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Just Transition Taxonomy

NARRATIVE REPORT

CO-PRODUCED BY THE

WORLD BANK TREASURY SUSTAINABLE FINANCE & ESG ADVISORY SERVICES PROGRAM
& WORLD BANK EXTRACTIVES GLOBAL UNIT

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June 2024

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List of Abbreviations

ACT	Accelerating Coal Transition
ADB	Asian Development Bank
ALMPs	Active Labor Market Policies
ASEA	Association of Southeast Asian Nations
CAN	Climate Action Network
CIF	Climate Investment Funds
CJA	Climate Justice Alliance
CO2	carbon dioxide
COP	Conference of Parties
DFIs	Development financial institutions
DNSH	Do No Significant Harm
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ESG	Environmental, Social, and Governance
EU	European Union
FES	Friedrich-Ebert-Stiftung
FIT	feed-in tariffs
G7	Group of Seven
GBPs	Green Bond Principles
ICMA	International Capital Market Association
IEA	International Energy Agency
IFC	International Finance Corporation
IIEXI	Energy and Extractives Global Unit
IISD	International Institute for Sustainable Development
ILO	International Labour Organization
ITUC	International Trade Union Confederation
JETP	Just Energy Transition Partnership
JT	Just Transition
JTF	Just Transition Fund
KPIs	key performance indicators
LSE	London School of Economics and Political Science
LTS	long-term strategies
M&E	monitoring and evaluation
MDB	multilateral development bank
MSMEs	micro-, small-, and medium-size enterprises

NDC	Nationally Determined Contribution
NECPs	National Energy and Climate Plans
OECD	Organisation for Economic Co-operation and Development
PA	Paris Agreement
PPCA	Powering Past Coal Alliance
PPPs	public–private partnerships
PV	photovoltaics
R&I	research and innovation
SBG	Sustainability Bond Guidelines
SBPs	Social Bond Principles
SDG	Sustainable Development Goal
SEI	Stockholm Environment Institute
SEP	stakeholder engagement plan
SEZ	special economic zones
SMEs	small- and medium-size enterprises
SPE	special purpose entity
SPV	special purpose vehicle
UNFCC	United Nations Framework Convention on Climate Change
VET	vocational education and training
WB	World Bank
WI	Wuppertal Institute
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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ABOUT THE WORLD BANK GROUP

Vision, Mission & Strategy

The World Bank's vision is to create a world free of poverty on a livable planet. To deliver on the goals of poverty reduction and shared prosperity, while navigating the increasingly intertwined and complex global challenges, the Bank's management and shareholders have agreed on five main priorities, as outlined in the October 2023 Report to Governors on World Bank Evolution.

- **Poverty reduction:** ending extreme poverty by 2030 or as soon as possible
- **Shared prosperity:** boosting prosperity, particularly for the poorest, to achieve more equitable societies
- **Inclusion:** increasing and improving the distribution of opportunities, resources, and choices for all, especially women, youth, and vulnerable and marginalized people, with a special focus on human development (including education, health, and social protection)
- **Resilience:** strengthening the ability of people and countries to prevent, prepare for, and recover from shocks, including climate and biodiversity crises, pandemics, fragility, and conflict
- **Sustainability:** advancing economic growth and job creation; macroeconomic stability; fiscal and debt management; food security; and access to clean air, water, and affordable energy, including recognizing the increasing interlinkages between country-level progress to achieve the Sustainable Development Goals and reducing the impact of climate change and other global risks

The World Bank Group is one of the world's largest sources of funding and knowledge for developing countries. Its five institutions share a commitment to reducing poverty, increasing shared prosperity, and promoting sustainable development: International Bank for Reconstruction and Development (IBRD), International Development Association (IDA), International Finance Corporation (IFC), Multilateral Investment Guarantee Agency (MIGA), and International Centre for Settlement of Investment Disputes (ICSID). The World Bank Group works as one entity to bring together the international community in the urgent task of achieving these goals with the collaboration of all partners, including countries, other institutions, civil society, and the private sector.

ABOUT

The World Bank Treasury

The World Bank Treasury ensures the long-term financial sustainability of the World Bank (IBRD and IDA) and manages the Bank's finances to enable all operations and lending by:

- Proactively managing its balance sheet to safeguard its triple-A ratings and strong financial position
- Strategically and cost-effectively raising funds from global capital markets and providing financing for sustainable development to borrowing clients

The World Bank (IBRD) issued the market's first labeled green bond in 2008 and has raised more than USD 18 billion in more than 200 green bonds and more than 25 currencies (as of June 2023). All IBRD and IDA bonds carry a green or sustainability label and collectively account for USD 60 billion in average annual issuance.

The Treasury also helps member countries maximize finance for development and supports financial stability and resilience by:

- Developing innovative, sustainable financing solutions to help clients finance climate change, pandemics, refugee crises, and infrastructure development, among other priorities
- Offering mechanisms to reduce risk and promote private sector investment
- Applying international best practices to managing clients' assets and reserves

ABOUT THE

Sustainable Finance & ESG Advisory Services Program

The World Bank Treasury's Sustainable Finance and ESG Advisory Services Program works with policy makers, ministries of finance, regulators, central banks, supervisors, and World Bank project teams to develop sustainable financial systems by:

- Advising on green financing strategies and action plans
- Helping borrowers consider sustainable financial instruments
- Facilitating issuance of GSS bonds
- Building the capacity of borrowers to engage with investors who incorporate ESG considerations into investment decisions
- Publishing knowledge products to share good practices and guidelines

Since inception in 2017, the Program has helped emerging market public sector borrowers mobilize more than USD 18 billion from the private sector to fund sustainable development as of December 2023.

ABOUT THE

Extractives Global Unit

The World Bank's Extractives Global Unit provides a suite of comprehensive services and support in the extractives sector to client countries. These services encompass technical assistance and analytics, capacity building, and lending operations. The unit's efforts are directed towards fostering value addition, enhancing governance and transparency, bolstering performance, and mobilizing both, public and private investments in the extractives sector. It also generates new opportunities for developing inclusive supply chains of clean energy products in targeted low- and middle-income countries.

Our work supports the World Bank's mission to end extreme poverty and boost shared prosperity on a livable planet, with a particular emphasis on renewable energy expansion, strong governance, inclusive economic development, job creation, and environmental and social sustainability within the extractives sector.

At its core, the unit's operations are centered on providing technical assistance and financial support to the extractive industries of developing nations. We have pioneered support for countries as they navigate the global increase in demand for minerals and the shift towards decarbonization. The unit has three main business streams: (1) Minerals for Development (including decarbonizing the mining sector and critical minerals supply), (2) Artisanal and Small-scale Mining (ASM), and (3) Just Coal Transition. These streams are designed to promote sustainable mineral value chains, support people and communities, strengthen transparency and governance, and enhance shared prosperity.

The unit administers the Extractives Global Programmatic Support Umbrella Trust Fund (EGPS), which supports low- and middle-income countries to benefit from the demand for critical minerals required for the clean energy transition, while contributing to sustainable and inclusive mineral supply chains and sustainable ASM.

