JUST TRANSITIONS
in national climate frameworks and climate policies:
EXPERIENCES IN ALIGNMENT, PLANNING AND PROGRESS TRACKING

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Mandate description
This work is an output of the implementation of activity 2 of the workplan of the forum on the impact of the implementation of response measures and its Katowice Committee of Experts on the Impacts of the Implementation of Response Measures.[1]

Activity 2: Identify country-driven strategies and best practices on just transition of the workforce and creation of decent work and quality jobs and on economic diversification and transformation focusing on challenges and opportunities from the implementation of low greenhouse gas emission policies and strategies towards the achievement of sustainable development.

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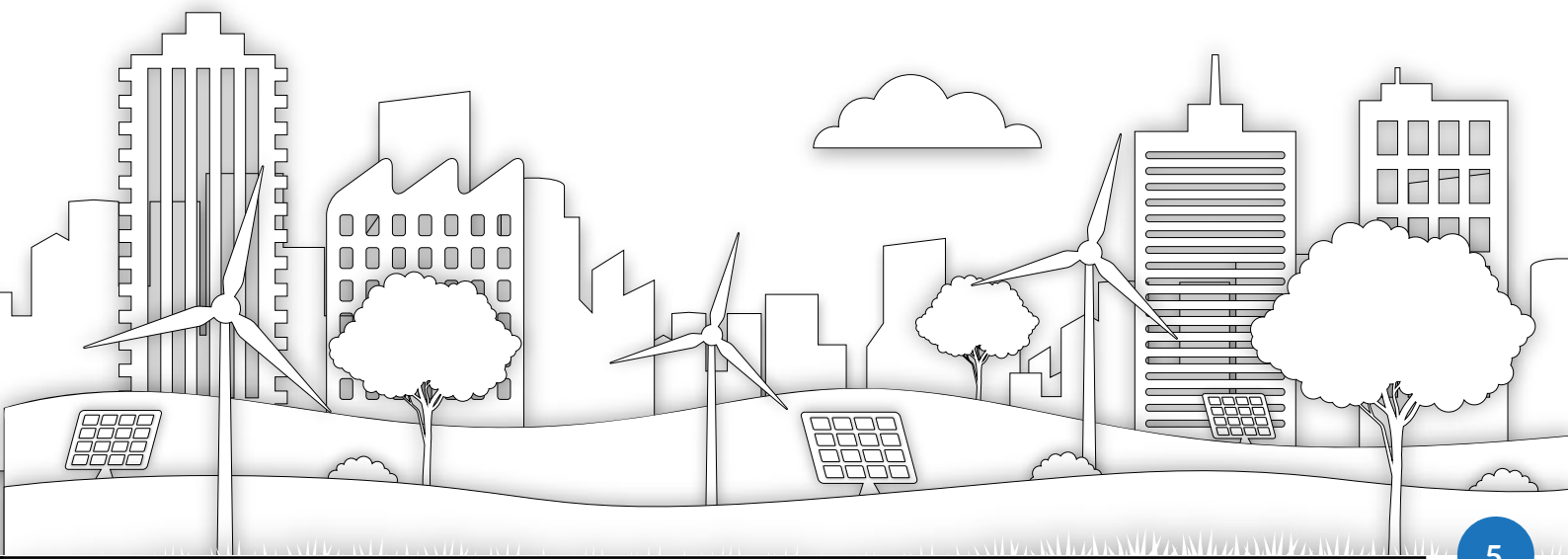
1 As contained in annex II of decisions 4/CP.25, 4/CP.15 and 4/CMA.2

Abbreviations and Acronyms

EBRD	European Bank for Reconstruction and Development
EU	European Union
EVs	electric vehicles
GDP	gross domestic product
GHG	greenhouse gas
GW	gigawatt
ICE	internal combustion engine
IEA	International Energy Agency
ILO	International Labour Organization
JET IP	Just Energy Transition Investment Plan
JETP	Just Energy Transition Partnership
JTM	Just Transition Mechanism
KCI	Katowice Committee of Experts on the Impacts of the Implementation of Response Measures
LT-LEDS	long-term low-emission development strategy(ies)
NDC	nationally determined contribution
TVET	technical and vocational education and training
WBA	World Benchmarking Alliance



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FOREWORD

by Executive Secretary of the UNFCCC

In this pivotal year of 2025, as the realities of climate change intensify, the imperative for ambitious climate action converges with an equally critical need: ensuring alignment with just transition pathways for achieving the goals of the Paris Agreement. This report, a collaborative effort between the Katowice Committee of Experts on the Impacts of the Implementation of Response Measures and the German Agency for International Cooperation, provides examples and analysis of how nations are integrating just transition principles into their climate plans. By examining both explicit and implicit references in nationally determined contributions and long-term low-emission development strategies, this report delivers useful insights through examples of interlinkages between climate planning and just transition pathways.

The assessment yields a dual perspective: while the increasing recognition of just transition principles offers encouragement, the analysis reveals the urgent need for Parties to accelerate their implementation efforts. Significantly, the study underscores a fundamental truth: climate action and just transition pathways are not separate endeavors but intrinsically linked components of broader sustainable development goals.

The report's sectoral analysis identifies three sectors as illustrative areas of focus – coal, oil and gas, and mobility sectors—all areas where the imperative for transformation intersects with complex social considerations. By presenting concrete examples of how countries have implemented or are implementing their just transition strategies, the report illuminates both challenges and opportunities arising from these efforts. The examples and proposals for frameworks for tracking progress serve as a helpful contribution for considering ways to measure outcomes, while also signaling advancement toward sustainable development goals.

As climate leaders engaged in international fora, the report findings can help deepen our understanding of the social and sectoral dimensions of just transitions. Our ultimate and unwavering goal remains clear: to forge pathways toward low-emission and climate-resilient development in a manner that is just and equitable, generating opportunities rather than hardships for those most affected by change so that no-one is left behind.

I look forward to continuing engagement with Parties and stakeholders as we work together toward achieving the goals of the Paris Agreement in a way that is just, equitable, and promotes sustainable development for all.

Simon Stiell

PREFACE
by the Co-chairs of the KCI

This report by the KCI reviews the coverage of just transition in nationally determined contributions and long-term low-emission development strategies, implementation within key sectors, and tracking its progress. From the origins of the concept of just transition to its uptake in present days, the report presents conceptual approaches based on a thorough literature review. Looking at national policies, the report offers an overview of the varying degrees to which countries have addressed the principles of just transition in their short-term and long-term climate policies.

The identification of "best practices" is expected to contribute to shared learning towards the design of effective policies, to point to gaps and ways to address them. Among such gaps, the report notes limited information on economic diversification and social protection and social dialogue, whereas issues of skills, training, jobs and employment, gender or poverty are more present in the nationally determined contributions (NDCs).

Interestingly, just transition appears both explicitly and implicitly more in the long-term low-emission development strategies compared with the NDCs, which raises questions and food for thought.

Sectoral perspectives on just transition are only starting to emerge, calling for greater attention and focus for the future. An important contribution of the report is an attempt to offer a framework to fill the current gap in tracking progress on just transition.

Moustapha Kamal Gueye

Angelina Mensah


United Nations

I.

INTRODUCTION

I. Introduction

Just transition, a concept originating from the labour movement and dating back to the late 1970s, has gained increasing attention in climate discussions over the past decade. Essentially, as noted by the ILO, a just transition maximizes the social and economic opportunities of climate action while minimizing and carefully managing any adverse effects (ILO, 2021).

According to the Global Commission on the Economy and Climate (2018), bold climate actions could generate economic benefits of USD 26 trillion by 2030 compared with 'business as usual', and just transition policies can help to capture these benefits. There has been a lot of theoretical groundwork on how to conceptualize just transition, concluding that just transition is not only about outcomes but also about the processes of how to achieve these outcomes. Fundamentally, building on literature on energy, environmental and climate justice, Heffron and McCauley (2018) identified distributional, procedural, restorative and recognition justice as the four central tenets of just transition.

It is certain that unprecedented, accelerated action to deal with the global challenge of climate change and achieve the goals of the Paris Agreement will happen. Similar abrupt changes in the past have usually been disruptive. In order to minimize the adverse effects of these changes, growing momentum around just transition has emerged. The principles of just transition are increasingly recognized by governments in their short- and long-term climate plans, particularly in their NDCs and LT-LEDS Although past and ongoing efforts to implement just transition provide a good basis, each government needs to develop a common vision for what just transition means for their workers, communities and businesses, noting different perceptions among countries and regions. Implementing just transition can help countries to achieve their national climate targets, specifically by securing broad public support; supporting a green jobs revolution that ensures there are decent jobs; laying the groundwork for resilient net zero economies, including through transparent and inclusive planning and strengthened human and social capital; driving contextualized local solutions through a local vision based on an understanding of the local socioeconomic impacts; and reinforcing the urgent need for concerted efforts that elevate whole-of-society approaches (Lee & Baumgartner, 2022).

The objective of this report is to identify best practices on just transition in order to contribute to shared learning and the design of effective policies, and to identify where gaps exist and the strengthening of policies is required. In order to do so, this report first examines how, to date, just transition has been integrated into two key components of the Paris Agreement, the NDCs and the LT-LEDS –the key plans in which governments lay out how they plan to contribute to reducing GHG emissions and achieve the goals of the Paris Agreement. It looked at how the concept of just transition was integrated into NDCs and LT-LEDS, both explicitly and implicitly – through specific themes that fall under the concept of just transition. This report also summarizes how various countries have put in place policies to support just transition in the coal, oil and gas, and mobility sectors, which are responsible for the majority

of global GHG emissions. While government action is key for just transition, the private sector, particularly large companies, also need to actively take on their responsibilities. This report also includes short summaries of actions that the private sector has taken to support just transition. The final topic addressed in this report is an evaluation of existing approaches to tracking progress on just transition, both jurisdiction-wide and for companies, which provides an input to the discussion on tracking just transition progress by proposing a new monitoring framework.

An analysis of the NDCs shows that, apart from a few brief references, there is little detail on how just transition is integrated and further broken down. Moreover, information on economic diversification and social protection is lacking, and there is particularly little reference to social dialogue. Instead, more focus is given to skills, training, jobs and employment, and other aspects, such as gender or poverty, even though these are only one aspect of just transition. Similar trends were found for the LT-LEDS; however, there is generally a higher degree of both explicit and implicit references to just transition in the LT-LEDS compared with the NDCs.

A sectoral analysis of how just transition has been put into practice shows that various governments are actively implementing policies that extend beyond skills and training, particularly just transition planning that includes social dialogue and stakeholder engagement. Similarly, companies often tend to focus on creating green jobs without necessarily having a long-term plan to protect the workers, suppliers and communities affected by the transition towards low GHG emissions. When governments assess just transition policies, it is therefore important for them to consider how companies are aligning with such policies, as there can be a gap between good intentioned just transition policies and how companies are supporting just transition efforts.

Civil Society Actions at COP29, 2004.
Photo: Shutterstock

The study also shows that just transition discussions in sectors other than coal, such as oil and gas, and mobility, have so far remained at a much more nascent stage. Given future changes in oil and gas demand, and the rapid increase in sales of EVs, this is a shortcoming that policymakers should rapidly start to address, and, as the study shows, notable developments are actually happening in these sectors. To date, most research has focused on net green job creation, with less focus on other important factors, such as job quality and the types of green jobs created. Although this study focuses largely on worker-related impacts, just transition should not only be seen from a worker-related point of view. Community-level impacts, as well as the integration of gender equity dimensions and respective obligations on human rights, therefore also need to be central elements of just transition efforts, and broader considerations, such as energy access, are also relevant (Dupar & Tan, 2023; Institute for Human Rights and Business, 2020). While other changes to the sectors included in the study also have important implications, such as automation or digitalization, these were not included in the study.

Finally, the report presents a new framework as an input to the discussion on filling the current gap in tracking progress on just transition. While some governments are developing just transition indicators, this remains at an early stage and much of that work has yet to be published. This framework provides a comprehensive approach, addressing the different stages of just transition and all central tenets of justice relevant for just transition. Similarly, although more work has been conducted to track progress in the private sector, valuable work to track progress at national level is under way.

Technician at a solar power station.
Photo: Shutterstock

II.

JUST TRANSITION COVERAGE IN THE NATIONALLY DETERMINED CONTRIBUTIONS AND LONG-TERM LOW-EMISSION DEVELOPMENT STRATEGIES

II. *Just Transition Coverage in the Nationally Determined Contributions and Long-Term Low-Emission Development Strategies*

Governments lay out their commitments to reduce GHG emissions and adapt to the impacts of climate change in their NDCs. Despite being limited in scope, and national policy documents providing more details, the inclusion in NDCs of the just transition efforts that countries are aiming to carry out could help to show how countries are catalysing their national climate actions.

The assessment for this report of the extent to which just transition is referenced in the NDCs, as well as terms that only showed small variations[1] from the phase, was based on keyword searches of this term in the 169[2] NDCs submitted as of November 2023. Further analysis was then conducted to assess the context and extent to which these terms were utilized in the NDCs.[3]

In addition to the keyword searches of these terms, the assessment also included keyword searches of a selection of other terms. This was to reflect that just transition is an inherently multidimensional concept and various countries may not have referenced just transition as a concept explicitly but nevertheless implicitly included elements that are consistent with the idea of just transition. These intrinsically related keywords include "jobs", "employment", "skills" and "training", "gender", "youth", "economic diversification", "inequality", "social dialogue", "stakeholder engagement", "social protection" and "poverty reduction".

LT-LEDS are forward-looking, comprehensive strategies developed by countries to achieve the long-term climate goals while promoting sustainable development. They aim to provide a pathway towards a low GHG emission and climate-resilient future. As these extend beyond the short to medium timeframe that NDCs cover and are typically also a bit broader in terms of scope, the same keyword search assessment was carried out for the 68 current LT-LEDS submissions.[4]

A. Explicit references of just transition in nationally determined contributions

The results from the keyword search of just transition and very similar terms were generally extensive; however, the depth of these explicit references varied from single mentions to entire sections on the concept.

A total of 44 NDCs contain an explicit reference to just transition, which represent 26 per cent of all NDCs.[5] Yet, only 16 out of those 44 NDCs reference the term more than twice, while the majority use it without elaboration. Furthermore, only 12 NDCs include a chapter or section that is devoted specifically to just transition. Apart from Canada, Nigeria, Norway and the United Kingdom of Great Britain and Northern Ireland, all the NDCs that allocate an entire section to just transition are from South American

1 In addition to "just transition", only "just energy transition', "just and resilient transition" and "just and equitable transition" were counted as explicit references. Many NDCs use the words "fair" or "equitable" as fundamental qualities of their proposed transition to low GHG emission economies; however, for the purpose of this report, references of "fair transition" were mostly not expounded.

2 In total, there are 196 NDCs, but all 27 member States of the EU submitted a joint NDC. The assessment only considered the most recent NDC of a country. All NDCs were downloaded from the UNFCCC NDC registry.

3 With a somewhat different scope and an extended focus on long-term strategies, the United Nations Development Programme has conducted a similar assessment (Lee & Baumgartner, 2022).

4 In contrast to the NDCs, the EU and its member States are not submitting a joint LT-LEDS, but the EU as a whole and each member State are submitting individual strategies.

5 This would increase to 34 per cent if each individual EU member State were to be counted separately.

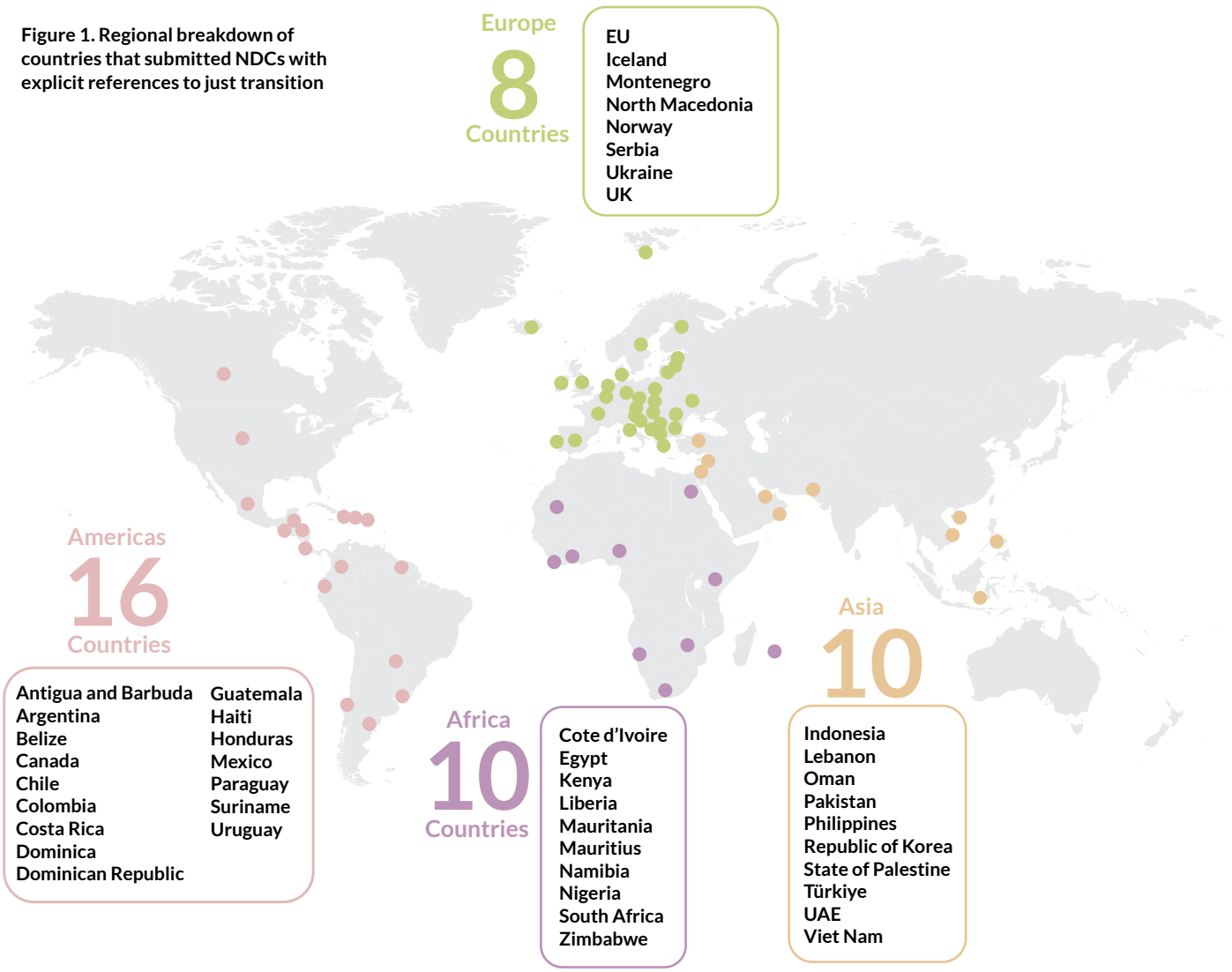
and Caribbean countries (Antigua and Barbuda, Belize, Chile, Colombia, Costa Rica, Dominica, Dominican Republic and Guatemala). There are even fewer NDCs in which just transition is recognized not just as an economic concept that will affect jobs but as a cross-cutting or transversal issue. The NDCs submitted by Antigua and Barbuda, Colombia, Chile, Costa Rica, Dominican Republic, Namibia, Nigeria and Uruguay all expand upon just transition by intertwining it with other social issues, such as equity, gender and poverty, thereby recognizing its inherently transversal nature.

The earliest reference of just transition to appear in an NDC was in South Africa's 2016 submission. In recent years, the number of references has increased as more NDCs have been submitted or updated. Out of the 52 NDCs submitted in 2020 that are still active today, 10 per cent referenced just transition directly, but in 2021 this grew to 27 per cent (23 out of 86 NDCs) and in 2022 to 55 per cent (11 out of 20 NDCs). So far, 4 of the 10 newly submitted NDCs in 2023 have included a reference to just transition, which accounts for 40 per cent.

Broken down regionally,[6] 8 NDCs that directly reference just transition come from countries in Europe, or 35 of a total of 71 NDCs if each EU member State were counted separately; 16 come from countries in the Americas; 10 come from countries in Asia; and 10 come from countries in Africa. Figure 1 illustrates this regional breakdown.

6 Following the regional breakdown provided by the UNFCCC's NDC registry.

Figure 1. Regional breakdown of countries that submitted NDCs with explicit references to just transition



Looking at the economic conditions of the countries that mentioned just transition in their NDCs,[7] there is a quite even split between developed and developing countries. Counting each EU member State's NDC separately, 44 per cent of the NDCs that include an explicit reference to just transition are from developed countries, 50 per cent are from developing countries and 6 per cent are from economies in transition. Three countries of the 46 countries that as at December 2022 were designated as the least developed countries (Haiti, Liberia and Mauritania) submitted NDCs that included an explicit reference to just transition. Furthermore, only six countries (Colombia, Indonesia, Oman, Nigeria, Norway and United Arab Emirates) out of the 34 fuel-exporting countries (i.e. those countries whose share of fuel exports (coal, oil and natural gas) in its total merchandise exports is greater than 20 per cent and the level of fuel exports is at least 20 per cent higher than that of the country's fuel imports) submitted an NDC with an explicit reference to just transition. This is particularly concerning, as these countries will be the most affected from a reduced need of imports of fossil fuels as the transition to low GHG emission economies advances, causing a risk for workers and communities if no just transition planning is accounting for this.

