrastructure that can support low-carbon development, going beyond levelling the playing field to creating a system that incentivizes low-carbon development.

Over time, it is also key to review subsidies so that funds can be redirected for other pressing needs, such as for grid balancing and energy storage. Setting reverse auctions, as India has done, is another very effective way to increase the cost competitiveness and installed capacity of renewable energy.

3.1.2 Use Industrial Policy for the Development of Alternative Economic Sectors

“Green industrial policy,” as outlined by several organizations including PAGE (n.d.), is an approach for developing sectors that can be successful under a

just transition. “Industrial policy refers to government actions to alter the structure of an economy, encouraging resources to move into particular sectors that are perceived as desirable for future development” (Altenburg & Assmann, 2017). Green industrial policy takes this a step further by taking approaches that not only ensure economic prosperity but also “replace environmentally unsustainable activities with sustainable ones” (Altenburg & Assmann, 2017).

To encourage economic diversification, industrial policies should go beyond the energy sector as well. In India, the geographical mismatch between states with a high renewable energy potential and coal-rich states is a case in point where not all states stand to gain equally from the energy transition. The North East Special Infrastructure Development Scheme funded by the GoI, which supports various economic sectors

such as tourism, manufacturing, education, and health to build industrial clusters in lower-income North East Indian States, is a good example, although such a strategy is still missing in coal-rich states.

3.1.3 Develop a Supportive Regulatory Environment

An improved regulatory environment conducive to a just transition is key to increasing public and private sector investments. In the electronic waste sector in Nigeria, streamlining circular economy legislation to reduce bureaucratic hurdles for SMEs that seek access to credit, developing mandatory buyback schemes, fining companies that engage in planned obsolescence, and incentivizing firms to sell electronic products as a service would be largely beneficial. Similarly, in the agricultural sector, legislation that supports agro-based cluster development or contract farming increases the likelihood that smallholder farmers will be remunerated at fair prices and that public and private investments will support sustainable agricultural practices.

3.2 Employment and Labour Market Policies

An integrated approach to employment promotion that includes technical and vocational education and training for green skills is critical for employment and the labour market. Workers need access to the right skills but also the awareness of how to obtain those skills.

3.2.1 Integrated Approach to Employment Promotion

GDC has developed an integrated approach to employment promotion (GIZ, 2016a), which includes the following aspects:

- » Creating labour demand through private sector development and access to financial services.
- » Strengthening labour supply with a focus on TVET.
- » Matching labour supply to demand using information, guidance, and placement through active labour market policies.
- » A conducive economic and employment policy framework.

The case studies have indicated that employment (and broader social) impacts are key concerns of stakeholders and governments alike. An integrated approach to addressing this primary concern would build stronger links between employment demand and supply in sectors that emerge from a just transition, with deeper consideration not just in matching job figures but also in improving the quality of work. This type of approach could be sector specific but could also be adopted economy wide. This integrated approach to employment promotion can also be linked to national strategies for poverty reduction, given the links between employment access and poverty.

3.2.2 Technical and Vocational Education and Training for Green Skills

Research studies indicate significant potential for job creation in sectors that will emerge from a just transition, such as renewable energy. However, particularly for highly skilled jobs, the workforce must be ready to fulfill these jobs. Green skills support programs are necessary to prepare workers for these emerging sectors. In particular, electrical engineering is an area where TVET is needed (Sauerborn et al., 2019) to assist transitioning workers to fit into new jobs. Efforts are also required to tailor the education and training system so that the new entrants on the labour market (i.e., youth) are prepared for the green jobs that emerging sectors will offer, which could be quite different from jobs that were prominent in the past. These training and education opportunities should also have a gender dimension to them to ensure equal access to employment opportunities for women and girls.

To develop locally adapted employment and labour market policies, it is important to realize that labour demand and labour supply constraints will vary from country to country (GIZ, 2016b). These constraints can be wide ranging; TVET programs tailored to new economic opportunities, as in Colombia's coal states, will be required. Other examples of the need for locally tailored approaches are the high level of informality and lack of awareness about working risks, as in Nigeria's e-waste sector, and a lack of access to financial services for renewable energy SMEs, as in Senegal. Having a dedicated agency, such as India's Skill Council for Green Jobs, that provides such TVET programs and tailors them to the youth



or those without formal educational attainment is also important, particularly in countries with a higher share of informal or semi-skilled workers.