Executive Summary

Transitioning to an affordable, reliable, clean energy system while meeting growing energy demand is a dual development challenge facing present and future generations. Despite international commitments to decarbonize and pledges to move toward net-zero emissions,[1] coal continues to play a significant role in the energy mix. At approximately a quarter of the global energy supply, it is the second-largest energy source after oil (IEA 2022). Transitioning away from coal will be a complex, multi-decade process that will require the mobilization of vast financial resources. At the same time, decision-makers are grappling with how to ensure that this energy transition is "just" – that is, a transition in which positive social and environmental outcomes are prioritized.

The financial sector has a critical role to play in achieving a Just Coal Transition.2 Unlike traditional finance, which focuses primarily on risk and return, sustainable finance takes into consideration the environmental, social and governance (ESG) dimensions of an investment, and thereby offers opportunities to accelerate the decarbonization process in ways that are fair, balanced, and inclusive. But the financial sector needs greater transparency and accountability from the energy sector to be able to evaluate various investment opportunities more insightfully. A key challenge to scaling up finance for a Just Coal Transition is the financial sector's lack of a clear understanding of the various dimensions of the Just Transition concept, and the types of projects and activities that could be financed and included to achieve the desired objectives. A clear delineation of activities that can be classified as aligned with the Just Transition would makes it easier and more efficient for various stakeholders (lenders and investors in particular) to understand, identify, and track activities that can be funded as part of their commitment to supporting the Just Transition agenda.

Clearer definitions of activities that would be eligible for Just Transition finance would help channel sustainable finance toward those relevant activities, and help investors credibly report how their investments finance Just Transition. A clear classification system would act as a transparent lens to help lenders and borrowers see what projects and economic activities to invest in that would have a substantial positive impact on the climate, the environment, and the communities affected by the closure of coal mines. It should be noted that there is no universally accepted, measurable definition of a Just Coal Transition. Different definitions exist within policy circles, campaigns, and social movements, ranging from local to global contexts. Some emphasize the creation of equitable, local green jobs; others interpret a Just Coal Transition as part of a broader systemic change. Section 2 of the report unpacks the various definitions and sets out six common principles already being used in the field of Just Coal Transition. The economic activities contained in the taxonomy are aligned with those principles.

In this context, the World Bank Treasury's Sustainable Finance and ESG Advisory Services and the Energy and Extractives Global Unit have jointly developed a list of economic activities identifying eligible activities to guide investments that support a Just Coal Transition (hereinafter "the taxonomy").

The structure of the taxonomy is based on the three pillars of the World Bank's 3x3 "Coal Regions in Transition" Framework matrix: (1) governance arrangements, (2) people and communities and, (3) repurposing land and assets.

Currently, 57 Just Transition Taxonomy-aligned activities have been identified, distributed across the three pillars above. It should be noted that the identified activities are not fixed and will evolve over time as the list of economic activities is consulted further with stakeholders. Preliminary feedback on the report and the list of economic activities has been provided by potential users of the taxonomy – primarily investment banks, investors, and second opinion providers who verify whether financed projects meet the eligibility requirements for ESG financial instruments – as well as various specialists within the World Bank Group. The taxonomy is intended to be a "living" document that can be continuously updated to ensure alignment with evolving global sustainability priorities and the latest technological advancements.

Each activity in the taxonomy encompasses a comprehensive set of information that captures the essential elements decision-makers would need to effectively prioritize and implement Just Transition activities in the coal sector. The information for each activity includes the activity ID, category, sector, name, description, contribution to Just Transition Principles, geographical applicability, estimated duration, relevant criteria, benchmarks, compliance with legislation and/or industry standards, risks and mitigation – Do No Significant Harm (DNSH) – social safeguards, metrics, stakeholders involved, matching to the European Union's Sustainable Activities Taxonomy, the Sustainable Development Goals (SDGs), Nomenclature of Economic Activities (NACE), and the International Standard Industrial Classification (ISIC) codes, where applicable. The taxonomy does not specify technical screening criteria because of differences in the development issues and ecological challenges of various coal regions.

The list of economic activities builds on existing green and social taxonomies, as well as global market standards that underpin the global sustainable bond (and loan) markets, such as the Green Bond Principles, the Social Bond Principles, the Sustainability Bond Guidelines, and the Sustainability-Linked Bond Principles developed by the International Capital Market Association (ICMA). A compressed version of the eligible activities and their alignment with these principles can be found in section 4 of this report. The full taxonomy, in Microsoft Excel form, is attached to this report.

Introduction

Governments globally are considering how to manage the transition from coal to clean energy, and how to reach net-zero emissions targets in a way that would ensure a Just Transition – a transition in which positive social and environmental outcomes are prioritized. The scale of the transition is immense: 15,000 active coal mines globally, primarily in South and East Asia, produce just under 8 billion tons of coal a year. Yet the potential positive benefits of transitioning away from coal are also immense. Besides environmental benefits, it is estimated that the transition from fossil fuels could produce direct economic gains of US$26 trillion through to 2030, and a net employment gain of 37 million jobs (New Climate Economy 2018).

But the solutions that will achieve a just transition are more complex than simply replacing coal with renewable energy alternatives. Beyond energy constraints, there are challenges related to managing the social impacts of the transition and mobilizing enough sustainable finance. Although there are no global estimates of the total cost of a Just Transition away from coal, it is certain that a sustainable energy transition will require billions of dollars in financing. Based on growing World Bank engagements with coal-dependent country clients, questions are being raised as to which types of transition activities should best be financed by the public sector versus which ones should be assumed by the private sector. For instance, should the remediation and repurposing of mining lands be considered a public good? Should mining companies and utilities contribute to the reskilling and conversion of employees? Who should cover social protection measures for subcontractors and firms associated with the coal value chain? Is there a point at which public and private sector financing can best converge to achieve greater Just Transition outcomes? These are just a few of the many questions being raised about the financing of a coal transition.

As stewards of assets and allocators of capital, the financial sector – banks and financial institutions as well as capital markets – will need to play an important role in achieving a Just Transition from coal. In recent years, the use of sustainable finance instruments – those that are dedicated to financing activities that have positive impacts on the environment and society – has grown rapidly. According to the IFC, the sustainable finance sector grew from approximately US$13.3 trillion in 2012 to US$35.3 trillion in 2020 (IFC 2021). The evolution of the sustainable finance ecosystem has also seen the rise of new financing instruments, products, and arrangements such as green or social bonds, loans, equity, as well as investment and portfolio evaluation guidance, methodologies and a proliferation of new tools, including the International Capital Market Association's (ICMA) Green Bond Principles and Social Bond Principles.

Yet the financial sector still does not have a clear understanding of the various dimensions of a Just Coal Transition nor of the characteristics of projects that can be financed and included as part of their lending and investment policies. What criteria should be taken into account? Which dimensions ought to be incorporated? What are the associated environmental and social risks? How should impact be measured? A taxonomy of activities under the category of Just Transition will make it easier and more efficient for the various stakeholders – lenders and investors in particular – to understand and identify activities they could fund as part of their commitment to supporting the Just Transition agenda, and incorporate these activities into responsible investment policies.