B. Depth of explicit references to just transition in nationally determined contributions

For those NDCs that only mention just transition once or twice, it most commonly appears in two contexts: asserting that just transition was considered when revising the NDC; or committing to ensuring just transition at some unspecified point in the future. The phrase is commonly cited as a priority, yet the most elaboration provided is that vulnerable groups will be considered in the energy transition. These fleeting references most commonly appear in the executive summary, introduction or sections relating to jobs. For example, the NDC submitted by Mauritania focuses on "just transition of jobs" to be achieved through the reorientation of the workforce towards more productive sectors. For a small number of NDCs, the term is confined to a very specific context. For example, Liberia's contribution references just transition from forest extractive models, while Pakistan's NDC solely uses the term just transition as a potential positive outcome to the introduction of EVs in local communities.

Among the countries that elaborate on their reference to just transition, many focus primarily on the employment component of the transition. For example, the United Kingdom's NDC includes a comprehensive section on just transition, which it describes as supporting workers, communities and businesses during the transition. Yet, there is a large focus on recognizing past accomplishments, such as convening the Green Jobs Taskforce, signing the Just Transition Declaration and assisting efforts to deliver the South African and potential other JETPs. Consequently, the emphasis of the section is on transborder action and international cooperation rather than domestic policies.

Like that of the United Kingdom, the NDCs submitted by Canada, Norway and the EU take a more economic approach to their respective sections on just transition. Canada described its commitment to promoting economic diversification and job growth, while Norway focused upon the creation of green jobs and technology development, and the EU mostly described its JTM, particularly the Just Transition Fund, and only committed to promoting just transition in carbon-dependent regions in 13 lower-income member States through the Modernization Fund, which is funded from revenues of the EU Emission Trading Scheme. The NDCs submitted by Belize, Dominica and Honduras also include sections on just transition, similarly focusing on the transition of the workforce.

7 These country classifications are published by the United Nations Department of Economic and Social Affairs to reflect basic economic county conditions (United Nations, 2023).

By contrast, several NDCs include a broader understanding of just transition. Nigeria's NDC explains that the transition will include supporting skills development for renewable energy and other sectors, ensuring social protection for the most vulnerable, unlocking job creation and reducing poverty. Chile's NDC commits to analysing the needs of the most vulnerable as the country decarbonizes its power generation matrix. Uruguay's NDC particularly emphasizes the gender component of just transition, pledging to focus on intragenerational and intergenerational equity and gender inclusivity in all future climate action.

Antigua and Barbuda's NDC links gender with specific gender-responsive targets to identify and provide support to all community organizations that support women in their post-extreme weather event recovery and to develop a gender-responsive approach to the just transition in the energy sector, in which 95 per cent of current employees are men. In fact, Antigua and Barbuda's NDC is one of the most comprehensive on just transition as it associates the term with a number of other themes. It asserts that the commitment to just transition includes "job upgrading, poverty eradication, social justice and [to] reduce youth unemployment" and "expanding training and skills development programs".

Costa Rica's approach to just transition as delineated in its NDC is similar to Antigua and Barbuda's. The term is used more than 100 times throughout the document, far more than it is used in any other NDC. The structure of the NDC is also unique; under 13 different sectors, there are many specific contributions and their corresponding impacts on well-being. Listed under impacts are the Sustainable Development Goals relevant to that contribution, as well as relevant treaties and commitments that the contribution meets, such as the Kigali Amendment to the Montreal Protocol, Sendai Framework for Disaster Risk Reduction and United Nations Convention to Combat Desertification. One of these commitments is actions in support of just transition, which appears as an impact corresponding to almost every single contribution across all sectors. Furthermore, in the introduction to just transition, the NDC states that just transition and climate justice are central to not only preventing existing social gaps from widening but also reducing those social gaps.

Aerial view of the renewable energy windmills in Costa Rica. Photo: Gianfranco Vivi/Shutterstock

While very few countries have yet developed a comprehensive just transition plan or framework, a couple have taken the first step and outline in their NDC that they have appointed a body for overseeing and leading the transition. South Africa established the Presidential Climate Commission as the overseeing body, while Guatemala placed ILO and the Ministry of Environment and Natural Resources in charge of ensuring that labour conditions and the rights of workers are not decreased during the transition. For Colombia, the NDC explains that the Ministry of Labour is currently leading the preparation of the Strategy for the Just Transition of the Workforce Towards a Resilient and Low Carbon Economy, which the Government aims to publish in 2023 and which will seek to improve the quality of life and the social and economic inclusion of the population, counting on social dialogue and active citizen participation in its design and implementation. While Colombia does not yet have a formal just transition strategy, these national policies lay a strong foundation. Similarly, Costa Rica committed to developing a just transition strategy by 2021 in its NDC.

C. Implicit references of just transition in nationally determined contributions

Of the topics related to just transition, gender, poverty, skills or training, youth and jobs, and employment were the most commonly referenced throughout the majority of the NDCs. Inequality and economic diversification were also prominent, with more than a third of NDCs referencing them, followed by social protection and social dialogue, but these were rarely included in the NDCs. Table 1 illustrates the number and percentages of how often these related elements are referenced.

Table 1. Number of keyword search findings, including variations of the term "gender" in the NDCs[8]

Keyword	Subcategory	Number of NDCs	Percentage of all NDCs
Economic diversification		48	28.4
Jobs or employment		80	47.3
Skills and training		93	55.0
Gender		122	72.2
	Gender-sensitive	24	14.2
	Gender-responsive	39	23.1
	Gender-transformative	6	3.6
Youth		86	50.9
Poverty		96	56.8
Social protection		31	18.3
Inequality		68	40.2
Stakeholder engagement and broader dialogues		54	31.9
Social dialogue		5	2.9

8 The percentages were calculated by dividing the number of NDCs that referenced a given keyword by the total number of NDCs (169), and then multiplying the result by 100. The European Union's NDC was counted as a single submission, on behalf of all Member States.

1. Gender

The clear majority of NDCs include references to gender, often dedicating an entire section to the matter or referencing a national gender action plan. The language most often appearing includes a commitment to "gender inclusiveness", "integrating a gender approach" or "gender mainstreaming".

References to the varying levels of gender integration, particularly "gender-sensitive", "gender-responsive" and "gender-transformative", also appear in many NDCs.[9] However, among countries that reference this language in their NDCs, the majority focus on gender-sensitive or gender-responsive approaches; 24 use the term "gender-sensitive"; 39 use the term "gender-responsive"; and 6 use the term "gender-transformative". In the State of Palestine's, a team of gender experts reviewed the NDC implementation action plans, and all plans identified as gender-relevant were devised to be gender-sensitive at worst and gender-transformative at best, depending on how well they were implemented. Focusing particularly on the agricultural sector, Seychelles' NDC reports that some components of resilience actions that generally have different impacts on gender equity are gender-transformative. Sierra Leone, Tunisia, Uganda and Uruguay also each pledged to consider gender-transformative strategies and to promote gender-transformative planning, decision-making and institutional development to promote societal gender equity. In fact, the term "gender" appears 135 times throughout Uruguay's NDC.

Terms used in NDCs

72.2% of NDCs use:

Gender

Varying levels of gender integration Terms used in NDCs

14.2% of NDCs use:

Gender-sensitive

23.1% of NDCs use:

Gender-responsive

3.6% of NDCs use:

Gender-transformative

9 UNICEF developed a Gender Integration Continuum model that sorts all policies and actions based upon their gender impact (UNICEF, 2019) and clearly articulated in UNICEF's Strategic Plan (SP. The Gender Integration Continuum consists of five stages: gender-discriminatory refers to a deepening of gender inequalities; gender-blind means gender is ignored in either evaluation or design; gender-sensitive acknowledges gender inequalities but does not robustly address them; gender-responsive identifies and addresses the different needs of the genders and undertakes specific actions to promote more equality; and gender-transformative redresses gender inequalities with the fundamental aim of addressing root causes. Gender-responsive and gender-transformative require similar approaches, yet the latter further acknowledges the intersectionality of gender and other identities and seeks to address the root causes within society instead of just reducing existing inequalities.

COP29 - 21 Nov 24 - Women's Leadership. Photo: UNFCCC

2. Poverty

Terms used in NDCs

56.8% of NDCs use:
Poverty

Barbados NDC use:
Dire Situation

"Poverty" appears in slightly more than half of NDCs, in a few cases related to fuel or energy. Most references are in the national circumstances section of the NDC or in a comparable section to describe the country's current poverty levels. It is largely recognized as a pressing issue; Barbados goes as far as to describe poverty as a "dire situation". It is also commonly included in the planning processes section in every NDC. Most NDCs do not elaborate much on poverty, instead referencing national development plans or other national documents, such as poverty reduction strategies or national poverty reduction plans that delve more comprehensively into the issue.

However, the NDCs recognize the intrinsic relationship between climate disasters and poverty or between climate action and poverty eradication. The NDCs of developing countries more commonly recognize the former, while those of developed countries are more likely to recognize the latter. Many developing countries acknowledge the difficulties in alleviating poverty based on national circumstances. For example, Equatorial Guinea plans to reduce GHG emissions in accordance with its goal to eradicate poverty, yet recognizes the immense challenge of this as a developing country.

Only two NDCs include specific targets: Nigeria aims to lift at least 25 million people out of poverty by 2025 and 100 million people by 2050; the Philippines hopes to achieve zero poverty by 2040. "Poverty" is also used in a few NDCs as an indicator for identified targets. Vanuatu uses it as an indicator consistently throughout its NDC. The Republic of Moldova similarly uses "impact on poverty" as an indicator for each of its high-priority investments.

Manila, a squatter colony contrasts with the modern background skyline. The Philippines aims to achieve zero poverty by 2040.
Photo: MDV Edwards/ Shutterstock

3. Economic diversification

The majority of NDCs that include the term "economic diversification" simply acknowledge the need to diversify to achieve a successful transition towards a low GHG emission economy. This is the case for countries such as Brunei, Chad and Suriname. However, a few NDCs delve deeper into an explanation of what this will entail. Saudi Arabia, Timor-Leste and the United Arab Emirates are among the countries that include the most references to "economic diversification" in their NDCs. Economic diversification is central to Saudi Arabia's sustainable development plans as it aims to "reduce dependence in its economy on revenues from limited sources". Potential sectors whose share they hope to increase include manufacturing, energy, mining, tourism and information technology. The United Arab Emirates' NDC mentions past successes, such as that the share of the non-oil sector in the country's GDP has more than doubled since 1970, owing to its strong tourism sector, among other reasons. It further sees the transition to a low GHG emission economy as a chance to further diversify, hoping to become an export hub for low-emission technologies and fuels. Timor-Leste acknowledges that, like most small island nations, it relies on a narrow economic base. Its high dependence on fossil fuels will continue unless it diversifies and invests in other sectors. The NDC specifically identifies the ecotourism sector as having the most potential in aiding the diversification of its economy.

Nigeria and Sierra Leone are two other countries whose NDCs include more concrete plans for economic diversification. Under its section on just transition, Nigeria's NDC explains its goal of expanding the agricultural, forestry and fisheries sector. Sierra Leone's goals for diversification focus upon the transport sector, specifically improving provincial and feeder roads and improving water transport systems.

Term used in NDCs

28.4% of NDCs use :

Economic diversification

Bariga, Lagos, Nigeria - 19 October 2022. A woman wearing indigenous African hat and sprinkling water on her fish in the market. Nigeria's NDC explains its goal of expanding the agricultural, forestry and fisheries sector. Photo: Omotayo Kofoworola/ Shutterstock

The Indonesian government helps lower-income people by providing cheap, subsidised gas.
Photo: Cindhyade/Shutterstock

4. Social protection

Terms used in NDCs

18.3% of NDCs use:
Social Protection

About 18 per cent of the NDCs contain the term "social protection", but the majority of these do so only in short references. The term is primarily used in one of two ways: to recognize the need to strengthen national social protection systems or to highlight plans to improve existing social protection systems. In most cases these references are not explicitly linked to just transition, but the NDCs submitted by Antigua and Barbuda, Indonesia, Kenya and South Africa do identify the overlap between social protection and just transition; they both assert that the former is a crucial component of the latter. Some, for example Albania, only identify the need for social protection systems in the context of climate-related disasters. The Bolivarian Republic of Venezuela's NDC also identifies the need for strengthened systems to respond to climate-related disasters, but further acknowledges that the social protection system in Latin America and the Caribbean has many flaws. However, other countries stress the proactive steps they have already taken. In 2020 and 2021, the Government of Jordan launched two social protection programmes aimed at helping vulnerable workers, and Egypt was able to reduce poverty by strengthening social safety nets to reach the most vulnerable.

5. Youth

The term "youth" appears in 86 of the NDCs. While the depth to which the term is explained varies greatly, the context in which the term appears is largely uniform across the NDCs. The term most often appears in recognition that youth must play an important role in work to combat climate change. As they will bear the brunt of future climate-induced issues and related disasters, it is crucial that they are recognized as an important stakeholder and heavily involved in decision-making processes. For example, Cambodia's NDC, in which the term "youth" appears more than 100 times, includes an entire section on youth involvement and commits to ensuring that youth hold positions in all relevant sectors and are engaged in all decision-making processes. Many other NDCs (for example those of Antigua and Barbuda, Dominica, Eswatini, Lesotho, Liberia, Mauritania, Pakistan, Papua New Guinea, Republic of the Congo, Saint Lucia and Venezuela (Bolivarian Republic of)) dedicate a section that discusses youth or combine it in a section on gender and other vulnerable populations.

In addition to committing to increasingly recognize youth as stakeholders, other specific commitments concerning youth include developing focused training that targets youth groups; adopting climate-resilient technologies that will lead to job creation for youth; and integrating youth into building resilience to climate change, such as through enhancing food security. In a few NDCs, youth are implicitly referenced through education. Nauru, for example, plans to integrate climate change into the school curriculum so that youth are more prepared to implement effective climate actions. Two of the NDCs (those of Antigua and Barbuda and State of Palestine) reference action for climate empowerment initiatives, which the State of Palestine recognizes as providing an ideal opportunity to engage youth.

Terms used in NDCs

50.9% NDCs use:

Youth

Childern and youth in NDC
Photo: UN Climate Change/ Kamran Guliyev

6. Social dialogue and stakeholder engagement

Terms used in NDCs

Respectively 2,9% and 31,9% of NDCs use:

Social Dialogue or Stakeholder engagement

Deciphering which countries referred to either "social dialogue" or "stakeholder engagement" required a certain amount of subjective analysis. Almost all of the NDCs included the word "stakeholder" at least once in the document; however, in the majority of cases the term is present in order to explain that the process of submitting or updating the NDC included a comprehensive stakeholder engagement process.

Therefore, for the purposes of the analysis for this report, only NDCs that reported plans to include stakeholders regularly or in the future were recognized as referencing stakeholder engagement. Kenya, for example, recognizes that transitioning to a low GHG emission economy requires stakeholder engagement and has therefore held comprehensive stakeholder-driven dialogues. In Brunei Darussalam, youth and non-profit organizations are regularly engaged in climate change dialogues with ministers and policymakers and for reviews of the country's national climate change policies. Several other countries stress in their NDCs that they will continue with stakeholder engagement. For example, Nigeria, the Philippines and Zimbabwe envision further stakeholder engagement for the implementation of their NDC to give stakeholders an opportunity to feed into the process. Paraguay will promote climate citizen forums as spaces for cooperation between organized and unorganized civil society organizations, academia and State authorities.

> "Some NDCs also reference specific existing forums in which a wide range of stakeholders are represented and that are used for engagement on climate change topics."

Some NDCs also reference specific existing forums in which a wide range of stakeholders are represented and that are used for engagement on climate change topics. These include, for example, the National Climate Change Stakeholder Forum in Gambia, the Brazilian Forum on Climate Change in Brazil, the National Climate Change Council in Seychelles and the 2050 Carbon Neutrality Commission in the Republic of Korea.

Several of the NDCs present extremely comprehensive plans for how they plan to engage stakeholders throughout all future climate action. For example, Cambodia's NDC makes reference to another document that Cambodia had published prior to submitting its updated NDC: the NDC Roadmap and Stakeholder Engagement Plan 2019–2030. In that document, the Government of Cambodia further explains the necessity of engaging all Cambodians in conversations on climate change.

Strikingly, references to "social dialogue", a key element of just transition that includes employers, workers and governments, were limited, although it was referenced by the NDCs of Colombia, Costa Rica, Nigeria and Norway. The United Kingdom's NDC mentions the Just Transition Declaration, which includes supporting social dialogue, but this reference is made only in the context of overseas funding for developing and emerging economies. Other NDCs implicitly reference dialogues but considered them more in the sense of broader stakeholder engagement processes.

7. Skills and training

Terms used in NDCs

55% of NDCs use:

Skills or Training

More than half of the NDCs (93 out of 169) include a reference to either "skills" or "training". There was a much larger number of NDCs that reference institutional trainings of public authorities. While this is important, the focus of just transition is on the wider workforce or youth, so the notions were assessed and only those that related to these groups were included. The extent to which these two terms are used varies greatly across the NDCs. Many NDCs simply acknowledge a need for skills development or training in a particular sector. NDCs that use the terms in this manner often connect it

to economic diversification given that one cannot exist without the other; economic development cannot successfully occur unless the skills and knowledge necessary to transition to sectors are sufficient. Therefore, the United Arab Emirates set up capacity-building programmes to equip students with the skills to succeed in the green economy. Timor-Leste notes that development and upskilling of the workforce is vital for the future of its economy.

Many NDCs that include these two terms mention them very broadly, asserting that they commit to developing training programmes or skills development, but rarely providing specific plans or programmes. Only about half of the NDCs do refer to specific programmes or identify specific sectors in which they commit to developing programmes. For example, in a table identifying specific adaptation commitments and correlating indicators, Ethiopia's NDC identifies the "number of persons acquired skills through tailored capacity building activities" as an indicator to achieve the commitment of "expanding the construction of medium and large-scale irrigation systems to enhance food security". Viet Nam's NDC commits to developing and implementing training and upskilling programmes for all levels, focusing on technical experts in GHG emission reduction, climate change adaptation, disaster risk reduction, and the use of renewable and new energy. Similarly, Lesotho's NDC commits to building up training capacities in the field of solar thermal technology.

Renewable energy in Quang Ninh district, Quang Binh province, Viet Nam.
Photo: Loner Nguyen/ Shutterstock

8. Jobs and employment

Term used in NDCs

47.3% of NDCs use:

Jobs or Employment

> In contrast to these positive references to jobs and employment, there are only a few that address the job losses that could result from the transition.

Almost half of all NDCs include a reference to "jobs" or "employment". These terms were overwhelmingly used in a positive way, referring to the creation of new jobs as an opportunity. Some NDCs, such as those of the Democratic Republic of the Congo, Oman and Senegal, therefore regard new jobs as a co-benefit of the transition or the climate mitigation and adaption measures that are implemented. In many instances, the types of job created are also mentioned: close to 30 NDCs include a reference to green jobs, and many link job creation to the energy sector (for example Canada and Mexico) or renewables (for example Saudi Arabia) in particular. Another factor that various NDCs also emphasize is the quality of these new jobs. For example, Antigua and Barbuda's NDC references the importance of meaningful and decent work. Indonesia's NDC and Dominica's NDC both explicitly link just transition to decent work and quality jobs.

Several countries provide concrete estimates of the number of new jobs in their NDCs, often broken down by sector. In Tunisia, the implementation of the NDC would allow for the creation of approximately 12,000 additional jobs in the energy sector compared with the 'business as usual' scenario. For Ghana, a total of 47 adaptation and mitigation projects implemented as part of the NDC are expected to create more than 1 million jobs. And in Nigeria approximately 12 million net additional jobs will be added across the economy between 2020 and 2035. Interestingly, Nigeria's NDC connects job creation with the required investment and concluded that while policies for each biofuel and cement industries would create the same number of new jobs, the investment needed for the cement industry is more than three times as high.

In contrast to these positive references to jobs and employment, there are only a few that address the job losses that could result from the transition. For example, the Republic of Korea highlights support measures for areas in which the number of jobs decreases and South Africa mentions labour and social plans to minimize adverse impacts on workers when ageing coal-fired power plants and associated coal mines are decommissioned.