3.2.3 Increase Worker Awareness of the Skillset Required

Regardless of the sector at hand, it is crucial to build worker awareness of the jobs available on the market in order to build demand for such jobs and the skillsets needed to fulfill them. India's CLEAN is one good example of how renewable energy companies and training institutes can post job openings online, including for off-grid renewable energy jobs. In other sectors, such as the circular economy and waste management, ensuring workers are aware of the skillset needed for various waste management jobs is a key step to avoiding a skills shortage.

3.2.4 Public Works Programs

PWPs offer paid employment targeted at poor and vulnerable people who are affected by sectoral reforms and transitions (Györi et al., n.d.). These programs often involve government infrastructure projects that are consistent with climate action, resilience, and a just transition (e.g., renewable energy infrastructure, watershed rehabilitation). There is a “double dividend” to be obtained by providing income to those who need it and promoting infrastructure construction that supports and accelerates low-carbon development (Györi et al., n.d.).

PWPs need to be carefully designed so that they offer employability benefits for workers beyond single infrastructure projects so as not to create a rebound effect after these projects are completed. This includes the ability of workers to obtain skills, training, and education that they can utilize in maturing green sec-

tors that will thrive in a green economy (such as the renewable energy sector, which is often driven by private investment). With that said, PWPs can kickstart a just transition by allowing access to employment in a short time frame, putting workers into jobs that are consistent with developing a low-carbon economy.

3.2.5 Coordination Between Governments, Companies, and Civil Society

Coordination between these three groups is central to the achievement of a just transition and to ensure that the employment potential of the labour force does not remain untapped (Jacob et al., 2015). The Task Force on Just Transition for Canadian Coal Power Workers and Communities stands out in this regard by coordinating the effort to better understand the impacts of phasing out coal in the country and how to support the workers and communities affected (Government of Canada, 2019). Launched by the Government of Canada, this task force was comprised of representatives of labour organizations, the coal-power sector, and affected municipalities, as well as experts in workforce transitions and sustainable development. After meeting with affected workers and communities, it came up with 10 recommendations to support them through the transition (Government of Canada, 2018). The Government of Canada moved quickly and included some of their recommendations in its Budget 2019 commitments, such as worker transition centres that will offer skills development initiatives and economic and community diversification activities and a CAD 150 million (EUR 100 million) infrastructure fund to support priority projects and economic diversification in affected communities (IISD, 2019). In several of the case studies presented above, coordination between governments, companies, and civil society remains the weak link in the development of effective just transition plans.

3.3 Process Management and Sensitization (Including Social Dialogue)

Conducting a successful just transition process is heavily reliant on effective social dialogue with relevant stakeholders. This process needs to make the case for transition and build stakeholder support in a clear and transparent manner, generating motivation for transition.

3.3.1 Know What You Are Getting Into

One of the best assets for governments undertaking a transition is to have an understanding of how this transition will affect stakeholders, the economy, and the environment. Undertaking a detailed assessment of opportunities and risks associated with transitions is important for understanding the impacts that will occur.

A part of this is also knowing who your key stakeholders are. It certainly involves workers and employers but also communities and the consumers of products and services. Formalized workers are a key tripartite group in just transition (as exemplified in the South Africa Eskom reform process), but, given the prevalence of informal work in developing countries, these workers need to be included in just transition processes as well. Considering how to include the informal economy in decision-making processes is essential. Trying to simply formalize the informal economy may not be desirable or have adverse social impacts, but there can be ways to engage these stakeholders. Enabling informal workers to join cooperatives might be an encouraging option.

3.3.2 Stakeholder Engagement Is Critical

Nearly every successful reform examined, in any sector, is based on stakeholder engagement that is meaningful and considers the impacts of transitions. In some cases, this includes seeking a mandate for reforms (see the Indonesian FFSR example), whereas, in others, it is simply sensitizing the stakeholders for the changes that are to occur and how their concerns will be addressed. Unsuccessful reforms, such as FFSR efforts in Mexico, are often marked by sudden changes that leave stakeholders concerned about impacts and result in unrest, opposition, and protests. Stakeholder engagement is also crucial to increase awareness among workers of the risks they face, not only in terms of possible job losses but also OHS risks, as is the case in the e-waste sector in Nigeria.

Effective stakeholder engagement is essential and should include all affected stakeholders. Workers, employers, and governments are tripartite partners in a just transition, but stakeholders include a broader range, including communities, civil society, and other groups that are affected. Stakeholder engagement should also seek to avoid exacerbating potential power imbalances that might exist between different civil society groups, such as by over-representing one group

over another. Building partnerships with civil society organizations that are sometimes more aware of the constraints that local actors can face is one way to ensure fairer representation of various actors.