A taxonomy is a classification system that groups economic activities according to how closely aligned they are to certain objectives, in this case the Just Transition away from coal. Such a taxonomy would allow lenders (banks and investors), especially those that are integrating Environmental, Social and Governance (ESG) factors in their investment decisions and who have impact investment mandates, to understand how these activities align with their core responsibilities and interests, uncover investment opportunities, show that contributing to the Just Transition allows them to deliver positive social and environmental impacts, and channel capital toward these activities.

The World Bank Treasury's Sustainable Finance and ESG Advisory Services helps public sector borrowers identify financing and risk management options for environmentally and socially sustainable investments. Treasury is credited with creating the green bond product that has now become the blueprint for bonds dedicated to achieving positive environmental and social impacts and plays an important role in promoting the integrity of the market and providing intellectual leadership to the financial markets on sustainable finance. To date, the Advisory Services has kickstarted the emerging market sovereign thematic bonds by facilitating transactions in many countries; founded the green *sukuk* and blue bond markets; developed guidelines for impact reporting and green taxonomies; and developed toolkits for public debt managers to communicate with investors on sustainability issues.

The World Bank's Energy and Extractives Global Unit provides comprehensive energy and extractive solutions – technical assistance, capacity building and lending projects – to World Bank client countries. The World Bank's work in the extractives sector supports its overall mission of ending extreme poverty and boosting shared prosperity on a livable planet, by focusing on thematic areas including scaling up renewable energy and phasing down fossil fuels, governance and domestic resource mobilization, inclusive growth, jobs and energy infrastructure, and environmental and social sustainability in the extractives sector. The Energy and Extractives Global Practice has developed a "Coal Regions in Transition" framework that underpins its engagements in the transition away from coal.

In this context, the World Bank Treasury's Sustainable Finance and ESG Advisory Services, together with the Energy and Extractives Global Unit, have identified eligible activities to guide investments that support the Just Transition, in line with financial market expectations. The result is the Just Transition Taxonomy and the accompanying report.

About this Report

This report is intended to frame, contextualize, and explain the taxonomy. It starts by offering a global perspective on the coal sector and its role in the energy mix and in broader energy landscape. It highlights international commitments related to coal phaseout, emphasizing the worldwide endeavor to shift away from coal-based energy production. The report elaborates on the "Just Transition" concept by delineating existing definitions and introduces the overarching principles that ought to steer a just transition, which in turn serve as guidelines to identify Just Transition Taxonomy-aligned activities.

The report summarizes the financing needs for a Just Coal Transition and takes stock of existing environmental and social taxonomies as well as other relevant financing instruments that contribute to Just Transition objectives.

The report concludes with a how-to guide on using the Just Transition Taxonomy, along with the list of economic and social activities that contribute to a just transition. This narrative report is accompanied by an Excel workbook with the complete list of Just Transition Taxonomy-eligible activities.

The need for a Just Transition Taxonomy

Increased and more strategically targeted investments in Just Coal Transitions are essential for achieving a socially sustainable transition. This underscores the importance of developing a Just Transition Taxonomy that could help identify activities that align with Just Transition principles, and those which do not. At the same time, there are increased regulatory drivers that require banks to focus on the Just Transition.

This is the first of its kind – a global Just Transition Taxonomy does not yet exist – and is intended to be a "living" list of economic activities that can be continuously updated to ensure alignment with the evolving global sustainability priorities and the latest technological advancements. Bear in mind that the identification of activities and this report are a first step toward developing a fully-fledged, globally applicable Just Coal Transition Taxonomy.

Developing a Just Transition Taxonomy faces several challenges:

- **Multifaceted considerations:** While green taxonomies primarily focus on environmental matters, Just Transition taxonomies encompass a broader range of elements, including socioeconomic, cultural, and political considerations. This complexity demands a more comprehensive and nuanced classification.
- **Subjectivity and contextual variations:** Just Transition is inherently subjective, with definitions and benchmarks potentially varying across regions and cultures. There is presently no universally accepted or measurable definition of Just (Coal) Transition. By contrast, the standards of green taxonomies, such as carbon emissions, are more universally quantifiable, and definitions are more standardized across regions and cultures.
- **Diverse stakeholder perspectives:** Developing a Just Transition Taxonomy requires input and consensus-building among a diverse array of stakeholders, from workers and communities to policymakers and businesses. This adds layers of complexity to the process of aligning interests and reaching commonly shared understandings.
- **Dynamic and evolving nature:** The landscape of a Just Transition is continually evolving with technological advancements, labor market shifts, and sociopolitical changes, requiring the Just Transition Taxonomy to adapt and evolve along with it.
- **Integration challenges:** Although it can be relatively straightforward to integrate green objectives into business strategies and investment decisions, Just Transition objectives may entail more fundamental systemic changes, which can be challenging to classify and measure.

Despite the complexity of these challenges, a Just Transition, once completed, taxonomy can play a powerful role in mapping and parsing out the financial responsibilities of different public and private actors.

The funding journey often begins with **multilateral development banks (MDBs**), which offer grants for preparatory work, policy development, and project finance. This input forms a foundation on which other institutions can build. Typically, **international climate funds** subsequently come in, supporting the MDBs with tasks such as reclaiming or repurposing assets. The role of climate funds is vital in ensuring that the transition aligns with global climate goals.

If the transition gains momentum, **national banks** step in and **banks** pool funds from MDBs, development finance institutions (DFIs), and domestic funds to attract the private sector and structure products that resonate with local needs. In parallel, the real estate and infrastructure activity by **developers** picks up with a focus on developing remediated land. Some enter joint ventures with landowners, often in the form of public–private partnerships.

A third set of actors, **utilities companies and independent power providers**, ensure that the transitioned economy's power needs are met efficiently and sustainably. Their expertise helps map out a greener economic landscape.

Meanwhile, **banks** proactively work to create investment potential, chalking out a methodology to identify sites ripe for green energy projects. As these projects come on stream, **asset managers** emerge as potential stakeholders, often as owners of the remediated or repurposed lands, but always with a keen eye on the 'E' of ESG (Environmental, Social and Governance) and on the 'S,' emphasizing the social elements of the Just Transition to ensure that the transition is holistic and inclusive.

Recognizing the immense potential of a Just Transition and the societal needs it meets, **governments** may incentivize the **private sector** to contribute actively to Just Transition projects, using government, central bank, and treasury mechanisms to offer financial incentives to support strategic industries. But governments play another vital role in the transition: they provide social safety nets to help ensure that no one is left behind during this transformation, underpinning the essence of a just transition.

The Just Transition Taxonomy can also spotlight profitable, sustainable investment opportunities that align with both environmental and social standards, ensuring that the investments of the **private sector** are channeled effectively in a way that does not exacerbate social disparities.

Additionally, the taxonomy can serve as a benchmark to assess the societal impacts of the financing decisions of **international financial institutions (IFIs)**, ensuring that their vast resources support projects that are both environmentally sound and socially beneficial, particularly in regions where market forces alone may be unlikely to guarantee such outcomes.