Technician working with EV car battery cell module in laboratory.
Photo: Phonlamai/Shutterstock

9. Inequality

The term "inequality" appears in many NDCs (about 40.2 per cent), primarily in the context of the importance of establishing and further promoting gender equality. Only a minority, however, address social inequality, or other types of inequality, such as geographical and intergenerational inequality, more broadly. Inequality is mainly addressed in three different ways. First, some countries simply mention the current state of inequality. In Angola's NDC, there is evidence (the Gini index) that shows that that inequality remains high. Namibia's NDC describes inequalities as extreme. Other countries link the risk of increasing inequalities to climate change. The Republic of Moldova, for example, mentions that the income of the rural population will decrease as a result of extreme weather events, such as heatwaves, frosts and droughts, which will increase food prices and thus exacerbate social and gender inequalities. Honduras' NDC describes a similar causal interrelationship between inequality and climate change. Mexico's NDC stresses that climate change accentuates inequality, disproportionately impacts the poor and dispossessed working women and men, Indigenous and peasant communities, and migrants, and requires immediate attention in order to reduce poverty and extreme economic, ethnic and geographic inequality. Finally, and similar to Mexico's NCD, various NDCs include a clear commitment or aspiration to reducing inequality. Chad's NDC, for example, refers to the country's 2030 vision, which aims to improve the living conditions of the population and reduce social inequalities. Eritrea's NDC connects the need for capacity-building with an aim of reducing social and geographical inequality, as well as narrowing the gaps between women and men's rights, while Ecuador's NDC, along with mitigating its GHG emissions, aspires to reduce inequality.

Term used in NDCs

40.2% of NDCs use:

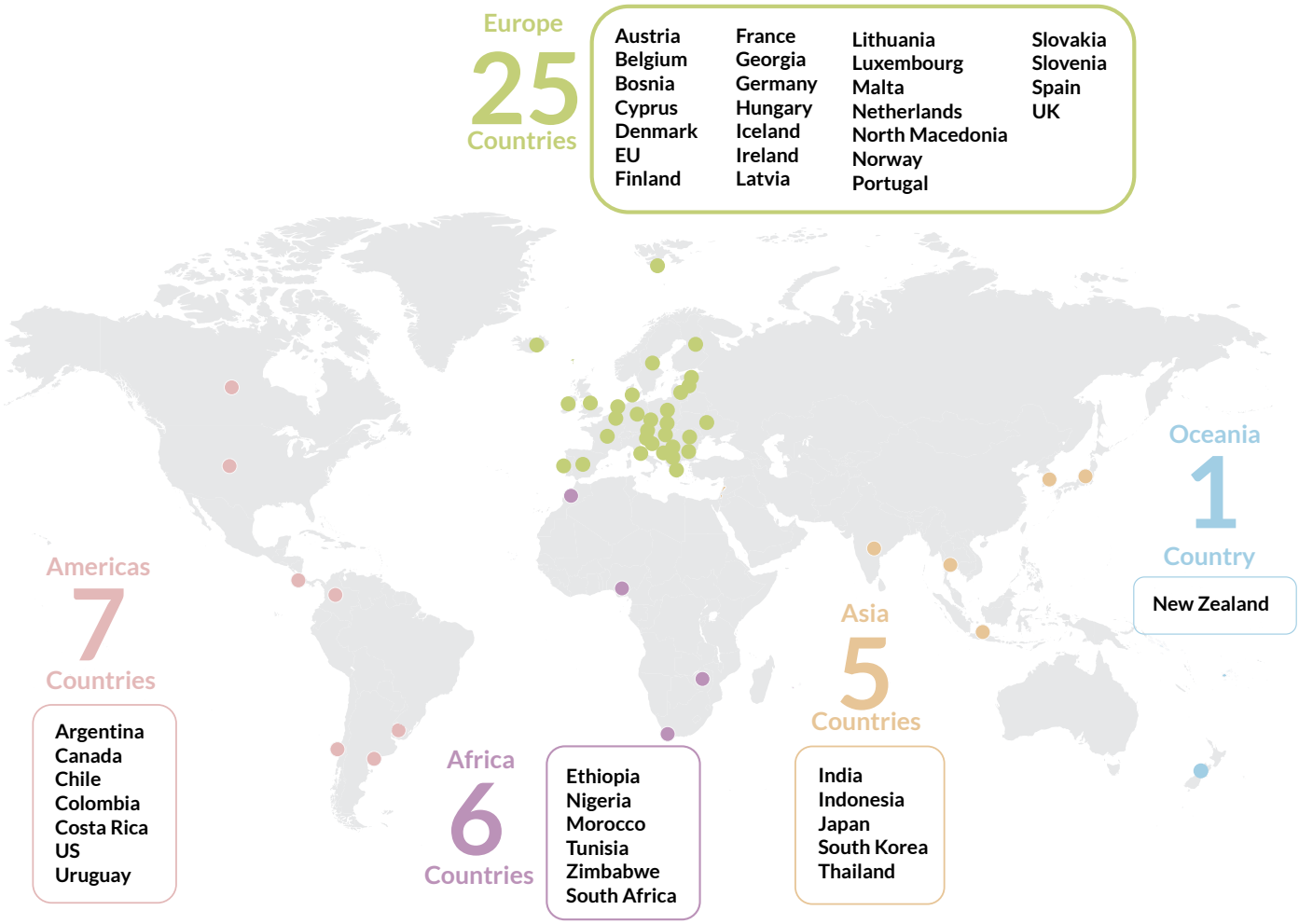
Inequality

COP29 - 20 Nov 24 - Civil Society Actions
Photo:UNFCCC

D. Explicit references of just transition in long-term low-emission development strategies

A large majority of the 68 LT-LEDS submitted by countries as part of their climate action plans as at November 2023 incorporate the concept of just transition. Among these, 44, and thus 65 per cent, of all LT-LEDS explicitly reference the term, highlighting its importance in the context of climate mitigation and adaptation efforts. As illustrated in figure 2, most of these references were included in the LT-LEDS of European countries and the EU (25).[10] Furthermore, seven countries from the Americas, six from Africa, five from Asia and one from Oceania included the term. In strong relation to the regional breakdown, 59 per cent of the explicit references come from developed countries (26), 34 per cent from developing countries and the remaining 7 per cent from economies in transition. Notably, only one least developed country (Ethiopia) and four fuel-exporting countries (Colombia, Indonesia, Nigeria and Norway) explicitly reference just transition in their LT-LEDS.

Figure 2. Regional breakdown of countries that submitted long-term low-emission development strategies with explicit references to just transition



10 This is a similar level compared with the NDCs if each EU member State and the EU were counted separately (49%), but significantly higher if this is not done (18%).

The depth and frequency of these references to just transition, however, vary across the 44 LT-LEDS. In 18 LT-LEDS there are only limited references to just transition, as they only include it once or twice. By contrast, an almost equal number (17 LT-LEDS) provide more comprehensive discussions by including a paragraph or up to multiple-page long sections, in many cases linking just transition with broader concepts of social inclusion and justice. Among these, there are eight from countries in Europe (Austria, Belgium, Ireland, Luxembourg, Portugal, North Macedonia, Portugal, Slovenia and Spain), five from countries in Latin America (Argentina, Chile, Colombia, Costa Rica and Uruguay), three from countries in Asia (Indonesia, Japan and Republic of Korea) and one from a country in Africa (South Africa).

E. Depth of explicit references of just transition in long-term low-emission development strategies

Several countries make only passing references to just transition in their LT-LEDS, with no or only limited elaboration on the concept and its practical implementation. For example, Denmark's LT-LEDS mentions just transitions for impacted workers without further details. Latvia's LT-LEDS acknowledges just transition as a general principle for the implementation of its climate strategy, but does not provide specific details or plans related to just transition, leaving it as a high-level concept without elaboration. Ethiopia's LT-LEDS acknowledges the principles of just transition, providing more details by connecting it to the preparation of the workforce for the demands of the future green labour market. There is a clear recognition of the need for just transition within the LT-LEDS of other countries. In Tunisia's LT-LEDS, just transition is seen as important in the context of reducing GHG emissions. The United States of America's LT-LEDS underscores the necessity of just transitions from fossil fuels and high-emission technologies, highlighting the importance of managing economic and social impacts. Nigeria's LT-LEDS further considers pursuing a just transition strategy as a critical policy measure for a carbon-neutral oil and gas sector, and Zimbabwe's LT-LEDS commits to carrying out a deeper analysis of the social and employment dimensions of the LT-LEDS, of which just transition would be an integral part. Finally, Thailand's LT-LEDS addresses just transition as an enabling policy for carbon neutrality, while South Africa's LT-LEDS stresses the need to address resistance to change, which is challenging if not well handled, with just transition actions.

Several countries, including Argentina and Austria, link their just transition references with an emphasis on the importance of cost-sharing in their LT-LEDS. They recognize the need to distribute the financial burdens associated with climate action equitably, ensuring that no specific group or community bears disproportionate costs. Meanwhile, Ireland takes a more comprehensive approach, addressing both cost-sharing and benefit-sharing in its LT-LEDS. Ireland's dedicated section highlights the equitable distribution of benefits, striving to make the advantages of climate action accessible to all members of society. Additionally, Hungary and Thailand also recognize the significance of benefit-sharing in their LT-LEDS, understanding that a just transition involves ensuring that the positive outcomes of climate action, such as job creation and economic growth, are accessible to all segments of society.

Others view just transition as a cross-cutting issue that affects various aspects of society and the economy. Luxembourg's LT-LEDS emphasizes the need to take into account the impact on citizens' social well-being and emphasizes putting people first. Costa Rica's LT-LEDS mentions just transition as a cross-cutting strategy multiple times, highlighting the need for just transition measures to support people, communities

and businesses affected by the transition. The strategy further provides details on if and how just transition relates to each of the 10 decarbonization axes identified as important to achieve carbon neutrality. Indonesia's LT-LEDS acknowledges just transition as one of four strategic supporting issues, emphasizing the importance of addressing gender equality, justice, intergenerational equity and vulnerable groups. Belgium's LT-LEDS addresses just transition as part of a section on cross-sectional views, in which it defines its objective as organizing and transforming society into a low GHG emission economy that is socially just, including measures for participation, consultation, training and social protection.

Several countries further outline specific plans or strategies related to just transition. Canada's LT-LEDS includes a reference to efforts for just transition legislation, indicating a proactive approach to addressing the social and economic aspects of the transition. Spain's LT-LEDS positions just transition as central to ensuring that nobody is left behind in the transition to a green economy, featuring about 15 references, including its Just Transition Strategy, that include the development of local just transition agreements. Chile's LT-LEDS highlights that a just transition strategy is nearly completed, based on four pillars, emphasizing a people-focused transition, economic development, environmental considerations and participatory governance. Similarly, Colombia's LT-LEDS states that a national strategy for the just transition of the workforce is being developed and that adequate monitoring for this must be put in place. The EU's LT-LEDS, as well as those of various EU member States, such as Finland, Lithuania, Malta and Slovenia, references the EU JTM, which supports the regions and sectors most affected by the transition.

Indonesia launches clean hydrogen and ammonia roadmap document as one of long-term low-emission development strategies to realize energy decarbonization to reach Net Zero Emission in 2060.
Photo by: Fredy Susanto

F. Implicit references of just transition in long-term low-emission development strategies

Among the 68 LT-LEDS, "jobs and employment" and "skills and training", which appear in more than four fifths of all submissions, are the most frequently referenced terms that reflect just transition principles implicitly. "Stakeholder engagement", "gender", "youth" and "inequality" are the next most frequently cited, with references in about half of all LT-LEDS. "Economic diversification" and "social protection", particularly "social dialogue", were referenced far less and were only reflected in between 9 and 21 per cent of all LT-LEDS. Table 2 illustrates the number and percentages of how often these related elements are referenced.

Table 2. Number of keyword search findings, including variations for the term "gender" in the LT-LEDS[11]

Keyword	Subcategory	Number of LT-LEDS	Percentage of all LT-LEDS
Economic diversification		14	20.6
Jobs or employment		58	85.2
Skills and training		57	83.8
Gender		34	50.0
	Gender-sensitive	2	2.9
	Gender-responsive	2	2.9
	Gender-transformative	2	2.9
Youth		33	48.5
Poverty		41	60.3
Social protection		13	19.1
Inequality		31	45.6
Stakeholder engagement and broader dialogues		40	58.8
Social dialogue		6	8.8

The term "gender" is referenced in the LT-LED of 34 countries. These mentions often highlight the vulnerability of women during the transition, although some countries, such as Belgium and Morocco, also recognize the potential opportunities for women within the transition. Several nations, including Argentina, Costa Rica and Nigeria, view gender issues in their LT-LEDS as cross-cutting concerns and aim to address them by closing gender gaps in climate policies or mainstreaming gender considerations into all climate actions. Others, such as Guatemala and Zimbabwe, are still building research efforts aimed at better understanding the implications of climate policies and measures on women. The number of gender-related references generally varies significantly, with some LT-LEDS containing only one reference (for example Belize) and others, such as Chile, featuring as many as 90 references. Certain countries, such as Bosnia and Herzegovina, Georgia, Spain and Indonesia, have dedicated sections on gender in their LT-LEDS. However, there is limited use of terms such as "gender-sensitive", "gender-responsive" and "gender-transformative action" in these LT-LEDS, with only a few countries, including Argentina, Bosnia and Herzegovina, Chile, Nepal and Tunisia, employing these terms in their LT-LEDS to describe their approach to addressing gender-related considerations in climate policies and actions.

11 The percentages were calculated by dividing the number of LT-LEDS that referenced a given keyword by the total number of LT-LEDS (68), and then multiplying the result by 100. Unlike the case of NDCs, where the European Union's submission was counted only once on behalf of all Member States, in the case of LT-LEDS each Member State's individual submission was included in the count, in addition to the EU-wide LT-LEDS.

Poverty is a significant concern addressed in the majority of LT-LEDS, with 41 countries referencing the term. Many countries emphasize the importance of poverty eradication in their LT-LEDS, with India calling it a priority and Solomon Islands including poverty alleviation in its national development strategy. European countries, in particular, focus in their LT-LEDS on addressing energy or fuel poverty during the energy transition, offering specific policy examples to mitigate these risks, including Luxembourg, Slovakia, Slovenia and the United Kingdom. Additionally, some countries highlight that climate action can contribute to poverty reduction. Several countries have framed their climate action as a means to reducing poverty. For example, Bosnia and Herzegovina's LT-LEDS underscores the significant co-benefits of its investments in energy demand-side management, energy-efficient buildings, district heating and sustainable transport, highlighting how these measures contribute not only to sustainable energy transitions but also to poverty reduction. Similarly, Ukraine's LT-LEDS links green development with poverty reduction, while Ethiopia recognizes in its LT-LEDS the broader social effects of climate initiatives, with an emphasis on poverty reduction through income growth. Nigeria's LT-LEDS emphasizes the same link, as it envisions its NDC as a longer-term vision for low-emission, climate-resilient development, with a strong emphasis on social and economic development and poverty eradication. Finally, Sri Lanka quantifies the impact of its LT-LEDS on poverty reduction, employing modelling to project that by 2050 approximately 4 per cent fewer of the national population would live in poverty compared with the 'business as usual' scenario.

Only 14 countries mention the term "economic diversification" in their LT-LEDS. The common theme is the desire to capitalize on the opportunities presented by the transition towards low GHG emissions while addressing broader development goals. Norway, for example, envisions a diversified economy in 2050, fuelled by the green business sector and the global shift toward low-emission development. Morocco's LT-LEDS aims to move away from a low-value, low-added economy, while Nigeria's LT-LEDS seeks to reduce its dependence on oil exports through diversification. However, specific strategies for achieving economic diversification are often lacking in the LT-LEDS. For example, Australia plans to collaborate with regional governments, and Cambodia's approach involves government insurance to support climate-friendly cooling of public buildings as a means of promoting economic diversification.

With only a total of 13 references, even fewer countries mention "social protection" in their LT-LEDS, focusing on the need for and goal to strengthen it. Colombia's LT-LEDS identifies it as a means to build social resilience to climate change, while Norway's LT-LEDS underscores its necessity for individuals negatively impacted by the green transition. Hungary's LT-LEDS regards the introduction of social protection policies as a crucial enabler for a smooth and equitable transition that ensures prosperity for all citizens. Indonesia's LT-LEDS views adequate social protection as a key component of its just transition strategy. However, detailed policies are scarce in these documents. South Africa's LT-LEDS discusses early retirement as a measure to support workers and communities dependent on fossil fuel industries, and Sri Lanka's LT-LEDS cites the promotion of progressive social protection and insurance coverage as a concrete example, addressing climate and disaster-related risks, such as flooding, erosion damage and agricultural losses.

The term "youth" is referenced in 33 LT-LEDS, in some cases warranting separate sections. These references can be categorized into three main themes. Firstly, several countries, such as Argentina, Ethiopia, Indonesia, North Macedonia and Solomon Islands,

stress in their LT-LEDS the importance of achieving youth equity and integrating youth concerns into climate policies. Secondly, youth is recognized as a significant stakeholder requiring engagement and consultation, with Japan's LT-LEDS committing to involving younger generations in dialogues about future climate initiatives and Denmark's LT-LEDS referencing a Youth Climate Council to infuse innovative thinking into climate policy. Some nations take this a step further, encouraging youth to actively participate in low GHG emission activities or collaborate on LT-LEDS implementation, as seen in France's and Nepal's LT-LEDS. Lastly, the need for youth training is acknowledged by various countries in their LT-LEDS. For example, the United Kingdom aims to equip young people with the knowledge and skills necessary for contributing to the green economy, while Chile promotes formal environmental education to encourage public participation in addressing climate challenges. India focuses on empowering youth and fostering innovative technologies, particularly in the context of youth entrepreneurship. Morocco combines all three aspects, emphasizing youth education, the need to benefit from economic opportunities and inclusion in decision-making processes.

COP29 - 21 Nov 24 - Children for a planet : Let's Protect Nature.
Photo: UN Climate Change - Kamran Guliyev

Social dialogue and stakeholder engagement are other key components among various LT-LEDS. Six countries, strikingly only countries in Europe and South America (Chile, Colombia, Denmark, Ireland, Latvia and Norway), express their commitment to social dialogue in their LT-LEDS. The common purpose across these nations is to identify consensual pathways for the transition, ensuring that citizens and communities are central to the process. Norway's LT-LEDS highlights the fundamental role of social dialogue in addressing labour market challenges. Moreover, stakeholder engagement is a prevalent theme, with references across 40 LT-LEDS. Several nations, such as the Gambia, Germany, Morocco, New Zealand and Tunisia, emphasize the importance of these engagements and consultations in their LT-LEDS. Many countries also reference existing forums for organizing stakeholder engagement in their LT-LEDS, including Georgia's Climate Change Council, Thailand's National Committee on Climate Change Policy and France's National Council for Ecological Transition. Additionally, some countries directly link stakeholder engagement with the concept of just transition in their LT-LEDS, recognizing its significance in managing policy implementation and fostering employment. For example, Argentina highlights in its LT-LEDS the requirement of intersectoral dialogue to manage just transition during policy implementation, while Belgium emphasizes measures in favour of broad citizen participation and social consultation for just transition. Indonesia focuses on enhancing participatory public dialogue to foster employment, and Ireland promotes extensive citizen engagement. South Africa's LT-LEDS highlights a consultative, bottom-up process for developing a vision of just transition and pathways to achieve it.

> "The regional breakdown of references to just transition in both the NDCs and LT-LEDS reveals varying levels of commitment and recognition across different parts of the world."

Skills and training are prominent themes in the majority of LT-LEDS, with 84 per cent (57 LT-LEDS) of countries across different regions and development stage making reference to this aspect. These references share common elements, primarily underscoring the necessity for acquiring new skills and qualifications to meet the demands of emerging job opportunities, particularly in the green sector. Additionally, these references often highlight government support and policies aimed at facilitating the acquisition of these new skills. These policies encompass various initiatives, including reskilling and upskilling programmes and the adaptation of vocational training and curricula to align with evolving workforce requirements. Moreover, many LT-LEDS explicitly link the demand for new skills with the imperative for reskilling and training. Several countries provide concrete examples to illustrate the types of workers who require training. For example, Sweden's LT-LEDS emphasizes training programmes for professionals in the construction industry, and Costa Rica focuses on training mechanics for the transition to EVs in its LT-LEDS.

The terms "jobs" and/or "employment" are featured in 58 LT-LEDS, with a prevailing focus on the potential and opportunities associated with the implementation of climate change policies. The references overwhelmingly emphasize the creation of new, often characterized as decent, jobs resulting from the transition towards more sustainable and climate-resilient economies. Remarkably, only a handful of countries (Bosnia and Herzegovina, Portugal and South Africa) briefly allude in their LT-LEDS to potential job losses during the transition. However, even in acknowledging these losses, these countries highlight the significant potential for new job creation, which outweighs these negative impacts. Several nations, such as Australia, Georgia, Lithuania, North Macedonia, Oman, the United States and Uruguay, go a step further in their LT-LEDS by providing estimates of the job creation potential of the transition. Uruguay, in particular, stands out for its comprehensive approach, conducting modelling exercises to assess the impact of climate change policies on employment across various sectors

Solar panels to drive water pumps. Just transition affects various sectors, one of which is agriculture.
Photo: Toa55/Shutterstock

(energy, including transport; construction; agriculture, forestry and other land use; and waste), considering gender and age distinctions. This detailed analysis offers valuable insights into both the opportunities and challenges, facilitating the development and implementation of targeted actions aligned with the principles of just transition.