Throughout the case studies presented in this report, the role of multi-stakeholder engagement has been highlighted as an important policy that contributes to the effective implementation of a just transition. The 2019 FOLU in the agricultural sector or the major public engagement before fossil fuel subsidy reforms in Indonesia are good examples of such efforts. The ongoing Eskom restructuring process, which engages labour as a partner, is another example of the critical need for engagement. Fuel price reforms in Mexico and Ecuador, meanwhile, highlight the risks of not engaging. Engagement is an important stepping stone in creating buy-in for a just transition and involving a wide variety of stakeholders from civil society, the private sector, and government.

3.3.3 Policy Making in a Public Forum

A very transparent, open, and engaged interaction with stakeholders before policy changes are enacted is important. Understanding concerns and developing complementary measures to mitigate risks and concerns of stakeholders can go a long way to encouraging public buy-in.

Public and transparent engagement in this manner builds credibility for the process, sensitizes groups for the coming transition and the rationale for it, and ideally builds momentum – or at least anticipates and allows for the ability to respond to potential opposition that could come up during the process. Not every process has to involve putting issues on an election platform for consideration, as in the Indonesia example, but there has to be an opportunity of transparent and public processes for considering policy changes.

This type of engagement allows governments to be proactive rather than reactive with stakeholder groups, responding to issues and concerns before they become flashpoints rather than after.

3.3.4 Sensitize for a Just Transition

The concept of just transition is not well known in most developing countries examined or in many developing countries in general. However, when

explained to local stakeholders, it is recognized as a positive way to look at transitioning to a low-carbon economy. At the same time, there is apprehension about how large-scale sector transitions will impact vulnerable groups in the sector, such as workers who could lose employment and/or be forced to seek employment in new and emerging sectors they may not immediately have the necessary skills for.

Because a just transition explicitly focuses on ensuring that vulnerable groups are not left behind in transitions, when this is communicated, there is often broad support for this type of process. Therefore, a good first step for governments looking to undertake these types of processes is to undertake broad communication and sensitization on how transitions will be conducted in a just manner and the types of principles that this entails. This is also linked to sharing the results of impact assessments that are conducted to build acceptance and minimize resistance among stakeholder groups for policy plans (Jacob et al., 2015). Though this is a relatively simple suggestion, research and interviews have identified that, in many cases, this has not yet happened but could be useful as an exercise.

3.4 Social Policies and Impacts on Workers, Communities, and Consumers

Transitions will have real and potentially negative impacts on workers, communities, and consumers. Understanding what these impacts may be and how to manage them is essential. Supports have to be put into place for those most affected. There are specific tools, such as PES and cash transfers, that can support affected groups and assist during transition.

3.4.1 Social Impact Assessments

Part of the reason for lack of motivation for or apprehension about a large-scale just transition is an incomplete understanding of political costs, risks, and the potential benefits and opportunities associated with it. Without an understanding of the social impacts of reforms, they may be overlooked, and risks associated with transition would not be properly mitigated. Social impact assessments can assist in enhancing labour policy due to the gained understanding of the impact of transition on workers. Policy can in-

clude a focus on developing socially inclusive employment opportunities in a low-carbon economy and also help in the design of social insurance policies.

Social impact assessments were also highly recommended by those interviewed as a way to help governments to properly prepare for reforms and develop complementary measures that will assist in mitigating the most likely negative aspects of reform. When considering reforms, it is common practice to assess the potential economic or environmental impacts, but expanding this assessment into the social impacts is a key aspect of making sure that reforms are consistent with just transition principles.

3.4.2 Supports for Those Affected – Social, Education, Training, and Employment

The types of supports in developing countries that are often needed relate to existing development challenges, such as alleviating poverty, developing social protection, increasing the number of jobs, and improving their quality. Complementary measures associated with sectoral reforms should therefore focus on addressing these needs. Case studies and interviews with experts identified complementary measures as a means to invest in social, educational, and employment needs. These measures will go a long way to ensuring that there is the motivation for just transitions, as well as to help engender broader public support. Governments can also signal to workers the tangible benefits from just transitions by promoting their skills development and ensuring that alternative jobs, unemployment supports, and investments in areas like improving the health care system and poverty alleviation are in place.