Lastly, the taxonomy can help pinpoint areas where **public sector funding** is indispensable. Certain Just Transition initiatives, especially those that have significant social implications but are not immediately commercially viable, might require governmental or public intervention. By demarcating these areas, the taxonomy might ensure that public funds are judiciously utilized for maximum societal benefit, bridging funding gaps where private capital may be reticent to tread. In essence, over the long term this taxonomy could act as a compass, directing each financial entity toward its optimal role in the complex journey toward a just and sustainable future for coal regions.

The need for a Just Transition Taxonomy arises from the need to balance environmental goals with social equity. Green taxonomies, with their primary focus on environmental issues, do not properly address the socioeconomic ramifications of a green transition.

To ensure that the social elements of the net-zero transition are sufficiently considered, the financial sector needs to understand the various dimensions of Just Transition and the characteristics of projects that can be financed and included as part of their respective lending and investment policies. To facilitate that understanding, a taxonomy with clear definitions of activities that would be eligible for Just Transition finance was created to help channel sustainable finance toward relevant activities and to help investors credibly report and explain how their investments finance Just Transition objectives.

About the Just Transition Taxonomy

The Just Transition Taxonomy is a framework designed to categorize and define investment activities that contribute to making the transition to a more sustainable, low-carbon economy socially equitable. It is a tool to guide financiers, policymakers, and other stakeholders in recognizing which investments and interventions support communities, workers, and regions that might be adversely affected during a shift away from carbon-intensive industries, notably coal.

The Just Transition Taxonomy is mainly definition-based. Its primary goal is to offer clear, standardized definitions of both the enabling and investment activities that support a Just Transition in coal regions. The taxonomy seeks only to address the management of a regional transition from coal to clean energy and how to reach net-zero targets in a way that ensures a Just Transition. It necessarily includes elements of other existing frameworks (for example, green and social bond principles) and indeed builds on them.

The list of Just Transition economic activities aims to provide:

1. **Clarity and consistency:** The taxonomy ensures there is a consistent understanding among different stakeholders of what constitutes an investment that promotes a Just Transition.
2. **Guidance for investment:** For financiers and investors, the list serves as a guide to channel funds into activities that have a positive social and environmental impact in transitioning economies.
3. **Policy alignment:** For policymakers, it aids in creating regulations and incentives aligned with promoting activities that support a Just Transition.

Taking as a starting point the shared common goal that underpins the main definitions of Just Transition, **this report introduces six foundational principles that frame the Just Transition Taxonomy.** These principles help to delineate the boundaries for selecting relevant activities within the scope of the taxonomy. In other

words, the activities in the taxonomy that substantially contribute to a Just Coal Transition must demonstrate alignment and contribution to the Just Transition principles (see appendix II for the methodology of the underlying principles).

The structure of the Just Transition Taxonomy is based on the pillars of the World Bank's 3X3 "Coal Regions in Transition" framework: (1) governance and strategic planning, (2) people and communities, and (3) repurposing land and assets. Within pillar, activities are identified for each phase (pre-closure, closure, or regional transformation) necessary for achieving a Just Transition (see appendix I for the 3X3 framework).

Currently, 57 Just Transition Taxonomy-aligned activities have been identified: 12 in pillar 1, 11 in pillar 2, and 34 in pillar 3. These activities are not set in stone and will likely evolve over time since **the taxonomy not only is the product of collaborative effort but also is a dynamic, living document** that will be continually updated to ensure alignment with the evolving global sustainability priorities and the latest technological advancements.

Each activity in the taxonomy is accompanied by a comprehensive set of information that contains the elements decision-makers would need to prioritize and implement just transition activities. This information includes the activity ID, category, sector, name, description, contribution to Just Transition principles, geographical applicability, estimated duration, relevant criteria, benchmarks, compliance with legislation and/or industry standards, risks and mitigation (DNSH), stakeholders involved, social safeguards, metrics, matching to the EU Taxonomy, the SDGs, and NACE and ISIC codes, where applicable (see section 4.2 for a detailed description of each).

The Just Transition Taxonomy builds on the existing EU Taxonomy and the global market standards that underpin the global sustainable bond (and loan) markets, such as the Green Bond Principles, the Social Bond Principles, the Sustainability Bond Guidelines, and the Sustainability-Linked Bond Principles provided by the International Capital Market Association. These are collectively referred to as "the Principles" (see section 4.1 for tables showing how the Just Transition Taxonomy activities aligns with these principles.) Additionally, some categories or sets of information in the taxonomy were sourced from other taxonomies and standards such as the Singapore Taxonomy and the Climate Bonds Taxonomy (see section 4.2 for the full list of sources used for the taxonomy).

The Just Transition Taxonomy currently focuses on the coal sector and does not encompass the entire spectrum of transition sectors. In the future, the taxonomy could evolve to include other sectors affected by the transition, including transport, agriculture, manufacturing, fisheries, forestry, tourism and waste management.

1

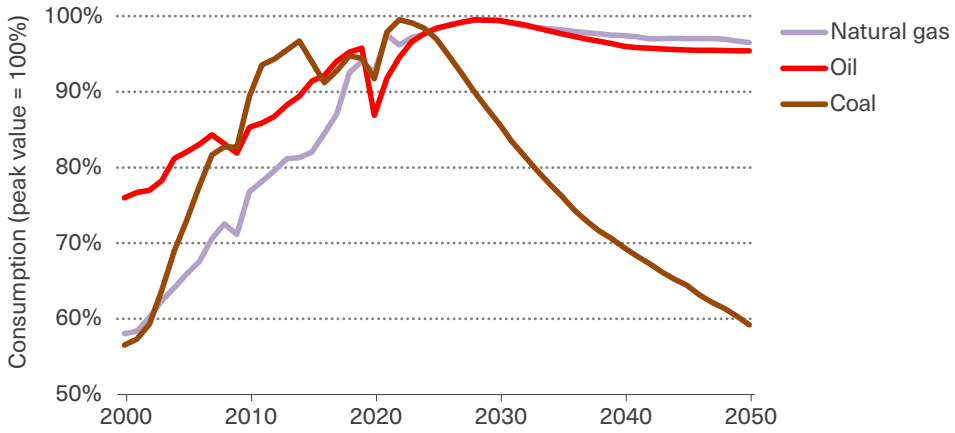
1. Context

1.1 The state of play in the coal sector

Recent market imbalances and supply chain disruptions, caused by the impacts of the COVID-19 pandemic in 2020 and Russia's invasion of Ukraine in 2022, have led to record-high energy prices worldwide. These developments are reshaping established demand trends, with the result that industries exposed to global prices are facing rationing threats and production cutbacks (IEA 2023b).

The 2023 World Energy Outlook projected that demand for each fossil fuel category (natural gas, coal, and oil) would be lower than in 2022 (IEA 2023b). This mirrors a longer-term trend: in various sectors, clean energy technologies have been gaining market share over fossil fuel technologies. As a result, it is now projected that all three fossil fuel categories will reach consumption peak by 2030 (IEA 2023b). Meanwhile, the consumption of renewables, particularly solar PV and wind, is rising and is expected to account for more than 70% of total capacity addition until 2050 (IEA 2023b).