A total of 31 LT-LEDS reference the term "inequality", with 12 of them primarily focusing on gender equality. Some countries, such as India, simply acknowledge the need to address escalating inequality in their LT-LEDS, and Costa Rica further underscores the reduction of inequality as a goal aligned with economic stability and inclusive growth. Others, such as Ireland and Spain, emphasize in their LT-LEDS that existing inequalities should not be exacerbated as part of the transition, highlighting the potential of carbon neutrality measures to rebalance existing social disparities when appropriate actions are taken. Similarly, Uruguay's LT-LEDS recognizes the vulnerability of certain groups to climate change impacts owing to structural socioeconomic inequalities and stresses the importance of considering these impacts. Moreover, several countries are seeing a positive link between the transition and the reduction of inequality. Cambodia's LT-LEDS concludes that new green jobs reduce inequality, but only modestly owing to their salary levels, which are below but close to average salaries. Mexico's LT-LEDS further views climate change adaptation as an opportunity to address inequalities and recommends considering it in policy design and implementation, while Morocco's LT-LEDS underscores the potential of a decentralized and participatory energy transition to reduce territorial and social inequalities.

G. Summary of nationally determined contributions and long-term low-emission development strategy assessments

The assessment of the NDCs and LT-LEDS with regard to their incorporation of the concept of just transition resulted in interesting findings. First, just transition is more frequently and comprehensively addressed in the LT-LEDS. While approximately 26 per cent of NDCs, 36 per cent if each EU member State is counted separately, make some explicit reference to just transition, 65 per cent of LT-LEDS explicitly mention it. In terms of the depth of these references, many LT-LEDS also provide significantly more detailed discussions of just transition, often interlinking it with broader social inclusion and justice themes. By contrast, the share of NDCs that only reference the term once or twice is much higher, and the references tend to emphasize employment and economic aspects of just transition, with limited elaboration.

The regional breakdown of references to just transition in both the NDCs and LT-LEDS reveals varying levels of commitment and recognition across different parts of the world. European countries lead in terms of the number of references, demonstrating a strong commitment to addressing social and economic aspects in climate action plans. Latin American countries also reference just transition, particularly in their NDCs. Meanwhile, Asian and African, as well as Oceanian, countries show mixed levels of representation, indicating that the concept is still evolving in these regions. While the references to just transition in the NDCs are fairly equally distributed among developed and developing countries, there are considerably more LT-LEDS from developed countries that include such a reference. Strikingly, there is a concerning lack of references among fuel-exporting nations and the least developed countries in both the NDCs and LT-LEDS. This gap raises important questions about the need for comprehensive just transition planning in the regions most vulnerable to economic and social impacts during the transition to low GHG emission economies.

The NDCs and LT-LEDS share common themes related to just transition, but they also exhibit differences in emphasis. Gender considerations are prevalent in both sets of documents, with a focus on inclusiveness, mainstreaming and, for the NDCs, transformative and responsive measures. Poverty is a key concern addressed in most NDCs and many LT-LEDS, but the NDCs often emphasize the link between climate change and poverty, while the LT-LEDS place a stronger emphasis on poverty alleviation within the context of sustainable development. Skills development and training are highlighted as essential components for both economic diversification and the creation of green jobs in both types of document. Youth engagement is emphasized in recognizing their role as important stakeholders in climate action, with similar representation in both the NDCs and LT-LEDS. Job creation is discussed positively in both, with the NDCs often specifying the types of job to be created, while the LT-LEDS provide more concrete estimates of job creation potential. Inequality, particularly gender-related inequality, is addressed in both contexts, with the NDCs including more references to gender considerations, while economic diversification is considered crucial for a successful transition towards low GHG emissions, with the LT-LEDS featuring more explicit references to this theme. Social protection and stakeholder engagement are referenced with varying degrees of emphasis in both the NDCs and LT-LEDS, underscoring their importance in achieving just transition goals, although the NDCs tend to include more mentions of social protection. In addition to these common themes, it is worth noting that social dialogue, which involves employers, workers and governments in decision-making processes related to just transition, is only explicitly mentioned in a very limited number of both the NDCs and LT-LEDS.

Overall, both the NDCs and LT-LEDS demonstrate a growing recognition of just transition principles, both explicitly and implicitly, and serve as an entry point to understand government plans on just transition and related issues. However, there are variations in the depth and specificity of commitments and strategies across different countries and regions. This finding is also highlighted in a more recent mapping of just transition in NDCs by the ILO,[12] and shows that certain countries and regions are yet to step up efforts to ensure that the transition towards low GHG emissions is complemented by robust just transition principles to ensure that nobody is left behind.

The "Cleaner Air for London" campaign, including initiatives like "Clean Air Wins" and "Clean Air New Voices," aims to reduce air pollution in London by addressing various sources, particularly vehicle emissions, and advocating for cleaner transport and healthier living environments
Photo: Shutterstock

12 Available at https://www.ilo.org/sites/default/files/2024-11/Mapping%20Just%20Transition%20in%20NDCs-%20%20An%20overview%20-%20Web.pdf.

III.

SECTORAL APPROACHES TO JUST TRANSITION

III. Sectoral Approaches to Just Transition

We are still in the early stages of international just transition efforts, although there is more experience with the phase out of coal than for other sectors. For that reason, it is difficult to identify definitive lessons from existing examples that can be applied in the future. This is further complicated by the uniquely local nature of every just transition process, meaning that there is no blueprint to draw upon. With that said, despite these limitations there are some lessons that can be drawn from approaches to just transition in various sectors in different countries. This chapter highlights three sectoral approaches, taking lessons from individual country examples.

A. Coal sector

The most direct experience with just transition has been in the coal sector, in line with the consensus that coal is the fossil fuel that emits the highest level of GHG emissions and hence needs to be phased out quickly. Coal and, in relation to this, electricity sector transitions are under way in multiple countries: in the Global North, such as in Canada, Germany and Spain, and in some countries from the Global South, with Chile, Indonesia and South Africa implementing elements of just transition. For this reason, there are various examples to draw upon to help identify potential lessons to take forward for other countries looking to undertake just transition processes in this sector.

1. Just transition policies in the coal industry

In Germany, coal is still a dominant fuel used for electricity generation, and both lignite and hard coal together accounted for close to a third of the total electricity generated in 2022 (Federal Statistical Office, n.d.). Hard coal mining was phased out in 2018 after a decade-long process of gradual reduction, and demand is now met through imports, while lignite continues to be mined in three areas, which almost completely supplies domestic demand.

Responding to Germany's commitment to reach net zero by 2050, which was legislated in 2019 (this target has since been moved to 2045), the Government mandated the end of operating coal-fired power plants by 2038, or if feasible, by 2035 (German Federal Government, 2020). To do so, a law specified capacity reduction paths[13] for both hard coal- and lignite-fired power plants. It further specified the exact years for when each of the remaining lignite-fired power plants need to stop operating and provided compensation to the two remaining operating firms. For hard coal-fired power plants, the law introduced a tender process for determining the size of the compensation to be paid to the power plant operators for their early retirement up to 2027, after which the remaining power plants need to be gradually decommissioned following the capacity reduction path without receiving further compensation.

13 The initial paths included a reduction to 30 GW capacity (15 GW from both hard coal and lignite) by 2022 and 17 GW capacity by 2030 (8 GW hard coal and 9 GW lignite) before moving to zero by 2038, or possibly 2035. There have been several changes in response to the risk of energy supply shortages after the start of the Russian Federation's war against Ukraine, which effectively increase the operating coal capacity until March 2024. By contrast, after reaching an agreement with one of the lignite-fired power plant operators, the phase-out of coal-fired power plants will be moved forward in western Germany, which reduces the operating lignite capacity after 2030 by one third compared with the initial reduction path.

Elements of just transition that complement the coal phase out include retirement bridging, investments in infrastructure and public research institutes, the creation of new government jobs, reskilling and upskilling, protection of consumers from rising electricity prices and financial grants for implementing local projects (Federal Ministry for Economy and Climate Action, 2020; German Federal Government, 2020). The determination of local projects to receive funding is the result of inclusive bottom-up approaches, and together with other grants put in place will total EUR 40 billion by 2038. As at August 2022, projects and measures worth close to EUR 25 billion had already been initiated, and more than 3,000 new direct jobs in government agencies created (Government of Germany, 2022).

Yet, there is also some criticism of the German process (Geißler, 2022). For example, not enough of the funds allocated for local projects have been spent on projects that generate new jobs, such as innovation and economic promotion, but rather have been spent on projects that support leisure and public services, including childcare. The 'coal areas' that are eligible to receive funding, defined in Germany's just transition law, are considered to be too broad, so parts of the grants that are intended to support affected regions have been spent in areas that are not directly affected by the coal phase-out; finally, the processes to receive funds for projects are considered to be overly bureaucratic.

Coal-fired steam power plant in Karlsruhe, Germany, is used for generation of electricity and district heating from hard coal.
Photo: Shutterstock

In Canada, the federal Government looked for opportunities to obtain substantive GHG reductions in 2012 and sought to curb emissions from coal-fired electricity generation by setting new standards for coal-fired power GHG emissions (Thibault et al., 2021). The standard, set at 420 tonnes of carbon dioxide equivalent per gigawatt-hour of electricity generated, would preclude unabated coal, as even the most efficient supercritical coal-fired power plants in the country would emit double that rate. Once in force, these regulations would prevent the commissioning of new, unabated coal power in Canada. However, they would apply to existing facilities only once those facilities reached an end-of-life date, usually 50 years after their commissioning date. Rather than allowing coal units to operate for 50 years, the eventual plan sought to accelerate the retirement of any unit commissioned after 1985.

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>
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To soften the impacts of phasing out coal on workers and communities, the Government introduced the creation of transition centres that support skills development initiatives and economic and community diversification activities for five years with 35 million Canadian dollars (CAD), and dedicated a CAD 150 million infrastructure fund, starting in 2020/2021, to support priority projects and economic diversification in affected communities in its 2019 budget (Government of Canada, 2019). This was complemented by further action, including the announcement to invest CAD 250 million over five years to create the Sustainable Jobs Training Centre and a new sustainable jobs stream of the Union Training and Innovation Program to further strengthen reskilling and upskilling, as well as a Sustainable Jobs Secretariat to allow for coordination among government departments (Employment and Social Development Canada, 2022). The Sustainable Jobs Plan, an interim plan announced in 2023 that details concrete federal actions to advance just transition builds on this (Government of Canada, 2023). In addition, several initiatives had also been established at the provincial level. For example, in Alberta both a CAD 40 million transition fund to support coal workers in the transition and a CAD 5 million Coal Community Transition Fund to support affected communities was created in the second half of the 2010s (Jackson & Hussey, 2019).

Spain is another country that has enacted a fairly robust, albeit reactive, just transition processes for managing the phase out of coal (Wong et al., 2022). Spain’s Climate Change Law was adopted in 2021 and ensures that just transition strategies are produced and reviewed every five years (European Climate Foundation, 2021). In order to support coal-dependent communities and workers, the Spanish Government enacted a Just Transition Strategy in 2019, along with a Just Transition Institute to support the development of just transition agreements, which are territorial just transition plans developed through highly consultative processes (Ministry for Ecological Transition & Just Transition Institute, 2023). The agreements channel financial support to the regions affected by the phase out of coal, with a number of additional policies planned for socioeconomic development. These include measures for economic diversification and clean energy projects and additional loans for companies that create and maintain employment (European Commission, 2022).

The momentum for the phase out of coal is also receiving increasing attention within the Global South, where discussions and actions are under way in several countries. One of these countries is Chile, where the Government and coal-fired plant operators reached a voluntary agreement that would achieve the phase out of coal by 2040, despite the rather young average age of the existing coal-fired power plant fleet (Ministry of Energy Chile, 2019). This agreement, announced in 2019, mandated that the eight oldest coal-fired power plants, which account for about 1 GW of power capacity, would be closed by

2024, with specific years given for the closure of each of these power plants.[14] Specific retirement schedules for the remaining 20 coal units would be decided every five years, taking into account the economic, social and environmental impacts of this decision. To ensure security of supply, the agreement further established the possibility of joining the strategic reserve mechanism for up to five years before they are completely removed from the system, for which they would receive remuneration depending on their capacity utilization in the last year of operation, but at least at a rate of 60 per cent of the available power capacity (García Bernal, 2020).

To accompany the coal phase-out, a Just Transition Strategy for the energy sector in Chile was developed and published at the end of 2021 (Ministry of Energy Chile, 2021). It contains the vision and principles of how the country is aiming to implement the transition away from coal-fired power plants. It also lays out in a work programme concrete actions that should be taken to support four priorities: (1) People-focused transition, (2) Economic development and productive promotion, (3) Environmental development and territorial approach; and (4) Participatory governance and public-private articulation. To ensure that the implementation of just transition responds to the unique challenges and opportunities of the affected territories, the strategy also mandates development-specific local action plans, a common feature that is also included in just transition processes in other regions, particularly the EU.

14 Criticized immediately after the announcement for not being ambitious enough, ambition was ramped up to increasing the coal-fired power plant capacity announced to be ending operation by 2025 to about 3.5 GW, effectively leaving about 2 GW of capacity to be phased out between 2025 and 2040 (Medinilla, 2023; Molina & González, 2019).

Aerial view of hundreds of solar panels along the Atacama Desert, Chile. Chilean government and coal-fired power plant operators reached a voluntary agreement to phase out coal by 2040.
Photo by: Abriendomundo/ Shutterstock

South Africa highly relies on coal to meet its energy needs. It has a significant coal mining sector that supplies both domestic and export markets. Phasing out coal has been on the agenda for several years, particularly in the light of an ageing fleet of coal-fired power plants, but also with South Africa's pledge to achieve net zero emissions by 2050 as part of its LT-LEDS. In fact, the average age of South Africa's operational coal-fired power plants is close to 30 years, much higher compared with other emerging economies, such as Indonesia or Viet Nam (Zhou et al., 2023). As a consequence, retiring the first coal-fired power plant units began in the late 2010s and South Africa's 2019 Integrated Resource Plan included a pathway to decommission 5.4 GW of Eskom's total capacity by 2022, 10.5 GW by 2030 and 35 GW by 2050 (Department of Mineral Resources and Energy, 2019). Even though this retirement plan is delayed, South Africa's JET IP, launched right before COP 27 in 2022 as part of the country's JETP, outlines an even more ambitious reduction path of 22 GW by 2035, more than half of Eskom's 39 GW capacity operational in March 2021 (Presidency of the Republic of South Africa, 2022). Notably, this also involves the early retirement of one coal-fired power plant (Tutuka). Yet, in 2023, there have been ongoing discussions to, once again, delay the decommissioning of coal-fired power plants, including by the President himself, which is also reflected in the draft of the updated Integrated Resources Plan that was published in early 2024 (Civillini, 2023; Cotterill, 2023; Department of Mineral Resources and Energy, 2024).

To support the transition of the coal sector, and other sectors (the automotive, agriculture and tourism sectors), South Africa developed a Just Transition Framework that was approved by the cabinet in September 2022 (Presidential Climate Commission, 2022; South African Government News Agency, 2022). The Just Transition Framework affirms redistributive, restorative and procedural justice as principles for the country's energy transition, and lays out the likely impacts by 2025, 2030, 2040 and 2050 on the four identified sectors. It further highlights three key policy areas required for achieving a just transition (human resource development and skills development; industrial development, economic diversification and innovation; and social protection measures), as well as the importance of effective governance, including outlining the specific roles of the national Government, subnational government and other social partners, and ways for financing just transition. The Just Transition Framework is also acknowledged to be not exhaustive and needs to be translated into an implementation plan and detailed employment and skills strategies. Both the JET IP and the related Just Energy Transition Implementation Plan 2023–2027 reference the Just Transition Framework as the foundation of the plans. Shortly after this framework received approval by the cabinet, the first coal-fired power plant (Komati) was decommissioned. However, various shortcomings, such as a lack of adequate engagement, timing and provision of support, such as training, showed how the processes need to be improved in order to put the Just Transition Framework effectively in practice (Presidential Climate Commission, 2023).

An emerging area for supporting the Global South to move away from the use of coal are JETPs that have been established with Indonesia, Senegal, South Africa and Viet Nam.[15] These are a novel finance mechanism to support energy transition broadly, but include an explicit commitment to make this transition 'just'. This intention was reflected in the first political declaration of such a partnership (signed between South Africa and the donor countries), which included enabling a just transition that protects vulnerable workers and communities, especially coal miners, women and youth, affected by the move away from coal as one of the objectives of the partnership (Prime Minister's Office, 10 Downing Street, 2021).

15 The focus in Senegal is not coal but more broadly the development of renewable energy to contribute to improving energy access.

The JETPs have been in existence for a few years and have resulted in a considerable degree of frustration among both donor and recipient countries owing to slow progress and unfulfilled expectations. However, it is acknowledged that the JETPs have signalled to the markets that a transition is taking place and showed that there is political momentum, which has led to the development of domestic institutional infrastructure (for example JETP secretariats) that ensures better coordination on just energy transition within the recipient countries and gives a blueprint for the first steps needed for a successful transition (Ferris, 2023; Rockefeller Foundation, 2024).

Nevertheless, to date, various shortcomings related to the 'just' elements are still apparent that can diminish the legitimacy of the JETPs. The two primary concerns relate to funding and inclusion. In South Africa, for example, the JETP has been criticized owing to the high share of loans given, instead of grants, offloading the burden of grant funding to philanthropy, and the very low proportion of funding going to truly 'just' activities, such as skills development, economic diversification and social investment (Simpson et al., 2023). The situation is similar in Indonesia and Viet Nam (Farand, 2023). There is also an almost complete lack of transparency of the processes for agreeing the terms of the , JETPs which largely leaves out key stakeholders affected by the transition, usually considered a crucial element of just transition (Earsom, 2024; Rosemberg & Krause, 2023). Consequently, this makes the JETPs appear as a top-down approach, which diminishes efforts to ensure accountability.

The South African dam wall in KwaZulu-Natal is used to generate power and to meet the needs of other sectors, such as agriculture and water. As part of its LT-LEDS, South Africa has pledged to achieve net zero emissions by 2050.
Photo: MrNovel/Shutterstock

1.1 Just transition planning

The case study countries presented in this report used different mechanisms to ensure stakeholder consultation in the process of just transitions away from coal (Brauers et al., 2022). For example, the German Government did not adopt its coal phase-out unilaterally but established a commission that included representatives of federal and local politics, social partners and other civil society organizations to build the necessary public support for the decision. In addition to establishing a plan for the gradual phase-out of coal-fired generation, the commission was also tasked with providing suggestions on how to ensure that there would be new jobs in the areas currently most dependent on coal. The commission almost unanimously adopted a final report with its recommendations, including those to ensure a just transition, that were then reflected in the law outlined in chapter III.A.1 above. While the Government largely followed this advice for the 'justice' elements of the transition, some criticism, including by some former members of the commission, emerged in relation to the 'decarbonization' elements, including the slow planned reduction of the coal capacity at the beginning of the 2020s or even the commissioning of a new coal-fired power plant (Götze, 2020).

In Canada, as plans for the phase-out of coal coal-fired electricity generation were announced, there was a recognition of the need for a process to be put in place to support the people who would be affected. Therefore, the Government commissioned a task force on just transition (the Task Force on Just Transition for Canadian Coal Power Workers and Communities) in 2018 that consisted of 11 members representing perspectives from labour unions, civil society and the private sector. The group was tasked with providing knowledge options and recommendations to the Minister for Environment and Climate Change on implementing a just transition for workers and communities impacted by the accelerated phase-out of coal power (Environment and Climate Change Canada, 2018). The task force carried out detailed engagement with communities and partners affected by the phaseout of coal power and at the end of its process, in early 2019, issued a detailed report outlining a number of recommendations to address issues such as employment, social protection and orderly implementation of the phase-out process. Specifically, these recommendations included embedding just transition principles in further planning, legislative and advisory processes, but also made concrete suggestions of establishing locally driven transition centres, funding for pension bridging and upskilling, infrastructure development and community development.

Initially the report was welcomed by the Government and by the people who were directly involved in the task force and the groups that it was engaged with. However, there was a widespread view that several recommendations remained unimplemented, notably related to support for workers, such as pension bridging and income support, and other recommendations were underfunded (Bulowski, 2022; Canadian Labour Congress, 2019). While most of the other recommendations had been taken up by the Government's interim sustainable jobs plan, other recommendations, such as the creation of a research fund for studying the impact of the coal phase-out and the transition to a low-carbon economy and pension bridging programmes for workers who will retire earlier than planned owing to the coal phase-out, have not been implemented in the short term (Minister of Natural Resources Canada, 2023).

The interim Sustainable Jobs Plan established a Sustainable Jobs Partnership Council, that would follow a 'tripartite-plus' governance approach based on social dialogue between governments, employers and labour unions, but also consulting with other relevant and affected stakeholders (Government of Canada, 2023). The Sustainable

Jobs Partnership Council will conduct sustained engagement with workers, unions, industry and Canadians more broadly, and will provide independent and ongoing advice to the Government. As such, it will consolidate the work that the coal task force has carried out.