It is also important to recognize that not all workers will be impacted uniformly. Contractual coal workers in India and coal workers in small-scale mines in Colombia stand to lose the most due to their lower levels of social protection. Engaging and targeting these stakeholders through cash transfers, unemployment insurance, and other forms of social protection is therefore critical.

3.4.3 Payment for Ecosystem Services and Cash Transfers

Social protection instruments like cash transfers and PES can motivate low-income persons to act in a more sustainable manner and support those transitioning between employment opportunities.

Cash transfers have the potential to provide a number of benefits, including serving as a form of insurance for those who lose their jobs, bridging the gap when changing income activities to greener ones, serving as a pension for informal workers, making it possible to participate in training, and buffering the effects of higher energy and other costs. There is also research that cash transfers designed to support education can be beneficial to incentive behaviour change (Györi et al., n.d.). In the agriculture sector, such cash transfers can not only reduce deforestation, but they can also incentivize farmers to diversify their agricultural production and increase their resilience to climate change.

Mechanisms like PES can also help low-income landholders undertake actions in the agriculture and land-use sector that support sustainable land practices rather than ones that degrade natural resources (Jacob et al., 2015).

3.5 Impacts on Investors and Companies (Including Stranded Assets)

Transitions in the energy and other sectors can create stranded assets and change investment dynamics for private sector companies. Potentially stranded assets have to be identified and avoided to the extent possible, and measures can be put in place to support investment in emergent clean sectors.

3.5.1 Swap Fossil Fuel Subsidies for Renewable Energy Incentives

For the private sector, subsidies for renewable energy (such as FiTs), as opposed to fossil fuel subsidies, are also a common tool to drive the transition to lower-carbon energy and provide an incentive for private investment in the renewable energy subsector. This is most effective when private markets are not yet mature enough. These subsidies can spur initial invest-

ments and allow markets to mature and then can be phased out over time when technology and investment costs decline. Public investment in support for clean sectors also reduces risks (e.g., through loan guarantees) for lenders and private investors in these sectors.

Supports for employers, including the private sector, should be transparent and consistent with the goals of a just transition (i.e., avoiding unconditional bailouts) but can also be a mechanism for supporting workers undergoing a transition. An example of this is fiscal support for energy company diversification into renewable energy as opposed to supporting fossil fuel exploration.

3.5.2 Avoid Stranded Assets

The key to avoiding stranded assets is avoiding their creation in the first place. Despite a global effort to phase out coal, we still see many countries investing in coal power expansion, for example, in Indonesia (Harsono, 2020a), where many new assets may quickly become stranded. Processes for the managed decline of sectors that are exposed to unavoidable transitions (including preventing the creation of new assets that are likely to become stranded) can go hand-in-hand with ensuring that these transitions are just. A managed decline would recognize that a sector is exposed to a transition, which will affect its make-up and will lead to its wind down while new green sectors emerge. An orderly transition, with negative impacts mitigated to the extent possible, would entail support for workers in declining sectors as well as support for employers to prevent collapse or rapid bankruptcy in declining sectors.

To further avoid asset stranding, it is important to recognize that it can occur for a number of reasons, not all of them linked to the cost competitiveness of renewables (although the latter certainly plays an important role). In India, for example, asset stranding in the coal sector is linked to many factors, including water shortages, the inability of DISCOMs to pay for supply, and air pollution regulations. Asset stranding is also not only about financial assets, as in the agricultural sector, where it affects a wide range of human, capital, and natural assets linked to on-farm production.

SOEs also have a key role to play in diversifying away from fossil fuel to clean energy, as CIL is doing by investing in solar energy in India. In turn, this also reduces government exposure to the risk of asset stranding.

3.6 Funding and Resources for a Just Transition

Funding, or the lack of it, can determine if a just transition will be successful. There are ways to redirect current public revenues (such as FFSR) to support a transition, and green fiscal policies can generate new revenue streams. Investment banks and development cooperation also play a role in supporting countries through a just transition.

3.6.1 Use Revenues to Incent Behaviour Change and Support for a Just Transition

There are several measures for using fiscal incentives directly to support behaviour change or build support for transition measures. The Indonesian example of subsidy reform included significant transfers of funds from subsidies to regions and villages, as well as supports for poor and low-income people. As mentioned above, revenues from measures such as subsidy reform can be used to support cash transfers, PES, and other measures to fiscally support the transition. Subsidy reform in the agricultural sector and the reallocation of revenues to train farmers and deploy environmentally sound technologies are also one way to free up significant amounts of revenue. Agricultural subsidies were estimated at USD 528 billion per year on average from 2016 to 2018 in developing and developed countries (OECD, 2019c). Such subsidies, similar to fossil fuel subsidies, tend to benefit higher-income farmers the most while they incentivize an inefficient use of land.