Figure 1 **Fossil fuel consumption in the Stated Policies Scenario (STEPS), by fuel type, 2000–2050**



Source: IEA (2023b)

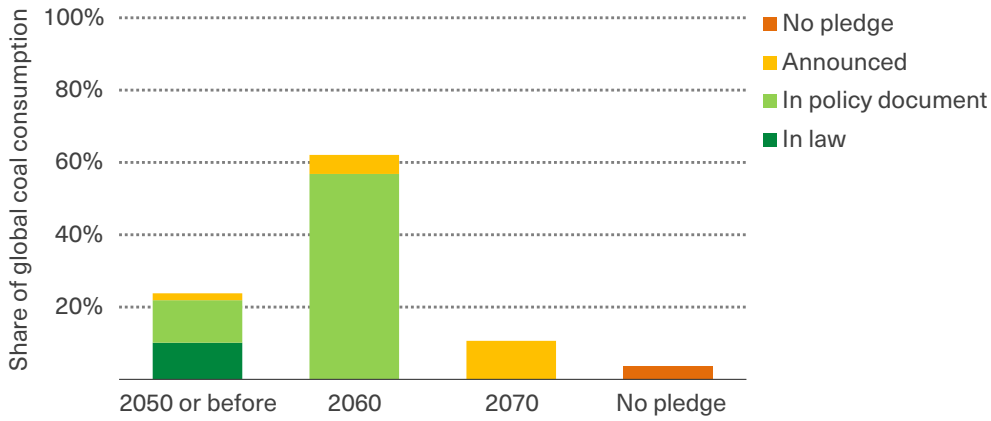
Although the energy landscape is evolving, coal still represents about a quarter of the global energy supply and is the second-largest energy source after oil (IEA 2022). Historically, coal has been instrumental in meeting global energy needs, especially in power generation – it is the largest source of electricity generation (IEA 2022) – and industrial processes such as iron and steel production.

Although coal is the largest contributor to energy-related global carbon dioxide (CO_2) emissions, its consumption has temporarily increased in several countries, especially in response to the ongoing global energy crisis precipitated by soaring natural gas prices. China, India, the United States, Indonesia, Australia, Russia and South Africa are among the leading coal producers and consumers worldwide. Notably, China stands out as the largest coal consumer, accounting for over 55 percent of global demand, followed by India, representing more than 10 percent of demand. Together, China and India represent two-thirds of the world's coal demand (IEA 2023a).

1.2 International commitments to phasing out coal

The consistently high level of coal use demonstrates the challenge of aligning the world's actions with its climate ambitions. More than 95 percent of current global coal consumption takes place in countries that have, in principle, committed to achieving net-zero emissions (IEA 2022). Phasing out coal-fired power generation is an essential component of achieving the Paris Agreement ambition to limit the increase in global temperature to 1.5°C by 2030, and would require an 80 percent reduction in coal use compared to 2010 levels. Despite this urgency, more than 15,000 coal mines and about 9,000 coal-powered plants continue to operate throughout the world (IEA 2022), sustained by their role as pivotal drivers of growth in numerous emerging markets, many of whom hold development as a somewhat higher priority than compliance with international agreements.

Figure 2 **Share of global coal consumption covered by net zero emissions pledges, by status and target date**



Source: International Energy Agency, 2022.

The Powering Past Coal Alliance (PPCA), a coalition of national and subnational governments, businesses, and finance institutions, was launched at the 2017 UN Climate Change Conference (COP 23) in Bonn.[3] To establish the alliance, its 167 members endorsed the PPCA Declaration (PPCA 2017), which sets out a commitment to accelerate the transition from coal to clean energy in their countries. Since then, the PPCA and its members have been actively promoting the transition from unabated coal power generation to clean energy within member countries and organizations, offering support for these transitions, sharing best practices, and fostering global cooperation.

The 2021 UN Climate Change Conference (COP26) in Glasgow marked a significant turning point in global coal consumption, with the announcement of new initiatives and declarations on global coal phaseout and phasedown (UNCC 2021). Notably, the United Kingdom released its "Global Coal to Clean Power Transition Statement," highlighting new commitments in 23 countries, including four of the world's top-20 coal power-using countries – the Republic of Korea, Indonesia, Vietnam, and Ukraine – to phase out coal power. The signatory countries also vowed to end investments in new coal power plants both on a national and international level. Simultaneously, major international banks in 25 countries, including the United States and Canada, pledged to cease public financing of new unabated coal power before 2022. In short, financial institutions and banks worldwide have been actively scaling back their support for coal-related activities. This shift entails reconsidering investments in coal mines, coal-fired power plants, and coal-related infrastructure projects. Furthermore, many financial institutions are aligning their portfolios with climate goals and net-zero targets, signaling a collective commitment to supporting the transition from coal to cleaner energy sources.

Public funding has a pivotal role to play in financing the coal phaseout and energy transition, as well as in scaling up clean energy investments in emerging markets and developing economies. To address these needs, **in 2021 the Climate Investment Funds established the Accelerating Coal Transition (ACT) Investment Program**.[4] It provides a platform from which developing countries can access resources at scale, especially when their public finance resources are under pressure. ACT aims to have a demonstration effect through experimentation with models and approaches from various countries and in a range of issues, with the goal of accelerating the rate and scale of the energy transition. The program operates holistically across three pillars. First, in the area of governance, it works with key stakeholders to build technical and institutional capacity and to develop social, economic and transformation plans. Second, it supports people and communities undergoing transition, focusing on upskilling, reskilling, job creation, and social protection for communities most affected by the transition process. And third, it prioritizes reclaiming and repurposing of the existing infrastructure such as land and power plants. The country beneficiaries of this program are the Dominican Republic, Indonesia, Philippines, India, North Macedonia, and South Africa.

Additionally, major international donors, including the EU and the US, have announced a Just Energy Transition Partnership (JETP) to support South Africa's transition, with financing of US$8.5 billion over the 2022–2027 period (Cassidy, Quitzow, and Sparkman 2022). In 2022, this inspired the creation of a JETP for Indonesia and another Vietnam that aim to mobilize public and private financing to decarbonize each country's energy sector (Ayas et al. 2023).

In developed economies, the tone for accelerated clean energy development in this decade is being set by new policy packages and government plans and targets, including the Inflation Reduction Act in the United States, the Fit for 55 package and the REPowerEU in the European Union (EU), the Climate Change Bill in Australia, and GX Green Transformation in Japan.

At the G7 meeting in 2023, leaders reinforced their commitment to accelerating the phasing out of domestic unabated coal power, emphasizing its alignment with the 1.5-degrees timeline. For the first time, they also pledged to work toward ending the construction of new, unabated, coal-fired power generation projects domestically. They also reaffirmed the necessity of a full decarbonization of the power sector by 2035.

Support for a Just Transition and coal phaseout also contributes to delivering on several SDGs, notably those relating to affordable and clean energy (SDG7), industry, innovation and infrastructure (SDG9), decent work and economic growth (SDG8), reduced inequalities (SDG10), responsible production and consumption (SDG12), and climate action (SDG13). To achieve these, it is essential to design transition pathways that are just and inclusive. This entails, among other things, ensuring gender equality in all its dimensions, prioritizing the needs of vulnerable groups including women, children, indigenous peoples and displaced communities, ensuring affordable and reliable energy access for all, and fostering the creation of new jobs (UN 2021).