Chile's plan for a just transition away from coal also involved broad stakeholder consultation and participation. Before the voluntary agreements for phasing out coal-fired power plants had been made, round-table meetings that included representatives of the coal-fired power plant operators, governments at the federal and municipal level, workers, environmental non-governmental organizations, civil society and academia, among others, were held in order to analyse and provide information on the challenges of the transition (Ministry of Energy Chile, 2020). These round-table meetings covered six thematic sessions and discussed economic and labour impacts, concluding that workers and communities in the coal regions needed assistance. Three participatory workshops (one for labour unions, one for civil society in the coal communities, and one for the general public) were organized and a public consultation was held. Finally, the Just Transition Strategy was implemented through local action and setting up local committees to develop and monitor the plans.

South Africa has put in place structures to ensure that the planning for a just transition is inclusive for all relevant stakeholders. In 2018/2019, the National Planning Commission organized Social Partner Dialogues on Pathways for a Just Transition to build a common vision of just transition in South Africa and develop proposals for pathways to achieve it (National Planning Commission, 2019). These dialogues included representatives of civil society, business, the Government, labour unions and communities, and other experts, who agreed on the need for inclusive societal decision-making, government alignment, localizing the topic to municipalities and stopping corruption, but had divergent perspectives on other issues. In 2020, South Africa's President formed the Presidential Climate Commission, which is a multi-stakeholder body and includes representatives of government departments, State entities, business organizations, labour unions, academia, civil society, research institutions and traditional leadership (Presidential Climate Commission, n.d.). Since its establishment, it has facilitated dialogue between social partners through various formats, carried out consultations on various policies to provide recommendations to the Government and drawn up strategy documents, including South Africa's Just Transition Framework.

COP29 - 21 Nov 24 - HL Roundtable on Indigenous People and Local Communities.
Photo: UNFCCC/ Kamran Guliyev

1.2 Reskilling, technical and vocational education and training, and employment and labour market policies

In Germany, reskilling and vocational training of coal workers and other affected workers is promoted through various ways. First and foremost, the recommendations of the coal commission for growth, structural change and employment (*Kommission Wachstum, Strukturwandel und Beschäftigung*) included the provision for collective agreements that include elements of training and further education, in addition to compensation for lost wages, cushioning financial losses for early retirement, bridges to the adjustment allowance for employees over the age of 58 and compensation for pension deductions (German Federal Ministry for Economic Affairs and Energy, 2019). To date, the trade union representing coal workers in Germany has reached agreements with all but one coal generating or mining company (IG BCE, n.d.). Furthermore, there is a robust system encouraging training and further education for employees by providing support, depending on the size of the company, to training costs and wages during training. This support increases, for example, when a large number of employees within a company require training or when collective agreements that specify arrangements for training and further education exist (Federal Ministry of Labour and Social Affairs, n.d.). Finally, the grants available for projects developed at the local level as part of Germany's just transition law are explicitly available for projects that improve training and further education (Federal Ministry for Economy and Climate Action, 2020).

Financial resources were also allocated for workers and community support related to the phase-out out of coal in Canada at both the provincial and federal levels. In Alberta, a CAD 40 million provincial transition fund had been created to support coal workers. This included vouchers to pay for retraining within five years of being laid off and access to career consultants and employment service providers to share information, develop individualized plans and provide short-term skills development courses as needed, but also relief grants for bridging re-employment or retirement and reimbursement for relocation expenses (Jackson & Hussey, 2019). With a broader scope than coal, the Sustainable Jobs Training Centre aims to examine the skills of the labour force today, forecast future skills requirements, and develop curricula, micro-credentials and onsite learning, while the new sustainable jobs stream under the Union Training and Innovation Program will support unions in leading the development of green skills training for workers (Department of Finance Canada, 2022).

1.3 Public–private partnerships and wider stakeholder engagement

While not a formal public–private partnership, the intended make-up of the coal transitions and task forces in the countries presented reflect partnership in just transition with perspectives from labour unions, the private sector and civil society, with the group as a whole tasked with developing a joint set of recommendations.

The Canadian task force, for example, conducted extensive stakeholder engagement. It was estimated by the task force that the phase-out of coal-fired electricity would have direct and indirect impacts on between 3,000 and 4,000 workers in power plants and coal mines, nearly 50 communities across four provinces and more than a dozen generating stations and nine mines owned by nine employers. At the completion of its process, the task force noted that it had visited 15 communities, met with more than 80 stakeholders and hosted eight public engagement sessions. The task force also toured five generating stations, two coal mines and one port (Environment and Climate Change Canada, 2018).

The public–private collaboration element of Spain's just transition strategy is also a good example. It is one of the few countries that has made it explicit in its climate law to mandate companies to develop climate action plans, with emission reduction targets over a five-year period. This law has been instrumental in supporting the country's just transition efforts for coal and building tripartite agreements between labour unions, local, regional and national authorities, and companies. It is worth noting that Iberdrola, the country's electricity utility, was part of these just transition agreements. Evidence from the WBA (2021) shows how these public–private sector collaboration efforts are likely to have contributed to higher engagement and implementation of just transition from the private sector (see the box below).

How are electricity utilities dependent on coal supporting just transition?

Compared with other sectors assessed in this study (oil and gas, and automotive), electricity utility companies show a higher level of effort towards just transition based on WBA's just transition assessment. This may also be an indication that the overall level of readiness for just transition is more advanced in the shift away from coal to clean energy in the electricity sector. SSE, Enel and Iberdrola are three electricity utility companies with good just transition practices. Enel, for example, openly advocates for just transition and works with its suppliers and contractors to ensure that human rights due diligence is respected along its value chain. It also seeks to transition its workforce as part of the closure of its coal-fired power plant in Andorra and actively works with trade unions and local communities as part of its stakeholder engagement while investing in clean energy alternatives. Similarly, SSE is also investing in clean energy projects, supporting communities in their transition through community benefit funds and reskilling its workforce. Finally, Iberdrola has implemented a number of relevant just transition practices in the regions it operates in that are affected by coal-fired power plant closures. This includes developing green transformation plans in the regions affected by coal-fired power plant closures, the creation of citizens' platforms as a means of promoting social dialogue and stakeholder engagement, and robust skills development and training. It is one of a few companies (only 3 out of 50 assessed by WBA) that not only commits to reskilling its workforce but also identifies the skills gaps for the transition to low GHG emissions and the measures it will take to support reskilling, including for women and vulnerable groups.

Solar panels in the health care center of Dindefelo, a remote village in Senegal where more than 10,000 people live without electricity or drinking water. Photo: Alejandro Molina/Shutterstock

B. Oil and gas sector

Just transition processes in the oil and gas sector are not as mature compared with those in the coal sector. However, downscaling oil and gas is necessary in order to achieve the goals of the Paris Agreement as a median of selected Intergovernmental Panel on Climate Change 1.5 °C scenarios, and the IEA's net zero emissions demonstrates that oil and gas production will need to decline by 65 per cent by 2050, which is reinforced by other pathways, such as those of the International Renewable Energy Agency or Bloomberg New Energy Finance (Kursk et al., 2022). A decline in the oil and gas sector entails important direct, indirect and induced impacts on employment, and has therefore implications for just transition. Oil, for example, currently has the largest labour force in fuel supply, estimated at 8 million workers globally, and gas supply employs 3.9 million people.[16] This does not take into account indirect and induced jobs, which would increase the number significantly. Similarly, a shift away from oil and gas can have very significant impacts on government revenues. For example, in BRICS countries, fossil fuel revenues represent an average of 14 per cent of government revenues (as much as 34 per cent in the Russian Federation), with more than 80 per cent of these revenues coming from oil and gas products (Laan & Maino, 2022). In turn, a decline in such revenues without just transition could undermine not only direct but also indirect and induced jobs, including public sector jobs (Saha et al., 2023). In addition to the impacts on employment, diversity of employment is of particular importance for just transition. The oil and gas sector has one of the lowest rates of diversity in its workforce. The percentage of women oil and gas workers is 22 per cent, which is unchanged since 2017 (ILO, 2022).

Although investments in renewables tend to generate more employment than investments in fossil fuels, this does not necessarily take into account the quality of green jobs (Jaeger et al., 2021).[17] Oil and gas sector jobs can be very well paid, with good benefits, and so there is a risk of replacement jobs being lower in quality owing to, amongst other factors, lower average wages, a higher share of contractual work and the need for higher levels of commuting. The IEA World Energy Employment 2023 report shows that the average annual earnings per employee in the oil and gas sector are higher than in the solar photovoltaic and wind sector (IEA, 2023b). The study also finds that the difference is highest in advanced economies, where on average employees in the oil and gas sector earn twice as much as those in the solar photovoltaic industry. These wage differences can be explained by several factors, including the need for a more specialized skillset and a higher level of union representation for oil and gas sector jobs compared with renewable energy jobs.

End uses for oil and gas and how to ensure that economic alternatives are competitive in terms of cost are also relevant. In the mobility sector, alternatives to oil and gas are increasingly becoming viable, but with further progress to be made across countries. Despite a rapid growth in sales of EVs in recent years (see chapter III.C below), barriers for wider adoption remain unsolved, including the need to scale up charging infrastructure and reduce capital and purchase costs. While average EV battery prices have fallen, purchase costs remain high, particularly in emerging economies, where two- and three-wheel vehicle options are currently more price competitive (IEA, 2023a;

16 This includes employment in oil and gas extraction, production, transport and refining. These global data also account for employment generated by the construction of new oil and gas infrastructure and the operation of existing infrastructure.

17 Removal technologies, such as carbon capture, utilization and storage (CCUS), are an alternative technology to renewable energy for reducing GHG emissions; however, the same amount of investment creates significantly less employment. In addition, because the cost of CCUS is much higher compared with renewable energy technologies, using CCUS to extend 'business as usual' fossil fuel use "would be highly economically damaging", which means that their application is limited to specific cases, such as hard-to-abate sectors (Bacilieri et al., 2023).

Rivero, 2022). In other industries, such as shipping and aviation, alternatives are still at a lower state of technological maturity. Similarly, while alternatives to gas are competitive across many current end uses, several technologies, such as heat pumps (although these are already competitive with gas boilers in terms of cost in several markets), green hydrogen or electric kilns, have yet to fully mature, with prices likely to decline in the future (Muttitt et al., 2021).

While jobs in the oil and gas sector can be highly paid, their viability in the long run is threatened without just transition policies. The ILO (2022) estimated that the energy transition could lead to a strong decline in oil and gas employment by 2030, with a forecast decline in overall job demand of 1.6 million jobs for petroleum refining and 1.4 million jobs for crude oil extraction. At the global level this may result in an estimated 40 per cent of oil and gas workers who need to be reskilled. The argument for just transition in the oil and gas sector is therefore driven by environmental, climate, and economic and social perspectives.

1. Just transition policies in the oil and gas industry

Drivers for just transition in the oil and gas sector, similarly to coal and other sectors, can vary per region or even at the community level. These can include general employment and environmental concerns but also safety reasons and the potential for new emerging sectors (renewable energy, tourism, etc.) to replace fossil fuels as local employment providers. These drivers can also include local public opposition to transitionary policy (for example 'not in my back yard' resistance to renewable energy developments, which have emerged in some locations). Analysis from IEA (2022a) shows that a decline in global oil and gas demand is predicted earlier than was expected. With the energy price crisis aggravated by the war in Ukraine, these global developments act as strong market signals that just transition processes in the oil and gas sector must be accelerated to mitigate any future negative socioeconomic impacts. While there are only a very few just transition processes under way in the oil and gas sector to date, there is a growing indication from international research that finance for just transition in the oil and gas sector is needed and that these discussions should move beyond coal (Saha et al., 2023).

While jobs in the oil and gas sector can be highly paid, their viability in the long run is threatened without just transition policies.
Photo: Freepik

1.1 Just transition planning

Intergovernmental Panel on Climate Change scenarios and discourses on climate finance have been focused on first phasing out coal, which has created a blind spot in planning for a just transition in the oil and gas sector (Muttitt et al., 2023). Even though coal phase-out processes should be continued and supported, it is imperative not to lose sight of the urgent need for progress on phasing out oil and gas and not see these sectors as 'one before the other', as there is need for progress on both in parallel.

Just transition dynamics for oil and gas vary compared with coal. Unlike coal, most oil and gas production is either in high- or upper-middle-income economies, with little to very little production in lower-middle-income and low-income economies (Pickard & Scott, n.d.). In turn, this means that accelerating just transition away from oil and gas is more feasible from a socioeconomic point of view in a number of countries.

Although few, there are some country examples to point to in relation to oil and gas phase-out and just transition. New Zealand, for example, had committed to ending the issuing of new oil and gas permits as at 2018,[18] which was expected to have the greatest impact on the Taranaki region and to affect around a third of the country's total active exploration permits (Katowice Committee of Experts on the Impacts of the Implementation of Response Measures, 2022). A phased approach is important in New Zealand as existing offshore oil and gas exploration permits that have already been approved may operate until 2030 and existing producing fields can operate until 2050 (Krawchenko, 2022b).

Denmark has also been at the centre of global efforts on phasing out oil and gas. A net exporter of oil in 1997, oil production peaked in Denmark in 2004, and in 2018 Denmark became an overall oil importer. Oil and gas phase-out in Denmark is driven by a number of factors, including domestic and international climate goals, but also economic concerns. Declining productivity of fossil fuel resources in conjunction with climate policies contributed to a push to phase out oil and gas, and targets to phase out oil and gas by 2050 were announced as early as 2006. There are definitive fiscal and employment-related impacts from oil and gas phase-out for Denmark. Between 1972 and 2019, oil and gas revenues totalled 541 billion Danish kroner. In addition, by cancelling future tenders and imposing an end date on oil and gas by 2050, this is estimated to represent a cost of 13 billion Danish kroner in future foregone revenue (Krawchenko, 2022a).

Within the EU, Estonia stands out for committing to phase out shale oil, which represented about 76 per cent of the country's electricity generation in 2018 and about 55 per cent in 2022 (CEE Bankwatch Network, 2021; Ember, 2023). In line with its 2050 net zero target, the Government is seeking to phase out oil shale electricity production by 2035 and shale oil production by 2040 (Pedaja, 2022). While the 2022/2023 energy crisis has temporarily revived some shale oil production, the Government remains committed to its long-term plans (Laizans, 2022). Similarly to other countries, the impacts of such a phase-out will be felt most acutely in certain regions, namely in Ida-Virumaa. In order to prevent adverse socioeconomic impacts, the Government has put in place a number of measures, including developing a detailed road map and territorial just transition plan, and partially covering lost wages for laid off workers with financial support from the EU JTM (CEE Bankwatch Network, 2021). Yet more efforts remain to ensure the reskilling and retraining of the local workforce while accelerating permitting processes for renewable energy generation.

18 The new Government, in place since November 2023, aims to repeal this ban according to the coalition agreement of the New Zealand National Party and ACT New Zealand (2023).

Another example related to oil and gas phase-out and just transition is that of the United Kingdom Green Jobs Taskforce and the North Sea Transition Deal, as well as the Scottish Just Transition Commission (Krawchenko, 2022c). Here again, regional aspects of oil and gas phase out and just transition are particularly important. Employment losses will disproportionally affect regions such as Aberdeenshire, where employment is concentrated in the offshore oil and gas sector. With this in mind, the Scottish Government sees just transition as both an outcome and a process that must be undertaken as part of the transition to a net zero world, with a particular focus on addressing inequality and injustice (Scottish Government, n.d.). The Scottish Just Transition Commission is tasked with providing advice on the application of the Just Transition Planning Framework, advising on monitoring and evaluation, undertaking engagement efforts with those impacted by transition, engaging additional sources of expertise, including government advisory bodies, and publishing an annual report on progress (Scottish Government, n.d.). The make-up of the types of groups to be engaged with is similar in nature to the approach taken for the Canadian coal task force. The make-up of the commission is a combination of academics, civil society representatives, labour spokespersons, private sector representatives and other experts.

Within Canada, one jurisdiction, Quebec, has undertaken a firm commitment to phasing out oil and gas. Although in Canada until now the focus of just transition has been more on coal, recently introduced sustainable jobs legislation is expected to align with aspects of just transition beyond the coal sector and may widen the discussion at the federal level to oil and gas. However, the lens through which Canada is examining the issue of just transition is currently mostly focused on sustainable employment (Government of Canada, 2023). Canada's dynamic of federal and provincial responsibilities is another important element that affects just transition planning. The positions towards the need for just transition or even energy transition more generally vary greatly between the provincial and federal level, representing again how the topic of just transition is very local in nature. As such, considering just transition only at the national level is not necessarily enough in countries where there are very different geographies, political dynamics and resource bases.

The largest wind farm installation vessel in the world and the first turbine installed off the coast of Aberdeen. Balmedie, Aberdeenshire, Scotland, UK. April 11th 2018. Photo: Iweta0077/ Shutterstock

It should be emphasized that the examples listed above are all from developed countries and it is important to caution that these examples are limited. Processes on just transition in oil and gas are in the very early stages, especially compared with coal. There does need to be consideration of equity with respect to both Global North and Global South perspectives. While some efforts towards just transition in the oil and gas sector exist, more efforts are needed on a global scale. A more global concerted effort to shift away from oil and gas will also require a shift in the provision of international climate finance, which until now has been more focused on the phase-out of coal.

1.2 Reskilling, technical and vocational education and training, and employment and labour market policies

There are few studies that examine just transition in the oil and gas sector, especially concerning the types of TVET and employment labour market policies that can be put in place. This is not to say that civil society and labour unions are not actively reflecting on how to support just transition in the oil and gas sector (Beedell & Corkal, 2021). Yet, overall, there are comparatively fewer detailed policy and research studies on conducting these types of processes because there have been fewer examples to draw from in the oil and gas sector than in the coal sector.

While more research is needed, existing research shows that the impacts of oil and gas transition can be significant from an economic perspective. In Taranaki Region of New Zealand, the oil and gas sector contributes an estimated 30 per cent of regional GDP but only employs roughly 750 people directly, which accounts for 1 per cent of total employment in the region (Krawchenko, 2022b). Just transition has been incorporated at the legislative level in the Climate Change Response Act and New Zealand is one of a few countries to have a dedicated just transition unit, which since 2018 has been located within the Ministry of Business, Innovation and Employment and is tasked with considering the socioeconomic impacts on the Taranaki region. A 3 billion New Zealand dollar Provincial Growth Fund was developed to support economic diversification and transition, and the local Taranaki economic development agency co-created the Taranaki Roadmap 2050 with local communities, Indigenous People groups, the private sector, unions and workers organizations (New Zealand Ministry for Business, Innovation and Employment, n.d.; Venture Taranaki, 2019). The Taranaki Roadmap 2050 identified 12 pathways for equitable transition, including tourism, policy enablers, energy development and transport. Setting up a centre for future energy development also ensured that investments in the region were directed to renewable energy and diversification.

In Denmark, approximately 10,000 people are directly employed in oil and gas extraction, with another 16,000 indirect jobs that would be affected by an oil and gas phase-out (Krawchenko, 2022a). These figures represent approximately 1 per cent of total Danish employment, with the majority of oil and gas jobs located in Esbjerg. The Danish 2020 climate neutrality law included a commitment to a just transition initiative for affected workers (Climate Act, LOV nr 965 af 26/06/2020, 2020). A 2015 study of Denmark's ability to meet 100 per cent renewable energy by 2050 estimates that an additional 50,000 jobs per year will be created by 2050 (Mathiesen et al., 2015). Today, many workers at Esbjerg port are ready to work on wind power projects, and can extend their involvement as the sector grows, because they are already working both in the offshore wind and oil and gas industries (Segal, 2023). Furthermore, an 'offshore academy' has been established in Esbjerg, where workers can get these additional skills depending on their need to move between the two industries.

Linked to its own just transition efforts, Scotland has provided 500 million pounds sterling for regional development and loans to support small and medium-sized enterprises. While little research to date has been conducted for oil and gas, reskilling, TVET, and employment and labour market policies are crucial. The United Kingdom oil and gas sector's experience is a case in point, with a loss of more than 70,000 direct and supply chain positions and another 80,000 workers predicted to lose their jobs between 2018 and 2035. To respond to this challenge, the United Kingdom Government, as part of its Green Jobs Taskforce and through cross-industry groups such as the Energy Skills Alliance, has been mapping future skills needs and supporting the creation of programmes for reskilling and green job creation (IEA, 2022a). What will be particularly important is ensuring that retraining programmes are not duplicated and there is cross-sector recognition so that workers can transition more easily away from oil and gas (Friends of the Earth Scotland, 2023). Digital skills passports can be a solution in this regard along with innovative funding mechanisms to support retraining costs and ensuring that the new skills needed can be met domestically through education programmes.

1.3 Public–private partnerships and wider stakeholder engagement

Similarly to other sectors, public–private partnerships and wider stakeholder engagement are essential in driving just transition in the oil and gas sector. The process for just transition must include workers, industry and local governments. With that said, what just transition means can be locally defined with stakeholders through engagement to ensure a shared vision for just transition and a common sense of the goals and how to get there. Denmark and New Zealand both ensured stakeholder engagement with respect to energy transition needs and processes. Denmark, for example, developed 14 climate partnerships with industry and in 2019 established the Green Business Forum (State of Green, 2022). The purpose of such public–private partnerships is to reinforce social dialogue between government, business and trade unions.