Revenues for a just transition can also be directed to the private sector to create new opportunities for disadvantaged workers and stakeholders. Along with workers and governments, employers are the third partner in a just transition process. They can be a catalyst for a just transition while recognizing that they may also need support to transition.

However, it is also important to understand that, while fiscal policies can drive change, the motivation to change behaviour to more sustainable practices can also fade quickly if only short-term measures are included. When such measures end, there can be a return to previous practices. Therefore, short-term incentives must be combined with other longer-term policies to create socially robust and resilient new sectors and economies.

3.6.2 Develop Smart and Inclusive Green Fiscal Policies

Green fiscal policy can be an effective tool to mobilize domestic revenues. In the circular economy and waste management sector, waste collection charges can be earmarked to train informal workers to adopt circular economy practices while funding environmental agencies. Similarly, in the agriculture sector, taxes on production areas rather than volumes or profits can discourage the wasteful use of land, and the proceeds from such taxes can be redistributed, in particular, to regions that will suffer the most from the transition. In the energy sector, the proceeds from certain royalties or carbon taxes can also be used as a means of financing the reconversion of workers.

3.6.3 Role of State Investment Banks and Development Cooperation Aid

State investment banks can also support funding for a just transition. By de-risking renewable energy projects or other types of green projects, state investments banks can crowd in private finance, enable financial sector learning, and provide risk advisory services.

Development cooperation aid is also an effective means of freeing up international funds where needed for a just transition. Currently, international aid is not always well tied to a just transition or ensuring the protection of workers through the ILO's decent working principles. More directly tying international finance and development aid to a just transition – for example, as just transition is explicitly referenced in the Paris Agreement on Climate Change – could be a way to ensure more protection for workers in a low-carbon transition. Aid could also be significantly increased, such as in the agricultural sector, which receives only 4% of ODA and where it is unclear what percentage is tied to sustainable production practices (OECD, 2019a).

4. SUGGESTIONS FOR GERMAN DEVELOPMENT COOPERATION



The following offers suggestions for GDC regarding support to partner countries in the different areas examined in this desk study (see Table 3).

4.1 Sector Policies

4.1.1 Sector Transitions Are Inherently Local but Can Benefit from the Analysis of Future Scenarios

As sector transitions are inherently local in the countries in which they are happening, it is difficult to offer generalized advice for supporting a just transition at the local level in various countries. However, one suggestion that has emerged is a strong need for *GDC to offer technical assistance on the analysis of future sector development scenarios (including business as usual, as well as green economy/green growth/just transition scenarios) to assist policy decision making.*

In short, the more analysis there is in how a sector will develop and transition under various scenarios, the more confidence there can be in forward-looking policy making, such as medium- and long-term development plans. This type of high-confidence decision making can reduce risk and enhance a sector's ability to be competitive in the future.

4.1.2 Provide Support in the Field of Industrial Policy and Private Sector Development

GDC can partner with developing and emerging economies to share insights on which industrial policy options might best be suited, depending on the local context. While certain tools, such as local content requirements, can be beneficial to protect domestic industries, they may also exacerbate trade conflicts between countries. A range of policy options could include: regulatory policies; support to economically depressed regions to foster industrial development;

TABLE 3
SUMMARY: SUGGESTIONS FOR GERMAN DEVELOPMENT COOPERATION

AREA OF FOCUS	SUGGESTIONS FOR GDC
SECTOR POLICIES	Sector transitions are inherently local but can benefit from analysis of future scenarios
	Provide support in the field of industrial policy and private sector development
	Identify ways to level the playing field by reforming fossil fuel subsidies
EMPLOYMENT AND LABOUR MARKET POLICIES	GDC's integrated approach to promoting employment
	Employment and labour market analysis
	Vocational training (including green skills development)
PROCESS MANAGEMENT AND SENSITIZATION (INCLUDING SOCIAL DIALOGUE)	Support social dialogue
	Develop capacity through technical advice
	Support collaboration across government ministries
SOCIAL POLICIES AND IMPACTS ON WORKERS, COMMUNITIES, AND CONSUMERS	Social/policy impact assessments, economic/sectoral modelling
	Poverty alleviation
IMPACTS ON INVESTORS AND COMPANIES (INCLUDING STRANDED ASSETS)	Identify and avoid stranded assets before they become a problem
	Promote green and inclusive business models
FUNDING AND RESOURCES FOR A JUST TRANSITION	Access to finance, de-risking, and low-cost, long-term debt
	Access to international and domestic revenues to support a just transition
GENERAL SUGGESTIONS	South-south and broader regional and international collaboration
	Link to the inclusive green economy concept and principles