1.3 Challenges of the Coal Transition

Every pathway that aims to avoid the severe impacts of climate change involves early and significant reductions in coal-related emissions. The special focus on coal transitions reflects a combination of coal's high emissions intensity, growing competition from cost-effective clean energy technologies such as renewables, and deep links to jobs and development in coal-producing regions.

But the trajectory that coal transitions take can vary significantly from each other because of a range of characteristics that influence the dynamics, direction, and pace of the process. These include the economic and industrial structure of the country, its institutional and organizational frameworks, the knowledge capabilities and administrative capacity of its public and private sectors, the degree of social cohesion, geographical factors, resource endowments, historical background, political economy considerations, and cultural norms. Together, these characteristics determine the strengths, deficiencies, and needs of all the leading actors in that coal transition, both at the national and the regional levels. In turn, this influences the range of plausible transition pathways available to that country, as well as the capacity of its public and private sectors to implement transformative action.

The multiple challenges posed by a coal transition can be grouped into three categories. These three sets of challenges are interrelated and interlinked but they can vary in their degree of severity, depending on various national and regional characteristics:

- **Structural and technological challenges.** These challenges involve economic diversification, where regions dependent on coal industries face employment and revenue reductions owing to the transition to a carbon-neutral economy. Industrial competitiveness is also affected, especially when there are significant manufacturing and process industries that rely on coal for their energy needs. This means that transition strategy and planning should be integrated with regional industrial strategy and planning. Additionally, upgrading the workforce's skills and transforming the labor markets are necessary steps. This may require a significant reform of education delivery, training resources, and guidance provision, as well as adaptation of related institutions and governance mechanisms. The rehabilitation of former mining and power plants, alongside the repurposing of assets – including for renewable energy purposes – is another challenge.
- **Policy-related challenges.** Many countries are struggling to meet the milestones and timelines of the global climate ambitions and carbon-neutrality commitments set out in international agreements. Coal transition will require timely policy and project implementation while also ensuring that the negative impacts are mitigated through adequate projects and measures. To stay apace, it will be essential to coordinate coal transition plans with policies in other domains such as social development, economic recovery, digitalization and demography, as well as maintaining policy momentum and focus. Further, because of the long-term nature of Just Coal Transition plans and processes, there is a risk that changes in domestic and/or global political and socioeconomic circumstances could lead to policy reversals. In some countries, the lack of a clear timeline hinders transition planning. Any consequential delays in access to funding and in the adoption of mitigation measures may result in more severe negative socioeconomic impacts on vulnerable communities.
- **Process, capacity, and financing challenges.** Achieving a Just Transition requires cooperation and coordination across various levels of government. This can be challenging, as can stakeholder inclusion, particularly consultation and engagement with impacted or aggrieved stakeholders. Lack of administrative and technical capacity to undertake coal transition-related planning and implementation can be major obstacles, especially in less economically advanced countries and regions. These may be exacerbated if decision-makers hesitate or avoid taking leadership in coal transition planning, for example, because of the fear of political backlash or confrontation with vested interests. Finally, it is critical for countries to identify and have access to public and private financing instruments to support a coal transition process that fits their needs.

The socioeconomic impact of a Just Transition away from coal, particularly in those regions heavily dependent on this energy source, can be wide-ranging and profound because these regions have long relied on coal mining and coal-fired power generation as key economic drivers that provide employment and stable incomes. As the world shifts toward cleaner and more sustainable energy sources, the livelihoods of thousands of coal workers and the economic wellbeing of entire regions are at risk. This is precisely why the a Just Transition is both so crucial and so challenging. Although transitioning to an economy aligned with environmental objectives is essential, an equally fundamental and vital consideration is the social component of the transition – especially the recognition that abrupt shifts away from coal often lead to job losses, economic hardship, and social dislocation for affected communities. A Just Transition must therefore foster sustainable, inclusive growth that places people and communities at its center and ensures that no one is left behind in the pursuit of a greener future.

2024

2. What is a Just Coal Transition?

2.1 Working definitions

As nations navigate the complexities of a transition away from coal extraction and use and to cleaner energy sources, the imperative, especially in coal-dependent regions and communities, is to manage the process justly, fairly, and inclusively because the transition will have far-reaching socioeconomic impacts on such areas and populations.

But what does "just transition" actually mean? There is no single, universally accepted definition of Just (Coal) Transition. Different interpretations and definitions exist within policy circles, campaigns, and social movements, ranging from local to global contexts. Some emphasize the creation of equitable, local, green jobs as a key definitional element of the shift toward a climate-resilient economy. Others interpret a Just Coal Transition as an integral part of a broader systemic change initiated to address carbon-intensive economic models that exacerbate inequalities and to promote a reparative approach through climate action.

The definition adopted by each organization or stakeholder plays a role in shaping their particular perspective on the scope, priorities, and focus of a Just Transition. For a better understanding and overview of the subject, an extensive compilation of existing working definitions and principles of a Just Transition has been put together (see appendix II for the methodology). This compilation includes definitions from leading global organizations actively engaged in or advocating a Just Transition, including the ADB, CIF, CJA, EBRD, EU, Europe Beyond Coal, FES, Future Economy Scotland, IISD, ILO, ITUC, LSE, OECD, PPCA, Scottish Government, SEI, SOLIDAR, UNFCCC, WB, WI, WRI and WWF (see the abbreviations list for the full names).

The imperative of pursuing and ensuring a Just Transition is encoded in the Paris Agreement, the preamble of which acknowledges *"the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities."* This statement underscores the role of the economy-wide transformation needed to deliver the long-term goals of the Paris Agreement and the SDGs. It reflects the growing importance that, since 2015, has increasingly been attached to the need to address the negative impacts of job losses and industrial transition on workers and communities, and the need to enhance access to the opportunities associated with the transition – including decent, sustainable jobs and the growth of green sectors.

The 2015 publication "Guidelines for a just transition toward environmentally sustainable economies and societies for all" by the International Labor Organization, laid out a now widely accepted model for a Just Transition. The ILO guidelines, the result of tripartite negotiations involving unions, employers' organizations, and governments, are founded on core concepts from the decent work agenda, encompassing workers' rights, social dialogue, social protection, and employment. The ILO's model offers a definition of Just Transition now widely used by trade unions, businesses, and governments, namely, *"greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind."*

The ILO's vision of a Just Transition is comprehensive: it aims to bridge the gap between the present and a future where all jobs are environmentally friendly and decent, poverty has been eradicated, and resilient communities thrive. This vision takes a systemic and holistic approach to sustainability by addressing environmental, social, and economic issues simultaneously.

In 2016, the International Trade Union Confederation (ITUC), which represents 191 million workers in 167 countries and territories, established the Just Transition Centre to facilitate collaboration and social dialogue among workers, unions, businesses, governments, and communities to ensure labor's involvement in Just Transition planning. In practice, ITUC's definition explicitly embodies this objective, affirming that *"a Just Transition secures the future and livelihoods of workers and their communities in the transition to a low-carbon economy. It is based on social dialogue between workers and their unions, employers and government and consultation with communities and civil society."*[5]

It can be observed that, with its clear emphasis on workers and social dialogue, ITUC's perspective of a Just Transition is primarily trade union-centric, and potentially overlooks or understates broader but equally important aspects of a Just Transition such as planning, governance, and economic diversification.