How are companies supporting just transition in the oil and gas sector?

While a few oil and gas companies have some good practices in place, evidence from WBA shows that the vast majority underperform on just transition. This is particularly the case for national oil companies and thus worrying because of the political and economic weight such companies have in their domestic economies. Furthermore, this finding is concerning in the light of the good financial situation of oil and gas companies during the energy price crisis and the exceptionally high profits registered in 2022.[19] These record profits could have been better used not only to invest significantly more in the transition towards low GHG emissions but also to support just transition for oil- and gas-dependent workers and communities. Across the board, oil and gas companies are performing somewhat better in terms of supporting access to green and decent jobs and developing upskilling initiatives. Yet, the vast majority of oil and gas companies assessed by WBA in 2023 and 2021 show very little evidence of effective just transition planning, social impact management and advocating for just transition (WBA, 2023a). The lack of planning is also linked in many instances to the fact that these companies do not have a coherent vision on how to plan for a future with low GHG emissions. Despite these concerning findings, there are some good practices worth noting. As part of the WBA 2021 just transition assessment, BP disclosed measurable targets for mitigating social impacts on workers, communities and other affected stakeholders.[20] BHP abided by fair tax fundamentals, invested in social and health programmes at the community level and used a "social investment framework" to guide its investments. Marathon Petroleum provided severance pay and extension of benefits to workers affected by the coronavirus disease 2019 pandemic, which served as an effective tool in times of crisis. In the WBA 2023 just transition assessment, there are other positive practices. Natur Energy, for example, has engaged in social dialogue with workers and unions. It also collaborates with the Ministry for Labour and Social Economy of Spain in relation to the closure of some of its thermal power plants in Spain. Yet, similarly to other sectors, companies that perform better on climate do not necessarily do well on just transition.

19 The oil and gas sector is estimated to have earned USD 4 trillion in 2022, a substantial increase compared with the USD 1.5 trillion earned in previous years (Adomaitis, 2023).

20 It is important to caution this finding in the current context, as WBA's 2021 just transition assessment was conducted prior to the energy price crisis and high profits registered since then by oil and gas companies. For many oil and gas companies, these record profits have led to share buy backs, higher dividends and increased production rather than truly investing in just transition and clean energy alternatives.

C. Mobility sector

The transport sector is of crucial importance to limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5 °C. Globally, it is responsible for about 40 per cent of carbon dioxide emissions, with these emissions growing faster than in any other end-use sector (IEA, 2022c). The mobility sector is more complex to decarbonize given its current high dependence on oil products and the need to rely on various industries to do so, including electricity generation, fuel and infrastructure providers, and equipment manufacturers. While there has been much research on how to incentivize a transition to mobility with low GHG emissions, there has been to date less research on the social implications of such a transition. In particular, the concept of just transition should be integrated by governments in the design of sustainable mobility policies to ensure that they also result in the creation of decent jobs and an equal and affordable access to low-carbon mobility alternatives.

Some industries within the transport sector, such as aviation or shipping, are hard to decarbonize, owing to the limited options for decarbonization, and will require more time to transition. However, others, such as the automotive industry, particularly for light-duty vehicles, are decarbonizing at a much faster rate, as shown by the rapid increase in sales of EVs and hybrid vehicles, and therefore discussions about just transition have started (IEA, 2023a).[21] As a whole, the automotive industry has an annual turnover equal to the world's sixth largest economy, with 14 million workers directly employed in vehicle manufacturing (ACEA, 2022; Masoumi et al., 2019). In addition to direct job creation for the production of EVs and batteries, the transition to low-carbon mobility presents many indirect and induced employment creation opportunities, including, for example, in the expansion of charging station infrastructure.

Yet, just transition in the automotive sector also presents multiple challenges. These include the extent to which just transition is embedded within the automotive value chain. In contrast to workers directly employed by automotive companies, supply chain workers who are not unionized or protected by collective bargaining agreements may be more at risk (OECD, 2021). The production of EVs is also less labour-intensive than for ICE vehicles, potentially making many workers obsolete. Without an insourcing of domestic battery manufacturing, the transition may thus lead to a drop in overall employment. Similar to other transitions, the shift to EVs will have important socioeconomic impacts in regions historically dependent on ICE vehicle production, and from issues related to the emerging issue of battery disposal. Finally, it is key for governments to consider which income and population groups will benefit the most from the roll-out of EVs. Without integrating just transition, EV incentive schemes tend to benefit higher-income groups the most and may contribute to increasing inequality (Dufour et al., 2022). Women are also still underrepresented in the transport sector as a whole, representing less than 20 per cent of the workforce (TUMI Management, 2022). In developing effective just transition policies, there are many aspects that governments need to consider.

Just transition in the mobility sector should also consider the affordability and accessibility of public transport (rail, metros, trams, buses and other forms of public transit) and how its roll-out and electrification will affect different types of transport workers. Scaling up investments in public transport and electrification of transport are ways for governments to decarbonize their mobility sectors and help to meet

For example, BP decided to scale back on some of its previous climate targets (Lawson, 2023).

21 Sales of EVs doubled in 2021, reaching 6.6 million, and exceeded 10 million in 2022.

GHG emission reduction targets. Public transport can be a source of net green job creation globally, given the potential for job creation along the value chain in terms of infrastructure development and maintenance of the transport network. However, there is a need, as with the automotive industry and the mobility sector as a whole, to consider the quality of public transport jobs. Along the value chain, governments should consider whether these jobs are higher or lower skilled, permanent or temporary, and whether they are inclusive of informal workers. In the Philippines, a jeepney phase-out programme that aimed to replace old jeepneys with electric ones shows that the modernization and electrification of public transport without just transition considerations may have adverse socioeconomic impacts. In the case of the Philippines jeepney phase-out programme, the electric jeepneys were unaffordable for many drivers, essentially pushing them out of work, and there was a lack of a sufficient domestic manufacturing component to induce local job creation (Kusuma, 2023; LTFRB Philippines, n.d.).

Electric jeepney demonstration unit in the Philippines.
Photo : Walter Eric Sy/ Shutterstock

1. Just transition policies in the automotive industry

1.1 Just transition planning

In order to ensure that the transition to low GHG emission mobility has positive environmental and socioeconomic impacts, there are a number of just transition policies that governments can put in place. These include planning ahead for just transition, as this is key to mitigating the potential negative socioeconomic impacts of the transition through incentives and guidance for workers, suppliers, companies and unions. Contrary to the energy sector, particularly for coal, government planning for just transition in the mobility sector remains nascent at this stage. However, some initiatives are noteworthy. For example, in Germany the Government commissioned a study to identify the regions in the country that are particularly affected by the transformation of the automotive industry (IW Consult & Fraunhofer IAO, 2021). This study concluded that the automotive industry is of above-average importance for employment in 118 regions, and 40 of these regions would be particularly hard hit by the transformation of the automotive industry because a particularly large number of employees work in activities related to ICE power trains. The Government set up an expert group on the transformation of the automotive industry to develop recommendations for just transition, taking the entire automotive value chain into account (ETA, n.d.). Beyond Germany, several regions of Austria, France, Germany, Italy, Netherlands (Kingdom of the), Slovakia and Spain that are more dependent on ICE manufacturing and suppliers created the Automotive Regions Alliance (Automotive Regions Alliance, n.d.). In a 10-point declaration, the Automotive Regions Alliance explicitly advocates for the creation of a dedicated mechanism and funding at the EU level for just transition towards low GHG emission mobility, similar to what has been established for coal. While it remains to be seen how the demands of the Automotive Regions Alliance are taken into account, this initiative shows how regions in different countries can cooperate and advocate for just transition.

Governments in the Global South are also considering just transition planning in the mobility sector. While at an early stage of planning, Antigua and Barbuda is one of the few countries that has integrated just transition considerations for its transport and electricity sectors in its updated NDC. The Government laid out specific actions to support micro, small and medium-sized enterprises, to meet the training needs for just transition and to support a gender-responsive approach. The Government also undertook, with support from various partners and research organizations, an assessment to determine the employment impacts of the transition to a low GHG emission economy in its electricity and transport sectors (Zimmer et al., 2021). This analysis showed that mechanics for ICE vehicles, along with people working in service jobs in petrol stations, may be the most severely affected. However, the study found that at the macro level, with retraining and active labour market policies, the aggregate employment impacts compared with the 'business as usual' scenario would largely be beneficial. In particular, the shift to low GHG emission mobility would lead to an increase in jobs for EV repair, sales and the build-up of transport charging infrastructure. In order to continue its just transition planning efforts, the Antigua and Barbuda Department of Environment also created a just transition working group with trade unions, employers' associations and the various government ministries involved (Lee & Baumgartner, 2022).

1.2 Reskilling, technical and vocational education and training, and employment and labour market policies

In addition to planning, reskilling, TVET, and employment and labour market policies are key to ensuring that displaced transport workers can be redeployed in other industries. Several countries have put in place such schemes. In France, for example, the Government enacted a EUR 50 million fund in 2021 to retrain foundry workers in the automotive sector, with the Government contributing 60 per cent and the private sector 40 per cent (IEA, 2022b). The Government is also planning to establish new campuses to develop future automotive skills, and conducted an analysis of the skills gaps, with a focus on regional and local employment impacts. In addition, the United States integrated just transition considerations in the design of tax credits and incentives for the production of EVs. Through its Inflation Reduction Act, the United States Government provides about USD 370 billion in energy security and climate change programmes, including incentives for clean energy innovation, manufacturing and use, which also benefit the transition to low GHG emission mobility (White House, 2023). For example, in addition to several tax credits for the purchase of EVs, an advanced energy project credit is available for projects that re-equip, expand or establish an industrial or manufacturing facility for the production or recycling of clean energy equipment and vehicles, and an advanced manufacturing production credit provides a production tax credit for domestic manufacturing of battery components and critical minerals. There are also bonus tax credits worth five times the amount of the base tax credit rate available through the Advanced Energy Project Credit programme, but access to these is conditional on fulfilling a number of elements aligned with just transition. These include the requirement for companies to pay prevailing wages and use registered apprenticeship programmes. In addition, the Inflation Reduction Act also mandates that 40 per cent of the total amount available for advanced energy project credits must be allocated to clean energy projects that are established in communities that previously relied on fossil fuels. Moreover, the Build Back Better Framework, which eventually did not pass the United States Senate (instead the Inflation Reduction Act was adopted), had included a tax credit for consumers for 'union made' EVs (White House, 2021). This could have supported strong unionization and decent jobs, as this is particularly relevant in the context of EV manufacturing in the United States, given that many EV factories are being built in 'right to work'[22] states, which could bring down wages and decrease the social protection of workers (OECD, 2021).

India's policies aimed at scaling up the deployment of EVs and incentivizing local manufacturing show how just transition considerations can differ depending on the local context. Owing to the lower level of mechanization of manufacturing in the country, the number of jobs impacted by the shift to electric mobility will likely be different from other countries (CUTS International, 2020). For example, the labour requirement to assemble a power train for vehicles is 10 times higher than in the United States (CUTS International, 2020). Similarly, the characteristics of the automotive labour market are particularly important for the just transition impacts of a shift to electric mobility. In India, 50 per cent of the automotive labour force is either contractual or informal. These workers are often less unionized and organized, such as in the case of the automotive ancillary industries, and as such may be more vulnerable in the face of a shift away from ICE vehicles. The Government of India has put in place several incentive schemes to support the deployment of EVs, including specific local manufacturing incentives (production-linked incentive schemes) (German Agency for International Cooperation, 2021). Similarly, it has also enacted a number of reskilling programmes for EV-related jobs, including a specialized curriculum for the electric mobility industry. Similarly to other countries, not all stakeholders within the automotive industry value chain may benefit from such initiatives; small and medium-sized enterprises, for example, may be disadvantaged owing to the preference for vertical integration in the value chain (International Institute for Sustainable Development, interviews).

22 A right-to-work state is a state that does not require union membership as a condition of employment. In other states, a person applying for a job where the employees are unionized could be required to join the union as a requirement of being hired.

1.3 Public–private partnerships and wider stakeholder engagement

While governments have an essential role to play in supporting just transition to low GHG emission mobility, it is also key that they engage and partner with businesses (see the box below) and labour unions in doing so.

Public–private partnerships and stakeholder engagement with labour unions and social partners are effective ways to support capacity-building on just transition for the private sector and ensure social support for the transition. Australia is one of the countries that has developed such partnerships. With the closure of its car manufacturing industry in 2017, the country established a growth fund to support regions and businesses affected and developed transition centres at previous production plants (OECD, 2018). These centres supported the career guidance and retraining of former employees, which led to 82 per cent of employees being able to find a job and 63–75 per cent of employees undertaking new training. Similarly, the Strategy Dialogue Automotive Industry Baden-Württemberg shows that there is increasing public–private sector collaboration between industry and state-level representatives in Germany (Weiss et al., 2021).[23] This collaboration led to a number of positive measures, including the extension of digital infrastructure to underserviced areas, which is a critical component of an effective strategy for low GHG emission mobility. Beyond public–private partnerships, trade unions, the automotive industry and both the federal Government and state governments agreed to set up a future fund for the automobile sector in Germany (BMWK, 2021). This fund allocates funding to promote regional transformation networks to bring together the relevant local actors and to develop regional transformation strategies and transformation hubs that focus on specific subject areas and value chains to improve the transfer of knowledge, particularly to small and medium-sized enterprises.

23 Yet, it is noteworthy that findings from an exchange group on just transition in the European car industry show that suppliers in Eastern Europe are currently not sufficiently incorporated in just transition efforts.

A zero-emission, eco-friendly public transport bus in Cracow in 2024.
Photo: Longfin Media/ Shutterstock

By contrast, countries that have adopted policies to promote low GHG emission mobility with limited stakeholder engagement have often faced public opposition. In the Philippines, the jeepney phase-out programme has met with continued resistance from jeepney drivers owing to the limited stakeholder engagement with transport groups (Kusuma, 2023; LTFRB Philippines, n.d.). Similarly, a lack of coordinated industrial policies in Brazil was deemed to possibly jeopardize domestic EV and technology manufacturing and favour the importation of EVs (Ferreira et al., 2021).

How are companies supporting just transition in the automotive and transport sector?

While several governments have started to enact just transition policies in the transport sector, with some exceptions the level of readiness remains low for automotive companies and particularly low for other transport companies (shipping, aviation, rail and multimodal). Analysis from WBA shows that, among the world's 30 leading automotive companies, there is much room for improvement, particularly in terms of planning and advocating for just transition and supporting the social protection of workers and affected stakeholders. Yet, despite the need for improvement, there are still a number of just transition practices worth noting from automotive companies (WBA, 2021). These, for example, include Volkswagen's support for decent green job creation through its training programme for electric mobility in collaboration with the Volkswagen Training Institute, which provided requalification and training for 7,700 employees between 2019 and 2021. The programme also supported the training of workers without formal qualifications. Moreover, other companies, such as General Motors, show good just transition practices by enacting measures to mitigate social impacts of the transition towards low GHG emissions on communities and consumers. In addition to supporting job creation for battery cell production, the company is also establishing one of the largest fast charging networks in the United States. In addition, Daimler demonstrates a good example of social dialogue and stakeholder engagement as the company commits to work constructively with employee representatives and trade unions. It also disclosed that its partners include local works councils, European Works Councils and the World Employee Committee. Collective bargaining agreements also exist for most of its employees throughout the company.

Volkswagen's car factory in Shanghai, China: new cars are being produced on the assembly line.
Photo: Shutterstock

2. Employment impacts of a shift to low-carbon mobility

A number of studies have quantified the direct and indirect impacts on jobs of a shift to electric transport in the automotive industry. These, however, are only estimates or outlooks that rely on assumptions[24] (such as the extent of local production of EVs and batteries) that can greatly affect the results. These studies also often do not explicitly make a link to just transition, because the transition in many cases has just started and more time is needed to fully assess the impacts.

In Germany, studies that show more positive employment impacts tend to include a wider perspective of the sector, with an inclusion of impacts from linked industries, such as alternative business models (shared mobility) and production insourcing. By contrast, studies that do not include linked industries and assume a lower domestic ownership share of the EV market tend to show more negative employment impacts. As an example, a study by Boston Consulting Group and Agora Verkehrswende (2021) that assumed an increased export share and a market share of EVs of 92 per cent found a net increase in employment of 25,000 jobs by 2030. Similarly, a study commissioned by the Federal Ministry for Economic Affairs and Energy showed a net increase in employment of 80,000–130,000 jobs by 2030 (IPE Institut für Politikevaluation et al., 2019). Importantly, in this case the net employment gain is also due to a decreasing rate of car ownership and increasing demand for mobility as a service, car sharing and public transport. However, without such optimistic assumptions, many studies in Germany have found more negative impacts, ranging from a net loss in employment of 100,000 jobs by 2035 to as high as 410,000 jobs by 2030 (Weiss et al., 2021).

In India, studies quantifying the employment impacts of a shift to EVs also differ in their estimates based on the assumptions made. One study, for example, found that owing to the current higher level of imports of EV components, a 30 per cent share of EVs in India would lead to 20–25 per cent fewer jobs compared with the 'business as usual' scenario (Soman et al., 2019). By contrast, the Government's 2016–2026 Automotive Mission Plan envisions the creation of 65 million direct and indirect jobs by 2030 in the automotive sector (CUTS International, 2020).

Importantly though, what is often missing from these studies is an assessment of the quality of the jobs that might be created in the process (in terms of wages, level of skills required, occupational and safety risks, access to collective bargaining, unionization and the types of contract, among others). This is currently an important gap in the literature and one that requires strengthening in order for governments to better understand how the shift to electric transport may affect job quality at both the national and global level. Job quality is also a key aspect of ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all[25] and the International Labour Conference's resolution concerning a just transition towards environmentally sustainable economies and societies for all,[26] and should therefore be an area of increased focus. Similarly, the majority of studies focus more on direct and formal jobs, which may be misleading given the many contractual, indirect and informal jobs throughout the automotive value chain.

Next page: Electric vehicle (EV) charging station at Vasant Vihar: worker is changing the charged battery to a flat battery of an electric vehicle in New Delhi.
Photo: Shutterstock

24 Some studies rely on input–output models that ignore dynamic impacts, such as how the change in the price of vehicles or inputs might affect total demand; for example, the study published by the Economic Policy Institute (Barrett & Bivens, 2021).

25 The guidelines are available at https://www.ilo.org/publications/guidelines-just-transition-towards-environmentally-sustainable-economies.

26 In the resolution, the International Labour Conference, the supreme deliberative and decision-making body of the International Labour Organization, endorsed the ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all. The resolution is available at https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_norm/%40relconf/documents/meetingdocument/wcms_886647.pdf


USPA
SUMMOBILITY
ZYPP
ZYPP
SHEMA ELECTRIC

IV.

TRACKING PROGRESS OF JUST TRANSITION

IV. *Tracking Progress of Just Transition*

A. Existing frameworks for tracking progress on just transition

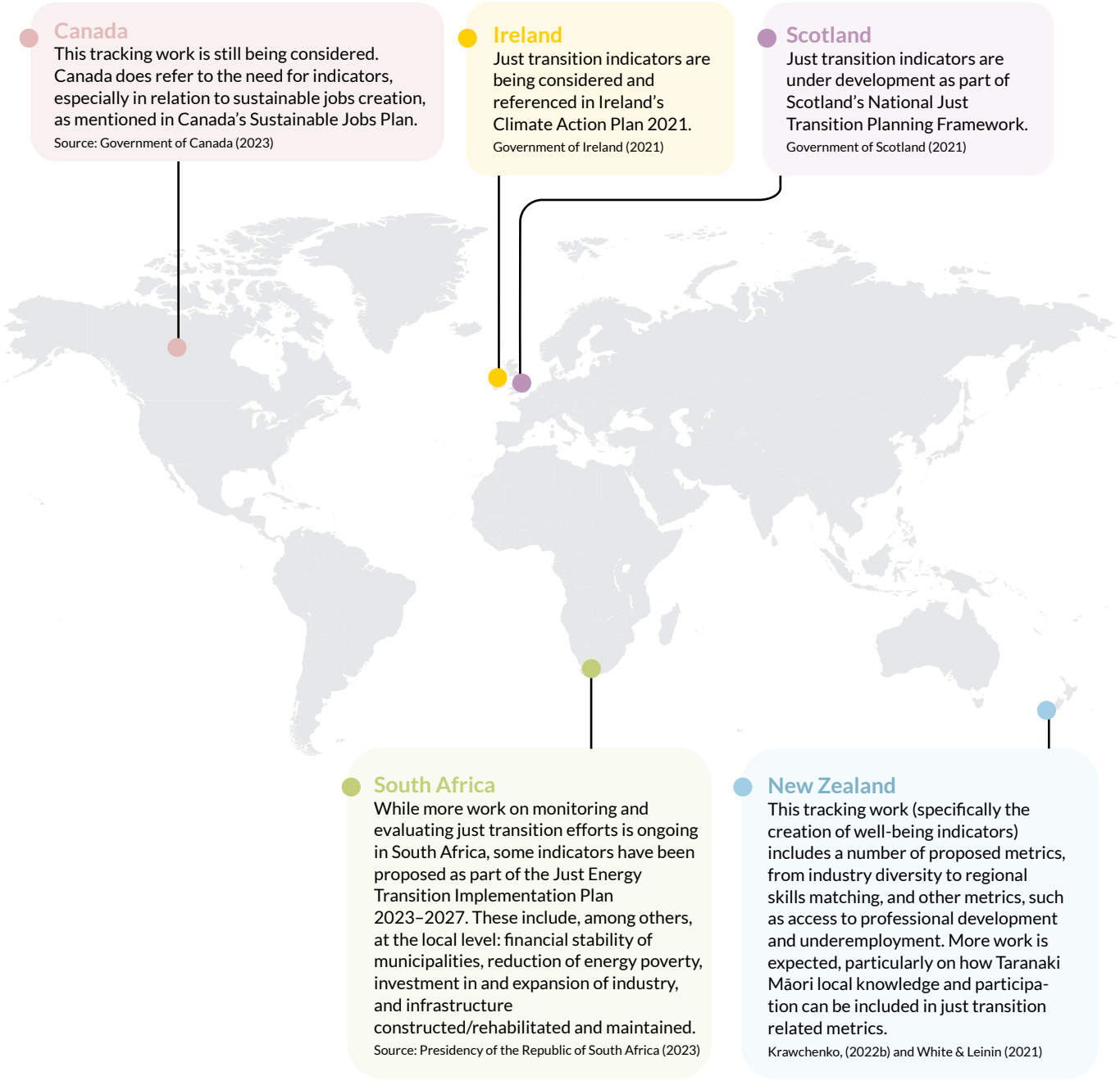
Tracking progress towards desired outcomes to determine whether sufficient action has been taken is common practice for any policy field, and climate is no exception.