investing in research and development, deployment, and diffusion; identifying and expanding on successful cases of green and inclusive business models at the grassroots level; creating education–industry linkages to ensure that industrial policies go along with green job creation; and providing technical support on developing closed-loop production systems where there is a coordinated clustering of industries.

4.1.3 Identify Ways to Level the Playing Field by Reforming Fossil Fuel Subsidies

Even though renewables have become economically competitive due to large cost reductions over the past decades, they are still disadvantaged in many countries due to subsidies that keep the prices of fossil fuels artificially low. This can make it difficult for low-carbon technologies to compete, and it locks economies into high-carbon trajectories. FFSR is therefore key to levelling the playing field between

fossil fuels and renewables and opening the door to low-carbon pathways. *As part of its sectoral advice, GDC can help identify and promote FFSR in various sectors. It can help analyze effective ways for such reforms to support the development of low-carbon industries that will generate employment opportunities for workers.*

4.2 Employment and Labour Market Policies

4.2.1 GDC's Integrated Approach to Employment Promotion

Engagement in developing countries can be informed by GDC's approach to promoting employment that is multidimensional and integrated (GIZ, 2016a). GDC's approach "rests on the assumption that the causes of employment problems do not only stem

from deficits in the labour market itself, for example, poor matching because of information problems” (GIZ, 2016b). There is a recognition that the supply and demand of products and services, which would undoubtedly be affected by a just transition, will impact employment. Some areas will see job growth, and others will see retraction. GDC’s approach to promoting employment by addressing issues broader than just direct labour market measures is a good guiding principle for tackling employment challenges in just transition processes.

4.2.2 Employment and Labour Market Analysis

GDC has adopted ELMA as a means of understanding and addressing country-specific challenges in this field. *GDC’s ELMA is key to matching labour supply with demand. It can be integrated with a just transition approach to better understand employment challenges and how to address them.* Pairing this approach with just transition exercises in emerging and developing economies can serve a number of purposes. It can help sensitize for the potential benefits of just transition processes and create a deeper understanding of the challenges and opportunities of employment generation. Greater understanding of the interaction between employment, labour markets, and a just transition can also build support for a just transition from key stakeholders, including workers and employers. Practically, the stages of ELMA are well defined (GIZ, 2016b) and can easily be integrated with just transition processes to understand potential employment challenges arising from a just transition and how to overcome them. One of the key aspects of ELMA is analyzing labour supply, labour demand, and the matching process in the labour market, which is critical as sectors change under a just transition.

4.2.3 Vocational Training (Including Green Skills Development)

Vocational training (including green skills development) for workers has been identified as a need to ensure that workers in sectors that are undergoing a just transition have access to skills that will allow them to compete in new and emerging sectors, which could be quite different than what the traditional education system and their past work experience may have prepared them for. This is further highlighted in the BMZ Development Policy 2030 strategy paper, which emphasizes a desire to increase work on vocational

training in the energy sector (Federal Ministry for Economic Cooperation and Development, 2018).

GDC’s TVET programs are seen as a good model to expand and have the potential to enhance just transition efforts. Qualification systems should be consistent with local needs in transitioning sectors and should be coordinated between public and private institutions (including employers) (GIZ, 2016a).

4.3 Process Management and Sensitization (Including Social Dialogue)

4.3.1 Support Social Dialogue

GDC should focus on the importance of supporting social dialogue that is consistent with the tripartite nature of just transitions and inclusive of the viewpoints and perspectives of the wide number of actors that will be affected by a transition. These actors include, for example, civil society groups focused on issues such as environment, health, and poverty; consumer groups; and the broader public. Promoting the value of social dialogues and how these stakeholder dialogues can build public support for a just transition was seen as a highly valuable activity for GDC.