At the EU level, the concept of a Just Transition is integrated into the broader climate action policy framework, with a focus on ensuring that the transition to a climate-neutral economy happens in a fair way, leaving no one behind.[6] The EU's approach aims to reconcile its exceptional climate ambition (-55 percent emissions by 2030 and net zero by 2050) with ensuring that social impacts are addressed and mitigated.

The World Bank's definition of Just Transition in the context of coal, termed "Just Transition for All," similarly aligns with the overarching goal of putting people and communities at the center of the transition, particularly in the context of managing coal transitions.[7] The World Bank employs its "Just Transition for All" 3x3 framework[8] as a tested methodology, featuring three transition pillars: (1) governance arrangements and strategic planning, (2) people and communities, and (3) repurposing land and assets. These pillars contain discrete activities implemented across three broad phases: (1) pre-closure, (2) closure and (3) post-closure. This framework is intended to guide the World Bank's efforts and those of its client governments to navigate coal transitions effectively. A cross-sectoral Just Transition Working Group within the World Bank is currently working on defining a Just Transition.

Although the formal definitions of a Just Transition set out by international organizations vary, most share the common goal of decarbonizing energy production and economic activities and moving toward climate neutrality in ways that alleviate inequalities, while giving voice to the workers and communities most impacted by the transition.

2.2 Just Transition Principles

This section introduces six foundational principles that frame the proposed Just Transition Taxonomy. These principles also help to delineate the boundaries for selecting relevant activities within the scope of the taxonomy. The six principles are the outcome of a comprehensive review of definitions, concepts, and values employed by leading organizations that address transition, particularly in the context of coal phaseout.

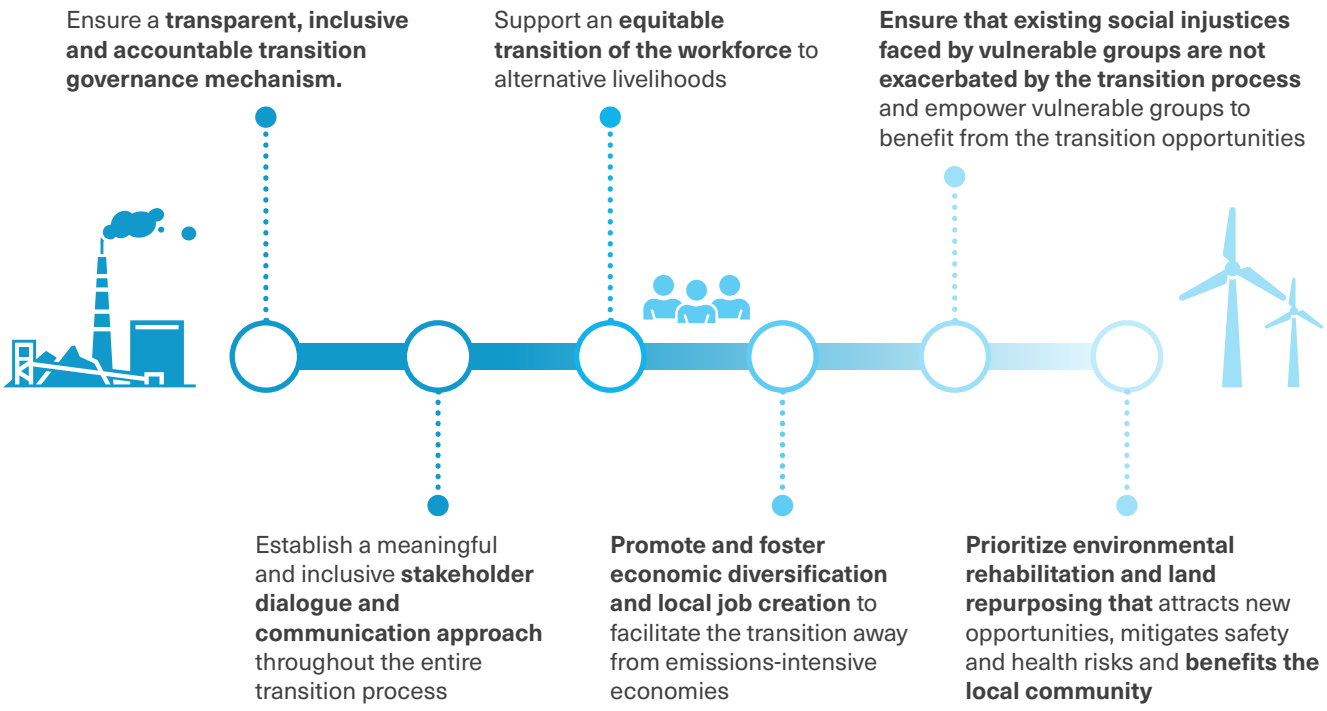
The goal is not to introduce new concepts or a redefinition of Just Transition but rather to distil Just Transition into a set of six principles based on perspectives and knowledge that are already available in the field of Just Transition and that reflect an implicit consensus, and to use those principles to identify activities that align with them. The methods and approach used to develop the proposed principles are described in greater detail in appendix II and annex II.

Although these principles were selected with a focus on phasing out coal, they are all – with the exception of the rehabilitation and land repurposing principle – applicable to transitions in general, and applicable across diverse sectors besides coal.

Through the financing activities, policy advice, research and analysis, and technical assistance, the World Bank recommends and helps its clients, governments in particular, to implement these principles within their respective contexts.

Below is the list of principles, along with a brief description and what their implementation entails.

Figure 3 Just Transition principles in the context of a coal transition



Source: Ecorys Brussels own elaboration

1. Ensure a transparent, inclusive and accountable transition governance mechanism

Within the framework of achieving national or regional decarbonization and climate neutrality goals (national plans, NDC, LTS, NECPs, PA, SDGs), establish an overarching governance mechanism that respects the Just Transition objectives and principles, and that is characterized by transparency, inclusiveness and accountability.