Under the Paris Agreement, there are at least two mechanisms that aim to fulfil such monitoring obligations. The enhanced transparency framework guides individual Parties to provide transparency about GHG emissions, progress toward their NDCs, climate change impacts and adaptation, support provided and mobilized, and support needed and received. In addition, the global stocktake is a mechanism to track whether the world is collectively making progress towards meeting the goals of the Paris Agreement. Yet to date, with only a few exceptions, there has been very little attention on how much progress has been made on just transition.

Currently, only a very few governments integrate progress tracking as part of their just transition efforts. Ireland, New Zealand and Scotland stand out as exceptions for seeking to do so. Scotland, for example, mentions that it is currently developing just transition indicators as part of its National Just Transition Planning Framework. It specifies that this framework will assess, among other factors, social capital, income inequality, the skill profile of the population, the number of employees earning the living wage and employee voice (Government of Scotland, 2021). Similarly, Ireland refers in its Climate Action Plan 2021 to just transition indicators that it will develop (Government of Ireland, 2021). New Zealand developed well-being indicators as part of its just transition efforts and its Taranaki 2050 Roadmap, tied to its decision to stop issuing permits for offshore oil and gas in the Taranaki region, and there is research on the topic from non-government researchers (Krawchenko, 2022b; Venture Taranaki, 2020; White & Leining, 2021). The development of such plans and monitoring and evaluation frameworks was undertaken in consultation with affected local communities and businesses. Canada refers in its Sustainable Jobs Plan to the importance of indicators to track the creation of sustainable jobs across the country (Government of Canada, 2023). At the EU level, the European Commission has released an Energy and Industry Geography Lab,[27] a tool for geographical data related to energy, industry and infrastructure, which includes indicators that show at a local level some indicators related to the socioeconomic impacts of decarbonization, including the exposure to job losses. Finally, while efforts on monitoring and evaluation are ongoing, the South Africa Just Energy Transition Implementation Plan 2023–2027 includes some just transition indicators (Presidency of the Republic of South Africa, 2023). These include outcome indicators at the local level in Mpumalanga, which has the majority of the country's coal production, and indicators related to skills development more generally. Table 3 provides an overview of these different proposed just transition tracking progress frameworks at the country level.

27 The tool is accessible through https://joint-research-centre.ec.europa.eu/scientific-tools-databases/energy-and-industry-geography-lab_en.

Table 3. Overview of current country just transition tracking progress frameworks



Yet, these efforts are still ongoing, and monitoring and evaluation frameworks to track progress on just transition holistically, spelling out the indicators that could be considered, are broadly missing. Such frameworks are, however, useful to increase transparency and accountability and see how governments are performing over time. They can also serve as a way to identify best practices and where further just transition efforts are needed. They can also support the identification of why just transition gaps exist and help to target support to where it is needed most. Furthermore, as active company engagement is key for a successful just transition, it is important to track the progress that companies make in their efforts to support workers and communities.

B. Proposed framework to track progress on just transition in the fossil fuel sector

There is no one-size-fits-all solution to how governments can track progress on their just transition efforts. One of the reasons just transition is hard to track is related to the challenge of how just transition is defined. This, among others, relates to the scope of just transition, and therefore the question of whether it focuses more narrowly on workers or looks at broader community impacts or at consumers. The geographical dimension is another essential element. Considering that transitional impacts are usually felt disproportionally within a country, and are the largest in areas with high economic dependence on an industry that is going to be phased out or will undergo significant changes, progress to just transition should ideally be analysed in localized contexts (a place-based approach) while overseeing relevant aspects at the national level. Similarly, while just transition efforts of companies operating in the same sectors can be compared more easily, this is very difficult at the level of countries with varying priorities and levels of development.[28]

One of the rare examples of a framework for tracking just transition comes from a study that was commissioned by the Friedrich Ebert Foundation (Hirsch et al., 2017). Yet it solely focuses on indicators for the national level, not the regional or local level, which is a major limitation. The EBRD (2020) also supported a just transition initiative within the regions it covers and proposed certain indicators for tracking progress. However, these indicators are in many cases limited to the projects financed by the EBRD and do not necessarily look at the entire jurisdiction where the EBRD aims to support just transition.

To fill this gap, this study proposes a framework for tracking progress on just transition, with the aim of providing an input for and contributing to shape future discussions on this critical topic.[29] This monitoring framework focuses on the fossil fuel sector but is generally transferable to other sectors. It was further developed to be broadly applicable across different country contexts and takes the relevance of different administrative levels (national, provincial and local) into account, requiring action from all levels of government, but primarily focusing on the local level to reflect the context specificity of just transition. It is also primarily designed to inform national understanding rather than to compare countries.[30]

The resulting framework is based on ILO Guidelines for a just transition , international and country-specific research on measuring just transition, and consultations with local and international experts working on just transition.

Conceptionally, this comprehensive framework approaches the monitoring of just transition through three overarching themes reflecting key stages of the transition. These are broken down into a number of building blocks that summarize key components of the substantive and procedural elements of just transition. As just transition not only concerns processes and outcomes, and hence covers a broad range of areas, including environmental, economic and socioeconomic questions, a monitoring framework must reflect this holistic understanding of just transition.

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28 See Muttit and Kartha (2020)focused on fairly distributing reductions in territorial emissions and fossil fuel consumption. There is a growing recognition among scholars and policymakers that curbing fossil fuel supply (as well as demand for further evidence of how countries at different income levels and with varying degrees of dependence on fossil fuels can support just transition.

29 This is the result of the collaboration between the Katowice Committee of Experts on the Impacts of the Implementation of Response Measures (UNFCCC) and the German Agency for International Cooperation with the support from the International Institute for Sustainable Development and should be cited as such.

30 Even if desired, data inconsistencies for individual indicators across different countries would be another barrier that limits the ability of the comparison of countries. For example, the International Institute for Sustainable Development assessed complementary indicators across Canada, Germany and India when developing the monitoring framework, but the degree of complementary, which would be needed for comparison, was sobering.

1. Risks

The risks linked with moving away from fossil fuels include two fundamental aspects: fossil fuel exposure and institutional preparedness.

Fossil fuel exposure focuses on the size of fossil fuel production and the importance of fossil fuels for domestic energy use, and on the economic significance of the fossil fuel sector within the overall economy. The latter encompasses factors such as trade dependencies, government revenues, investments, job creation, income generation and the voluntary contributions that the sector provides to society. Assessing the current importance of the sector is relevant because it sheds light on the scale of the changes that lie ahead.

Institutional preparedness evaluates the readiness of domestic institutions to manage the complexities of the transition. It looks at aspects such as labour and human rights compliance, the level of labour organization, the strength of social protection systems and the condition of public infrastructure, such as education and health-care systems. Understanding the current institutional landscape is crucial as it provides insights into potential obstacles to achieving just transition. A lower level of institutional preparedness increases the risk of unjust outcomes, and therefore highlights the need for increased attention and targeted interventions to mitigate negative impacts of the transition.

In essence, a thorough examination of these aspects provides a nuanced understanding of the risks that may prevent ensuring justice when transitioning away from fossil fuels. By highlighting the scale of the transition and the context of existing institutions, policymakers can better anticipate challenges, and on that basis develop tailored strategies to ensure that the transition is socially and economically just for all stakeholders involved.

The increasing number of electric vehicles (EVs) requires technologies to be transferred.
Photo: Freepik

2. Response

The second theme of the framework, focusing on the response phase, comprises three critical building blocks essential for facilitating just transition.

The first building block addresses the government's commitment to just transition. This is a crucial aspect because without strong government commitment there is simply no window for developing policies that ensure just transition. Specifically, this building block looks at the government's acknowledgement of a need for just transition, and if so, its vision of what it understands of just transition. It also includes the extent to how the government fulfils its responsibility in leading the development of just transition policies, including the allocation of resources towards establishing formalized bodies dedicated to managing just transition and supporting their endeavours.

Social dialogue and stakeholder engagement underscore the importance of involving worker representatives and other stakeholders in decision-making processes related to just transition at both the national and local level. This inclusive approach is crucial for fulfilling procedural justice. For this building block, both the extent and quality of the engagement is relevant to ensuring that diverse perspectives are considered in shaping just transition policies and initiatives and to ensuring that they make a meaningful contribution.

The third building block focuses on the actual quality of the just transition policy, including the development of a local just transition plan. In addition to the formalization of the policy and plan at both the national and local level, it also encompasses aspects such as the adequacy of the funding allocated for just transition initiatives and its balanced distribution to the areas that require support, as well as overall policy coherence in line with the principles of just transition.

In summary, the response phase of the framework emphasizes the need for proactive government commitment, meaningful social dialogue and stakeholder engagement, and well-articulated just transition policies and plans. By addressing these building blocks, policymakers can lay the groundwork for responding to the transition challenges in a way that upholds inclusivity for all stakeholders in the process and formulates an adequate policy framework to achieve the intended results of just transition but also reduces the risks that may prevent just transition from materializing.

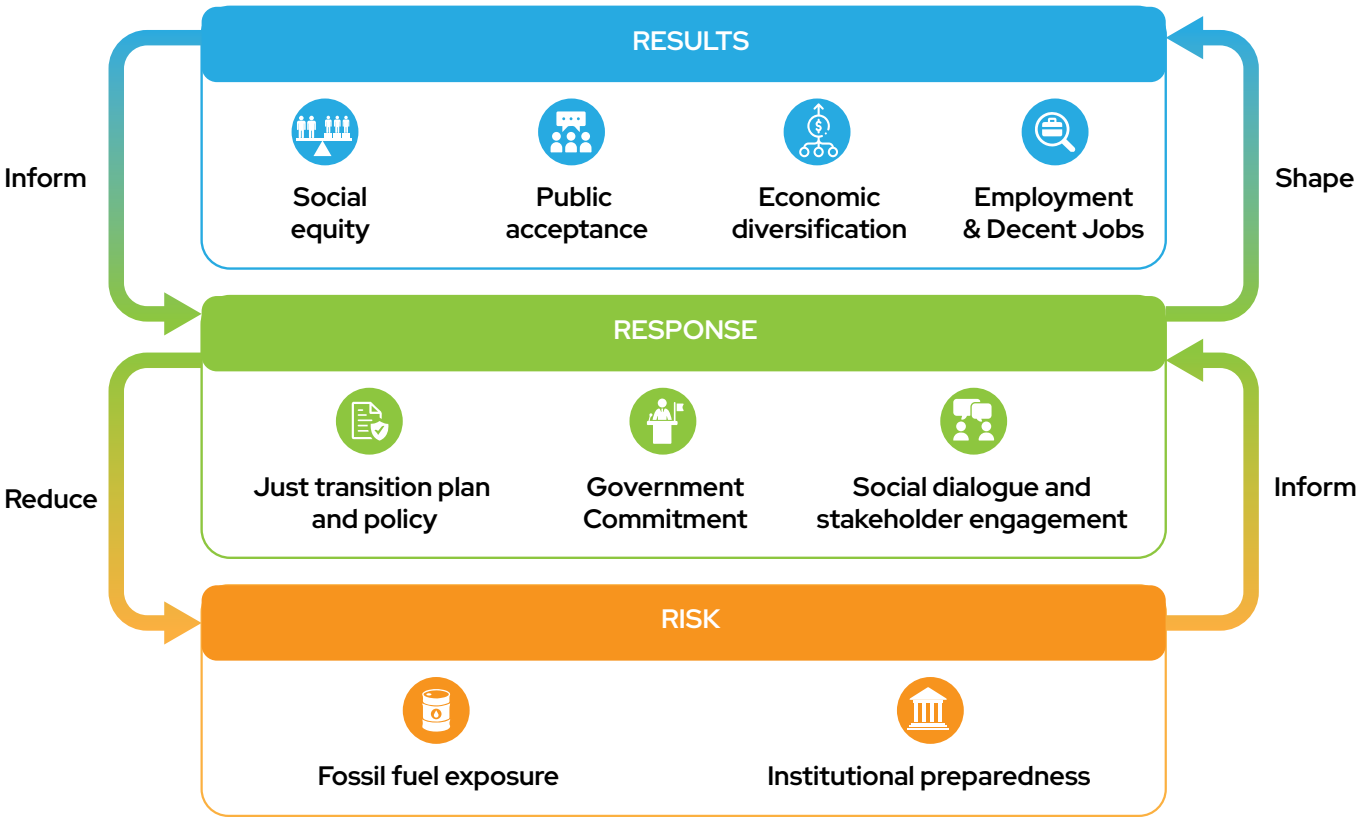
3. Results

The third theme of the framework focuses on the results of the transition, revealing the actual outcomes experienced within a country. It consists of five key building blocks. In that sense, climate mitigation and environmental protection examines whether the transition delivers on the climate, such as reducing levels of GHG emissions, and heals the local environmental impacts on land, water and air quality. Economic diversification is the extent to which other economic sectors, particularly the industrial sector, were developed to create new opportunities, foster innovation and maintain fiscal stability of public budgets. Employment and decent jobs addresses the employment impacts of the transition, including the number of employees laid off and re-employed and overall employment trends, but also the efforts to facilitate workers transitioning to new jobs, such as reskilling or counselling, while social equity looks at the general socioeconomic characteristics of the population, such as poverty or inequality, but also assesses the level of the population that relies on social safety nets instead of being economically independent. Public acceptance addresses explicit signs of satisfaction with personal life and regional development, as well as implicit signs such as emigration patterns.

In summary, this phase of the framework evaluates the tangible outcomes of the transition, encompassing environmental sustainability, economic prosperity, employment opportunities, social equity and public satisfaction. By assessing these building blocks, policymakers can gauge the success of their transition efforts and make the necessary adjustments to their response of the challenge to ensure just transition when moving away from fossil fuels.

Figure 3 is a graphical overview of the framework, particularly illustrating how the themes and building blocks relate to each other.

Figure 3. Proposed just transition monitoring framework



Based on this framework, multiple quantitative and qualitative indicators that break the key components down into tangible information for each building block can be selected, with variations possible depending on the country context. These indicators should also reflect the impacts of just transition on specific vulnerable groups and consider factors such as age, gender and income. A list of individual indicators focusing on oil and gas in Alberta, Canada, that could be tracked under each of these building blocks can be found in annex I.[31]

31 One key question for tracking progress through such indicators is what serves as a benchmark for comparison and, in certain cases, examples of best practice (and thus intended results) on just transition. While further work on this aspect is required, comparison over time and in relation to national and provincial averages could serve as good benchmarks. Another question that requires attention is how the information on each of the indicators translates into aggregate scores for the building blocks and themes, which would be useful for a quick assessment and understanding of progress among the different areas the framework includes.

C. Existing frameworks for tracking progress on company action for just transition

Many initiatives that examine the progress of the private sector on just transition have been established to date. Business for Inclusive Growth (2023), for example, put forward 13 indicators to help companies to identify, assess and address the social impacts of the transition in companies' own operations, their supply chains and their business relationships. Climate Action 100+ (2022) integrated a just transition indicator into its net zero company benchmark assessments in 2022 that covers 166 focus companies accounting for up to 80 per cent of global corporate industrial GHG emissions. ILO and London School of Economics (2022) developed a just transition finance tool for banking and investing activities that includes indicators to measure a financial organization's own strategy, the results of the execution of the strategy and the progress of their clients. Similarly, the Council for Inclusive Capitalism (2021) co-developed a framework for company action. This framework is intended to support companies to undertake their respective decarbonization journeys in a fair and just way for workers, consumers and communities. In addition to the above, WBA's just transition methodology represents some of the most advanced work to date (WBA, 2021). Developed through a multistakeholder process and expert group, this framework helps to show how high-emitting companies across multiple sectors are aligning with just transition.

The assessments that WBA has been carrying out reveal the importance of tracking companies' efforts to understand how they are effectively implementing just transition actions that align with those implemented by governments. As an example, South Africa was one of the first countries to refer to just transition in its NDC, and the country's State-owned power utility, Eskom, has a specific just transition office. However, WBA's 2021 assessment of just transition progress showed that at the company level Eskom still had room for improvement, especially on just transition planning, social protection and advocating for just transition. Consequently, it was ranked 26th out of 50 electricity utility companies benchmarked in 2021. After discussions on just transition further advanced, culminating in the Just Transition Framework, Eskom's level of just transition readiness improved in 2023 and it was then ranked 10th out of 68 electricity utility companies. Similarly to other companies though, it still does not meet any of the just transition planning fundamentals as assessed by WBA.

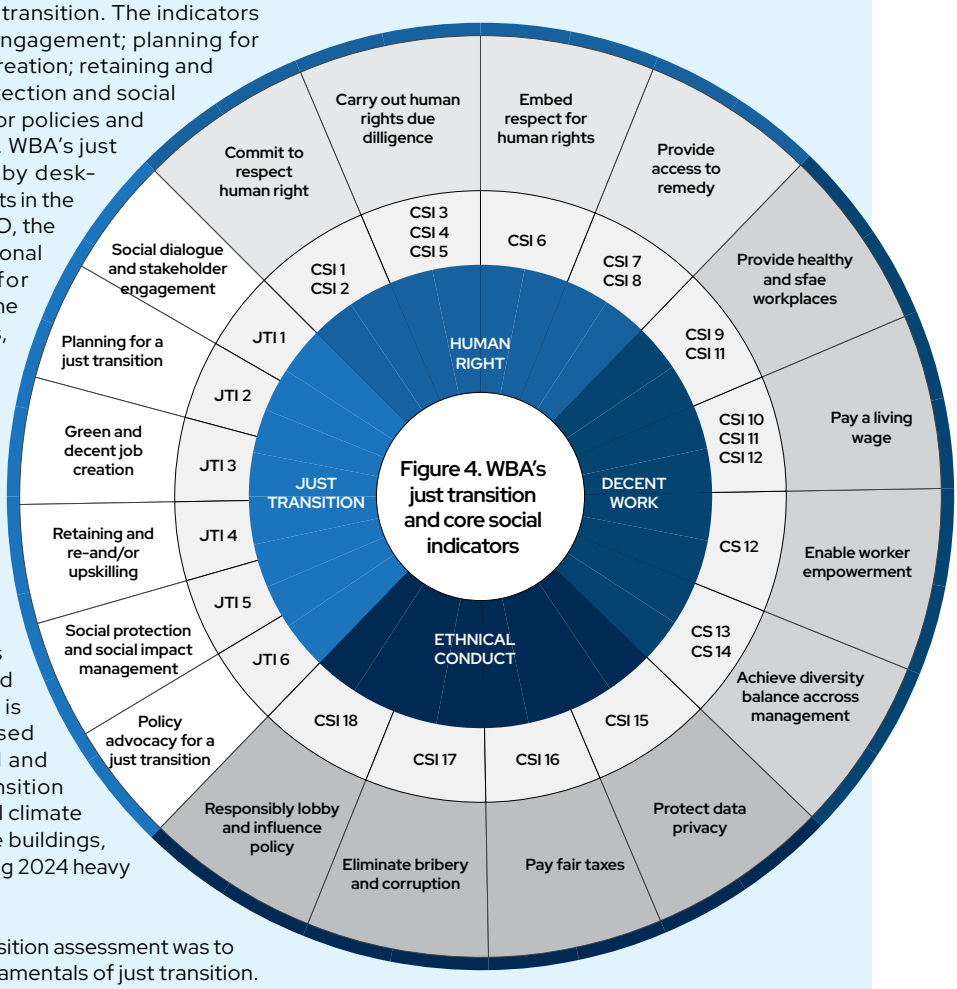
WBA's assessments further reveal that most companies do not show a commitment to just transition, and those companies that do often fail to link their actions to the context of just transition. The level of just transition planning also requires strengthening. In fact, effective just transition planning is evident in less than 1 per cent of the 320 companies assessed by WBA, which shows that companies do not have time-bound targets to mitigate the social impacts of just transition on workers, affected communities and business relationships. However, the level of just transition readiness can vary per area of assessment (table 4).[32] Evidence from WBA's benchmarks shows that although just transition planning remains low, more than half of the energy-intensive companies assessed implement some measures to enable green job creation. Similarly, about 30 per cent of the 320 companies assessed by WBA are partially integrating social dialogue considerations, but very few are implementing social protection measures for their workforce or advocating for just transition.[33] Importantly, the collaboration between governments, companies, unions, and employer and business member organizations is critical for advancing company just transition efforts (WBA, 2023b).