4.3.2 Develop Capacity Through Technical Advice

Many countries lack the multidimensional tools needed to consider the potential for a just transition to benefit them because of the newness of the term and a lack of proven methods and approaches that illustrate how it can be useful. Particularly in light of the COVID-19 pandemic, which is necessitating urgent economic transitions and recovery in many countries, these methods and approaches are something that GDC can help bring to these countries.

GDC can do a lot to support capacity development and the sensitization for a just transition through technical advice focused on national-level implementation. To that end, there is a need to move away from a declamatory approach to a just transition into concrete implementation and enforcement measures. Interviews revealed how the lack of institutional power and capacity development remains a major obstacle in implementing a just transition on the ground in many developing and emerging economies. The desk



research and interviews further identified that there is interest in the idea of a just transition, but a lack of national-level tools to understand the specific impacts of a just transition process leads to uncertainty and apprehension about the potentially negative outcomes and side effects that a low-carbon transition can have. Policy makers around the globe are concerned about the potential for mass protests that have been seen in countries both in the Global North (France's *gilets jaunes*) and South (protests and unrest in Mexico and Ecuador). These concerns risk stalling the just transition processes. *Building the level of knowledge of national governments and stakeholders on the benefits of a just transition and ways to mitigate risk were identified as two priority areas that GDC should look to invest in.*

4.3.3 Support Collaboration Across Government Ministries

Germany's government-wide approach to a just transition was flagged as something that GDC can build upon to support capacity development elsewhere; however, it was noted that not all countries have the financial resources Germany has to invest in transition efforts. *GDC's efforts should support collaboration across government ministries to focus on just transition activities that engage as many ministries as possible, following the German model where just transition is seen as a whole-of-government activity.* This may make initial activities more complicated than just working with one or two ministries and will have to take into account differing levels of readiness in partner countries, but over the long term, it will create broader momentum. It will also encourage the buy-in of critical ministries that may otherwise

oppose or not engage but are essential for the types of policies that are needed to support just transition, such as ministries responsible for social policy, health, education, and labour.

4.4. Social Policies and Impacts on Workers, Communities, and Consumers

4.4.1 Social/Policy Impact Assessments, Economic/Sectoral Modelling

As discussed in Section 3, *social impact assessments are invaluable and can be supported through GDC. Tools for policy impact assessment (including those developed directly by GDC, those supported by UNEP and PAGE, and others) can be promoted more regularly as an aspect of a just transition in developing countries.* Such impact assessments are one important step to explain policy decisions and increase public participation in change processes (Großmann, et al., 2016). While carried out quite frequently in industrialized countries, this type of assessment is less common in developing economies (Großmann, et al., 2016). Impact assessment is designed to support evidence-based policy making and, in this case, can assist in building an evidence base from which the necessary complementary policies to support a just transition can be identified. The involvement of stakeholders in a policy making process is also a key aspect of impact assessment (Großmann et al., 2016), as it is in the guidelines for a just transition. Impact assessment, building on GDC's existing experience (mentioned previously, for instance, in Vietnam), can also be integrated with social policy dialogue to support a stronger overall process that looks at the costs and benefits of transition and identifies ways to have just transitions that achieve the desired goals on employment and social development.

Furthermore, it was also suggested that GDC should focus heavily on developing local capacity for detailed analysis (such as social impact assessments and economic/sectoral modelling) so that this analysis can be conducted without external assistance after a project has ended. This will encourage the mainstreaming of this type of analysis and reduce reliance on international supports and experts to carry it out. Interviews with GIZ and other experts also indicated

that it was more likely that governments would trust research and adopt its recommendations if local/government organizations were involved in undertaking this analysis.

4.4.2 Poverty Alleviation

Alleviation of poverty (and preventing exacerbation of current poverty challenges) is the main focus of many developing countries. The road out of poverty is tied directly to employment, with education and training related to job-attainment as one of the main tools for achieving poverty reduction. *Green skills building, strengthening of social protection for formal and informal workers, and building jobs (particularly in green sectors) were all identified as attractive initiatives that would appeal to national governments interested in a just transition, and these can be supported by GDC.* While action on climate change is globally important, it is often a secondary or ancillary priority for governments of developing countries. It is noted that GDC is already engaged in these activities; the suggestion is simply to remain committed to and scale up these activities and look to integrate them into programs in a larger number of countries, building on the lessons of activities already underway.



4.5 Impacts on Investors and Companies (Including Stranded Assets)

4.5.1 Identify and Avoid Stranded Assets Before They Become a Problem

Fossil fuel asset stranding can occur for a number of reasons, including the increased economic competitiveness of renewable technologies, the regulated phase-out of certain fuels (e.g., coal), turning public opinion against fossil fuel consumption for health or environmental reasons, increased consumption (i.e., carbon) taxes on fossil fuels, and input shortages (e.g., water).

While some of these dynamics can be unpredictable, many can be modelled and assessed for their potential likelihood well in advance of asset development. Thoughtful analysis of future energy demand scenarios (as mentioned in Section 4.1.1) that identifies potentially stranded assets can be invaluable for governments as they make future development plans. This is particularly important in light of the COVID-19 pandemic, which has had a significant impact on energy consumption and energy prices and could render relatively recent analysis of various national assets obsolete. *GDC technical assistance on energy demand scenarios with a focus on identifying the risk potential of asset stranding would greatly benefit governments in determining future energy development plans, as well as potential investors, who may be at risk of seeing their investments become stranded.*

4.5.2 Promote Green and Inclusive Business Models

The other side to identifying and avoiding potentially stranded assets is the need to target and promote new and emerging business opportunities that take advantage of green assets that increase in value in a low-carbon transition. Business development services to overcome traditional business models through new, green models and open new markets for low-carbon products can be invaluable. *Specifically for GDC, it is worthwhile to promote green and inclusive business models and develop partnerships with the private sector that include management training and efforts to strengthen the green and inclusive business ecosystem.* These efforts can motivate the integration of green business models into the mainstream in countries undergoing a transition.

4.6 Funding and Resources for a Just Transition

4.6.1 Access to Finance, De-Risking, and Low-Cost Long-Term Debt

In many emerging and developing economies, having access to finance and low-cost, long-term debt is critical to scale up renewable energy investment. This is also an area where GDC could offer technical advice based on its experience. The examples of India and Senegal show that, particularly for SMEs, accessing financial services remains an issue in both countries. There are multiple ways of leveraging private capital by de-risking renewable projects through state investment banks, issuing green bonds, engaging institutional investors, promoting community-based finance, or creating risk mitigation finance facilities, as India is seeking to do with its Innovation Lab for Green Finance (IRENA, 2018; Shrimali, 2018). Supporting sustainable private investment is also a key approach of the BMZ Development Policy 2030 strategy paper, which highlights a desire to offer investors greater legal certainty, targeted incentives, and reliable risk coverage (Federal Ministry for Economic Cooperation and Development, 2018). The strategy paper recognizes that improving the environment for private investment in developing countries is a critical aspect of development cooperation with partner countries.

4.6.2 Access to International and Domestic Revenues to Support a Just Transition

A just transition will require significant resources, particularly for fiscal support of groups that are impacted. There are potential avenues for support, both internationally, such as ODA or climate finance, and domestically, such as FFSR and green taxes that can be imposed to fund the transition. *GDC technical assistance on determining the scale of funding required for a just transition and how it can be obtained (domestically or internationally) would be helpful in developing just transition plans that can be effectively implemented. Additionally, value for money analysis (how to allocate resources in the most efficient way) can assist in designing just transition packages* that are sufficiently funded, deliver the types of compensatory measures that are necessary to protect those impacted, and build broad public support for a just transition.

4.7 General Suggestions

4.7.1 South-South and Broader Regional and International Collaboration

While Germany's example may not be directly applicable to developing countries, another area identified where GDC could play a key role is in the support of South-South and broader regional and international collaboration for a just transition. Germany is recognized as an international leader with experience in just transition processes and therefore can act as a credible host and facilitator of broader collaboration between countries. Even if Germany's example is not directly exportable, the lessons and capacity gained through that process can be shared and contribute to dialogues between countries. GDC, for example, can support regional efforts focused on sharing best practices or capacity development among countries in Asia or Africa, where efforts on a just transition that could potentially germinate across borders are ongoing.

4.7.2 Link to the Inclusive Green Economy Concept and Principles

In countries where the notion of a just transition is not yet well understood, the concepts of green growth and green economy, which are more broadly familiar, can be considered as a gateway to a just transition. These related concepts should be considered in tandem and as complementary. Green economy policy advice via GDC can support just transitions. Suggestions could include the 10 priority options highlighted for COVID-19 recovery by Partners for Inclusive Green Economies (2020), which include focusing on green economy principles (including justice), developing stimulus packages that are consistent with green economies, strengthening social protection, accelerating the energy transition, and prioritizing the acceleration of a private sector transition to greener practices.

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