32 The level of readiness shows the extent to which companies are taking measures to address just transition in the different areas of assessment.

33 Fully integrated means a company meets all indicators in the area of just transition assessment based on WBA's just transition methodology (see annex II for an overview of WBA's detailed just transition indicators). Partially integrated means the company meets at least one or more indicators per area of assessment.

WBA's just transition tracking progress methodology for high-emitting companies

WBA's just transition assessment is both qualitative and quantitative. It includes a scoring system and fundamental actions expected from companies for each indicator based on international norms and standards (see annex II) (WBA, 2021). The indicators are built around six areas of measurement and are agnostic to which high-emitting sector a company is in, given the cross-cutting nature of just transition. The indicators are social dialogue and stakeholder engagement; planning for just transition; green and decent job creation; retaining and reskilling and/or upskilling; social protection and social impact management; and advocacy for policies and regulations supporting just transition. WBA's just transition indicators were informed by desk-based scoping research, technical experts in the field, including organizations such as ILO, the Just Transition Centre of the International Trade Union Congress, Business for Social Responsibility, the B Team and the Institute for Human Rights and Business, and a public consultation process. This consultation process was extremely valuable in better guiding the weighting of the indicators and ensuring that they represent a wide range of stakeholder views and international best standards, including ILO Guidelines for a just transition. WBA's core social indicators were also applied to the 320 companies assessed so far to measure how these companies are aligning with the United Nations Guiding Principles on Business and Human Rights. The data collected for WBA's just transition assessment is publicly available information disclosed by companies, including from annual and sustainability reports. These just transition assessments are now conducted for all climate and energy benchmarks (these include buildings, transport, capital goods and the upcoming 2024 heavy industry benchmark).



One of the challenges of WBA's just transition assessment was to develop indicators that reflect the fundamentals of just transition. At this stage, the indicators remain sector-agnostic and therefore do not take into account sector specificities but apply the same methodology throughout. They further do not encompass several challenges, such as energy access and the social impacts of increasing demand for critical minerals needed for the transition towards low GHG emissions. Although these aspects were not incorporated, they are being considered for future assessments. Figure 4 presents an overview of how this framework is structured.

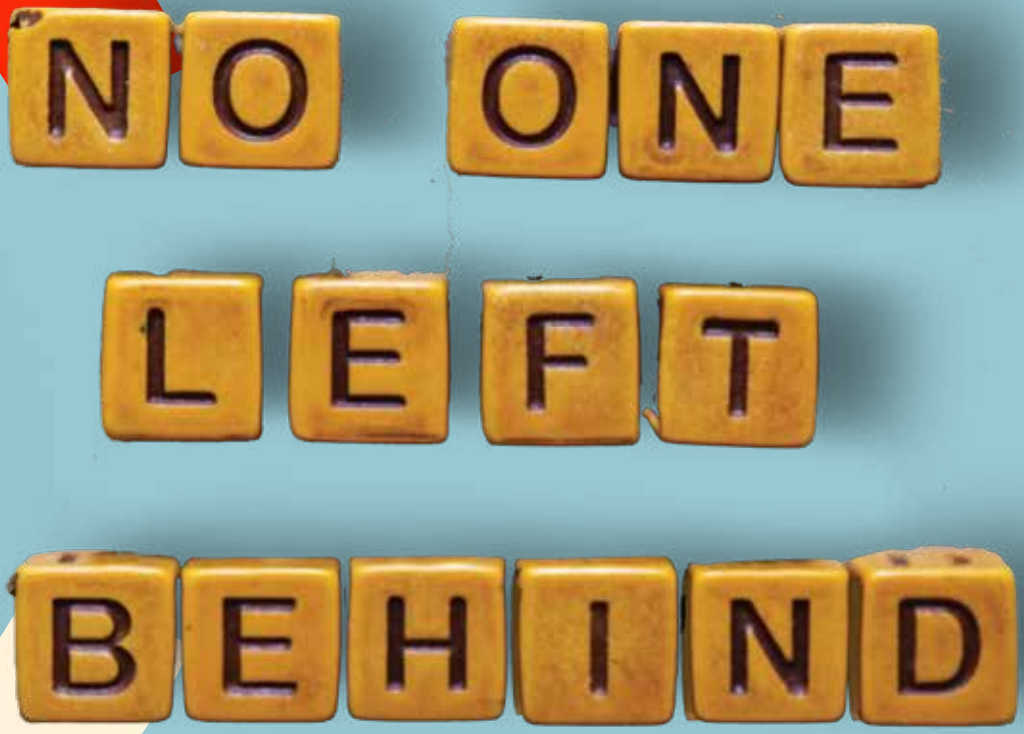
Table 4. Level of company readiness on just transition across areas of assessment

Depth of just transition integration	Social dialogue and stakeholder engagement	Planning for just transition	Green and decent job creation	Retaining and reskilling and/or upskilling	Social protection and social impact management	Advocacy for policies and regulation supporting just transition
Fully integrated	2.2%	0.3%	2.5%	0.6%	0.0%	0.0%
At least partially integrated	30.3%	7.9%	39.7%	57.4%	7.6%	6.6%

lowest (0–25%) medium (26–50 %) Highest (51–100%)

V.

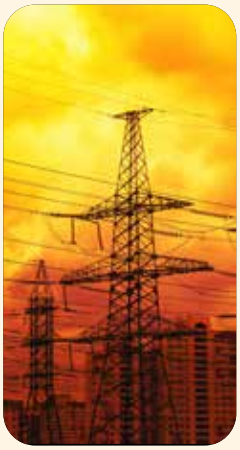
CONCLUSIONS



V. Conclusions

By analysing three broad fields related to just transition, this report provides an indication of how governments, but also companies, are working on delivering just transitions globally. This report shows to what extent governments have formulated just transition aspirations in their NDCs and LT-LEDS. It further illustrates the paths that countries have taken to establish domestic processes and implement domestic policies in the coal, oil and gas, and mobility sectors, and how companies in these sectors contribute to just transition. Finally, this report also addresses the importance of tracking the progress of both governments and companies to achieve just transition and showcases frameworks that can be drawn upon. This report provides the following conclusions:

- **Embedding just transition in NDCs and LT-LEDS can ensure the reflection of just transition considerations in domestic climate mitigation, and adaptation, efforts that contribute to meeting the goals of the Paris Agreement.** While few countries have yet developed comprehensive just transition sections in their NDCs and LT-LEDS, there are some that have outlined concrete steps and strategies they foresee to implement. This can provide both direction and accountability, as it provides a way for domestic actors, including civil society, to demand implementation. Some countries have not provided the same level of information on just transition in their NDCs, raising a question whether there is already a plan for just transition. In addition, lack of details on just transition, including crucial elements, such as economic diversification, social protection and particularly social dialogue, are other weak spots.



- **Processes for planning just transition tend to be locally focused and designed, taking into account national circumstances, in order to ensure buy in and social acceptance.** A number of countries, primarily in the Global North but also in the Global South, have set up processes to initiate inclusive planning for just transition. These processes have taken a variety of forms in terms of their structure, purpose and mode of operation, but all seem successful in delivering a joint vision of just transition that receives widespread public support. While it is too early to assess the outcomes of implementing such strategies, the international examples presented in this study do not provide sufficient evidence to suggest that a one-size-fits-all approach would be the best approach. Instead, these processes should be designed based on the local context, taking the dynamics between national and subnational jurisdictions into account.

- **More research on the impact of direct and indirect jobs through just transition is needed.** This report shows that various countries are carrying out retraining efforts to help workers affected by the transition to capture the new opportunities created by the transition to low GHG emissions. While these efforts are worthwhile, there are important blind spots in these efforts and in the transition more broadly that tend to be overlooked. For example, the majority of just transition studies focus more on direct and formal jobs, which may not provide comprehensive information on employment given that many jobs are contractual, indirect and informal. Across sectors there is also currently a dearth of research on the quality of new jobs created in the transition. While many models predict net job creation from the shift, this is currently an important shortcoming, especially from a just transition point of view. There is a further need to assess how jobs in low GHG emission sectors will embed just transition principles, including in terms of skill level, gender balance, wages and collective bargaining.

- **The understanding of just transition policies and impacts must be extended to other sectors beyond coal.** There is growing work on implementing just transition in the coal sector, but a lack of work on the topic in other sectors, which limits reproduction in research and showcasing of good examples. The urgency for global climate action necessitates that just transition processes be initiated across other sectors (including oil and gas, and transport) and not wait for the issue to fully mature in the coal sector before transitioning occurs in other sectors. Within sectors, some areas have been more assessed than others. In the transport sector, for example, very few studies examine just transition impacts for shipping and aviation, and by contrast there is much more research on the implications of a shift to EVs.

- **Tracking progress will play a multifaceted role, but governments should not delay it.** With the first steps of just transition processes, primarily developing strategies and legislation, being completed, just transition has moved into the implementation phase in the first countries. Robust tracking of progress will be required to collect information on whether successful just transitions have been established or where there is a need to make adjustments. There is no blueprint on how tracking the progress of just transition should be undertaken. An important aspect to consider is that monitoring efforts should build on ILO's guidelines for a just transition, while keeping in mind that just transition will be context-specific and plays out across different administrative levels, primarily the local level, where just transition impacts will proportionally be felt the most. This report proposes a comprehensive framework to monitor just transition of the fossil fuel sector that addresses risks, responses and results and can be applied in different country contexts through the choice of individual indicators relevant to the local context.

- **Companies, in addition to governments, must implement just transition actions.** There has been much focus on the policies needed from governments to support just transition. Yet, there can be a large gap between good intentioned policies and their implementation. The private sector is also accountable for ensuring that just transition is implemented successfully, and companies therefore need to contribute to this. Even though there are promising examples, companies need to do more to implement just transition across their value chain. For example, analysis shows that the level of readiness for just transition remains low, particularly beyond the energy and electricity sectors. In addition to public–private partnerships, governments can shape how much companies align with just transition aspirations by enacting adequate incentives and regulations.

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Annex I

Just transition monitoring framework proposed in this study applied for the oil and gas sector in Alberta

Theme	Building block	Aspect of information	Possible indicators	Lowest Scope	Data type	Additional Demographics
Risks	Oil and gas exposure	Size of fossil fuel production and relevance of domestic energy use	Total fossil fuel production	Local	Numerical	No
			Primary energy consumption by fuel type	Local	Numerical	No
			Electricity generation by fuel type	Local	Numerical	No
		Economic importance of the fossil fuel sector in relation to the total domestic economy and other areas, such as trade, government revenues, investments, jobs, incomes, and voluntary contributions to the society	Fossil fuels as a proportion of GDP	Local	Numerical	No
			Fossil fuel exports as a proportion of fossil fuel production	Local	Numerical	No
			Fossil fuel exports as a proportion of total exports	Local	Numerical	No
			Proportion of government revenues coming from fossil fuels	Local	Numerical	No
			Proportion of capital goods investments coming from the fossil fuel sector	Local	Numerical	No
			Number of direct fossil fuel jobs per all jobs by level of formalization	Local	Numerical	Yes
			Number of indirect fossil fuel jobs per all jobs by level of formalization	Local	Numerical	Yes
			Proportion of total compensation going to fossil fuel jobs	Local	Numerical	No
			Corporate Social Responsibility (CSR) spending of the fossil fuel sector per capita	Local	Numerical	No
	Institutional preparedness	Institutional factors that facilitate and ease just transitions, such as in relation to the state of tripartism and the existing social protection system	Level of national compliance with labour rights (freedom of association and collective bargaining)	National	Ordinal	No
			Unionization rate, distinguishing total employees, employees in the oil and gas sector, and employees in the renewable energy sector	National	Numerical	No
			Proportion of population covered by social protection floors/systems, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims, and the poor and vulnerable	National	Numerical	No
			Proportion of total government spending on essential services (education, health, and social protection)	Local	Numerical	No
	Social dialogue and stakeholder engagement	Satisfaction with the quantity (amount of engagement) and quality (meaningfulness of engagements) of the dialogue process	Perception of national and local labour organizations about the just transition social dialogues	Local	Numerical	No
			Perception of national and local civil society groups about the just transition stakeholder engagement	Local	Numerical	No
Response	Government commitment	Preparation for the just transition policy framework, including government visions and responsibilities	Level of formal government acknowledgment of the need for and understanding of a just transition	National	Ordinal	No
			Existence and level of resources of a formalized body/bodies to deal with just transition	National	Ordinal	No
	Just transition plan and policy	Formalization of just transition planning	Level of development of formalized just transition planning at the national level	National	Ordinal	No
			Level of development of formal regional just transition plan	Local	Ordinal	No
		Disbursement of financial just transition commitments	Just transition spending per capita	Local	Numerical	No
			Just transition spending by area	Local	Numerical	No
		Policy incoherence with just transition	Amount of fossil fuel subsidies per GDP	Local	Numerical	No
			Number of fossil fuel extraction leases sold	Local	Numerical	No

Theme	Building block	Aspect of information	Possible indicators	Lowest Scope	Data type	Additional Demographics
Results	Climate mitigation and environmental protection	Climate impacts	GHG emissions per capita	Local	Numerical	No
			GHG emissions intensity of electricity generation	Local	Numerical	No
		Local environmental impacts regarding land, water, and air	Proportion of land previously used for fossil fuel extraction that was reclaimed	Local	Numerical	No
			Total water used for fossil fuel extraction, distinguished by type of water	Local	Numerical	No
			Proportion of population exposed to air pollution	Local	Numerical	No
	Economic diversification	General development of the economy and, in particular, the industrial sector, which is a key driver for economic development	GDP per capita	Local	Numerical	No
			Industry as a proportion of total GDP	Local	Numerical	No
			Capital expenditures as a proportion of GDP	Local	Numerical	No
			Capital expenditures in industry as a proportion of GDP in industry	Local	Numerical	No
			Business registrations per capita	Local	Numerical	No
		Innovation of the economy	Expenditures on research and development (R&D) as a proportion of GDP	Local	Numerical	No
		Government fiscal health	Tax revenues per capita	Local	Numerical	No
			Public debt per capita	Local	Numerical	No
	Employment and decent jobs	Employment impacts on people employed in the fossil fuel sector	Proportion of fossil fuel employees that are laid off by level of formalization	Local	Numerical	Yes
			Proportion of laid-off fossil fuel employees that are re-employed by level of formalization	Local	Numerical	Yes
		General employment impacts, in particular, in the industrial and green sector	Unemployment rate	Local	Numerical	Yes
			Employment rate	Local	Numerical	Yes
			Number of industry jobs per all jobs	Local	Numerical	Yes
			Number of green sector jobs per all jobs	Local	Numerical	Yes
		General quality of the employment	Proportion of employees covered by collective bargaining agreements	Local	Numerical	Yes
			Annual compensation per job	Local	Numerical	Yes
			Hourly compensation per job	Local	Numerical	Yes
			Fatal and non-fatal occupational injuries per employee	Local	Numerical	Yes
		Re- and upskilling of the workforce	Proportion of fossil fuel employees that receive training	Local	Numerical	Yes
			Proportion of all employees that receive training	Local	Numerical	Yes
Results	Social equity	General socio-economic characteristics of the population, including poverty, inequality, and (monetary) wealth	Proportion of population living in poverty according to the national poverty line	Local	Numerical	Yes
			Proportion of population experiencing energy poverty	Local	Numerical	Yes
			Level of income distribution across the population	Local	Numerical	No
			Disposable income per capita	Local	Numerical	No
		Reliance on the social safety net for ensuring social equity	Proportion of population receiving social assistance	Local	Numerical	Yes
	Public acceptance	Satisfaction with one's personal and regional situation and the transition	Proportion of population satisfied with personal life situation	Local	Numerical	Yes
			Proportion of population satisfied with the current situation in the region of residence	Local	Numerical	Yes
			Proportion of the population satisfied with the transition away from fossil fuels	Local	Numerical	Yes
		Implicit signs of satisfaction	Net migration per capita	Local	Numerical	Yes

Annex II

Just transition monitoring framework - World Benchmarking Alliance

1. Fundamentals of social dialogue and stakeholder engagement in a just transition			
a. The company has a public commitment to engage in social dialogue with appropriate parties for bipartite or tripartite negotiations30, including workers, unions or equivalent worker bodies (where the right to freedom of association and collective bargaining is restricted under law	b. The company discloses the categories of stakeholders it engages with on a just transition and how they are identified (at a minimum including workers, unions or equivalent worker bodies where the right to freedom of association and collective bargaining is restricted under law, and affected stakeholders).	c. The company discloses the steps it takes to engage with identified stakeholders (at a minimum including workers, unions or equivalent worker bodies where the right to freedom of association and collective bargaining is restricted under law, and affected stakeholders) as part of its approach to supporting a just transition.	d. The company demonstrates social dialogue and meaningful engagement with stakeholders (at a minimum including workers, unions or equivalent worker bodies where the right to freedom of association and collective bargaining is restricted under law, and affected stakeholders) on all aspects of a just transition.
2. Fundamentals of just transition planning			
(a) The company demonstrates how it engages both in social dialogue - including with unions (or equivalent worker bodies where the right to freedom of association and collective bargaining is restricted under law) - and more broadly with stakeholders, in the development of its just transition planning.	(b) The company has a set of timebound, measurable indicators to mitigate the social impacts of the low carbon transition on workers.	(c) The company has a set of timebound, measurable indicators to mitigate the social impacts of the low carbon transition on affected stakeholders, including vulnerable groups.	(d) The company has a set of timebound, measurable indicators to mitigate the social impacts of the low carbon transition on its business relationships.
3. Fundamentals of creating and providing or supporting access to green and decent jobs for an inclusive and balanced workforce			
(a) The company has a public commitment to create and provide or support access to green and decent jobs as part of the low carbon transition.	(b) The company assesses and discloses the risks of employment dislocation caused by the low carbon transition and related impacts on workers and affected stakeholders.	(c) The company demonstrates the measures it takes to create and provide or support access to green and decent jobs for workers and other affected stakeholders.	(d) The company demonstrates the measures it takes to ensure that green and decent jobs embed equality of opportunity for women and vulnerable groups.

4. Fundamentals of retaining and re- and/or up-skilling workers for an inclusive, balanced workforce			
a. The company has a public commitment to re- and/or up-skill workers displaced by the transition to a low carbon economy.	b. The company discloses its process(es) for identifying skills gaps for workers and affected stakeholders in the context of the low carbon transition, which involves engaging with unions (or equivalent worker bodies where the right to freedom of association and collective bargaining is restricted) and communities.	c. The company demonstrates the measures it takes to provide re- and/or up-skilling, training or education opportunities for workers and affected stakeholders.	d. The company demonstrates the measures it takes to ensure that the re- and/or up-skilling, training or education opportunities embed equality of opportunity for women and vulnerable groups.
5. Fundamentals of social protection and social impact management for a just transition			
a. The company discloses its contribution to existing social protection systems for workers and affected stakeholders, and that it expects its business relationships to contribute to social protection of workers and affected stakeholders. (The company must also meet CSI 16 on responsible tax fundamentals.)	b. The company discloses its process(es) for identifying the impacts of the low carbon transition on workers' and affected stakeholders' social protection.	c. The company demonstrates how it contributes to addressing the impact of the low carbon transition on workers' social protection in the contexts in which it operates.	d. The company demonstrates how it contributes to addressing the impact of the low carbon transition on affected stakeholders' social protection in the contexts in which it operates.
6. Fundamentals of advocacy for policies and regulation on green and decent job creation; employee retention, education and reskilling, and social protection supporting a just transition.			
a. The company discloses its process(es) for understanding the alignment of its lobbying activities with policies and regulation that support the just transition.	b. The company discloses where its lobbying activities do not align with policies and regulation that support the just transition.	c. The company discloses its action plan to address any misalignment of its lobbying activities with policies and regulation that support the just transition.	d. The company demonstrates that it lobbies, directly and/or through trade associations and/or employers organisations, for just transition policies and regulation that enable the generation of green and decent jobs and the retention, education and reskilling of workers and/or social protection of workers and affected stakeholders at the local or national and/or international level.

Katowice Committee of Experts on the Impacts of the Implementation of Response Measures is a constituted body which was established in Katowice December 2018 to support the work programme of the forum on the impact of the implementation of response measures

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