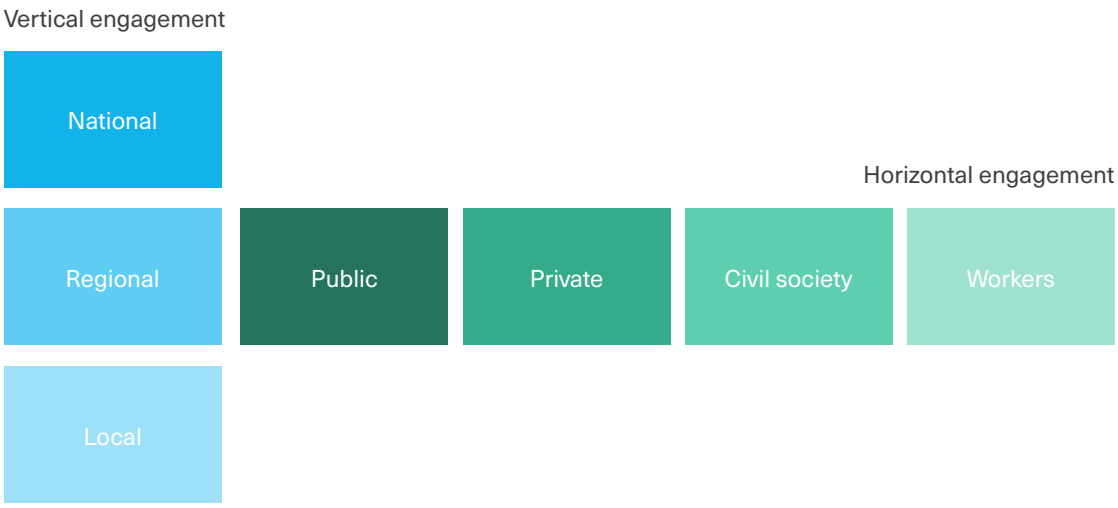
This includes (i) developing policies and regulations that support Just Transition objectives, active stakeholder engagement, and social dialogue; (ii) fostering coherence, coordination and collaboration, both domestically and internationally; (iii) monitoring and evaluating progress; and (iv) enhancing capacity.

2. Establish a meaningful and inclusive stakeholder dialogue and communication approach throughout the transition process

Through appropriate engagement mechanisms – consultations, negotiations, open discussions, events, workshops, capacity building, joint actions – establish a meaningful, inclusive, and functioning social dialogue[9] process in which all the stakeholders are involved in every stage of the transition process (from conception, to planning, to implementation), and that encompasses both vertical and horizontal dimensions (figure 4).

Alongside the public, stakeholders should be informed of the dialogue process through an active communication strategy that facilitates their contribution and response. The strategy should aim to empower affected communities to help shape the policy development and decision-making processes that will affect their economic, social, and environmental wellbeing.

Figure 4 Stakeholder engagement dimensions



Source: Ecorys Brussels own elaboration

3. Support an equitable and sustainable transition of the workforce to alternative livelihoods

Support an equitable and sustainable transition of the affected workforce to alternative job opportunities and livelihoods that offer comparable income levels, opportunities for re-training and reskilling, and adequate social safeguards to those unable to re-enter the labor market.

This involves anticipating impacts on employment, providing adequate social protection for job losses and displacement, promoting skills development (re-skilling and up-skilling), providing labor intermediation services to connect jobseekers to jobs, providing enablers for skills development (VET, universities, career guidance and assistance) and fostering social dialogue (between employers, employees, unions, and local and national authorities).

4. Promote economic diversification and local job creation to facilitate the transition away from emissions-intensive economies

Facilitate the transition from reliance on a single high-emissions industry or sector by creating an enabling environment for enterprises, workers, investors, and consumers to embrace new, locally based, and sustainable business opportunities, accompanied by measures that directly stimulate investment and encourage the creation of good-quality local jobs that are sustainable and accessible, and comply with international labor standards. Ensure that the economic diversification process benefits the affected localities, regions and communities through the utilization of local assets, skills and/or economic comparative advantage.

Regulations and policies that facilitate firm entry and business operations are necessary, but may not be sufficient, to create an enabling environment for sustainable economic diversification. Complementary measures and support programs may be needed. Measures typically need to be designed for a specific context: examples include (i) incentives for renewable energy production (solar, wind, biomass, geothermal, hydro) through FIT, R&D subsidies or low-cost financing; (ii) the prohibition of new carbon-intensive or emissions-intensive investments; (iii) supportive infrastructure investments (digital, physical/built environment/transport, clean energy); (iv) energy efficiency rebates for businesses and households; (v) fiscal incentives for businesses (tax breaks, grants, SEZ); (vi) decarbonization incentives targeting other sectors such as manufacturing and agriculture; and (vii) support programs for micro-, small-, and medium-size enterprises (MSMEs) and startups (business advisory services, accelerators, and incubators).

5. Ensure that the transition process does not exacerbate existing social injustices already faced by vulnerable groups, and empower vulnerable groups to benefit from transition opportunities

Ensure that existing social injustices faced by vulnerable groups are not exacerbated by the transition process while enabling marginalized groups to take advantage of the opportunities that emerge during the transition process to benefit to help rectify existing social injustices.

This entails putting in place measures for including traditionally excluded groups in social protection and safety net programs, in addition to other economic and social empowerment programs (training, entrepreneurship, community infrastructure investments) targeted to groups that are disproportionately affected by the transition (low-income households, vulnerable families, women, informal workers, and indigenous people).

Examples of these measures include equality policies (for example, for gender and ethnicity), engagement and support initiatives, livelihoods programs, infrastructure for efficient clean energy, support mechanisms for energy communities, energy efficiency rebates, upgrade and renovation of district heating (DH) systems, investment in smart and sustainable local mobility, assistance programs for vulnerable groups (children, the elderly and the disabled), pollution prevention, and provision of and/or revitalization of relevant community assets and infrastructure.

6. Prioritize environmental rehabilitation and land repurposing that attract new opportunities, mitigate safety and health risks, and benefit the local community

Prioritize environmental rehabilitation and the repurposing of post-mining lands, power plants, and other mining and energy assets to create quality physical space that attracts new businesses, supports the creation of new jobs, brings broader societal benefits, and improves ecosystem services and the value of natural capital.

This principle has two interconnected elements: (i) ensuring adherence to pollution prevention and polluter-pays principles, implementing best practice (mining) closure standards, and complying with all applicable environmental legislation; (ii) assessing the conditions, constraints, and opportunities of mining lands, optimizing their repurposing and redevelopment, and maximizing both their economic potential as well as ecosystem services and value.

Using fact-based methodologies makes it easier to ensure transparency throughout the process, get stakeholders to accept the transition plan, implement appropriate management measures for location-specific risks, and prioritize repurposing activities that benefit the community, for example, through the development of natural habitats, agriculture or forestry, tourism and heritage including museums and cultural centers, business or energy parks, research and innovation hubs, and manufacturing, waste management, residential, or commercial developments.

3

3. Financing a Just Transition

3.1 The scale of financing needs for a Coal Transition

Achieving a transition to clean energy on the scale and at the speed needed to meet national and international climate goals, especially the 1.5°C target limit for the increase in global temperatures, has dramatic financial implications, especially for the coal sector. Ending the use of coal will require closing more than 9,000 coal power plants and 4,300 mines worldwide, meaning that some 8.4 million people globally – including 6.3 million in mining, processing and transportation, and 2.1 million in power generation – will need to transition to new jobs (IEA 2022).

In the coming decades monumental, global-scale investments will be needed to achieve this transition. For example, it is projected that, under the International Energy Agency's (IEA) Net Zero Scenario[10] the cumulative investment required for coal transitions in the electricity sector will reach US$9.5 trillion by 2050.[11] Even in the IEA's Announced Pledges Scenario,[12] which aligns with national climate targets, approximately US$6 trillion in investments each year until 2030 will be needed to achieve the necessary reduction in emissions from coal-fired power.[13]

Drawing on the World Bank's 3X3 matrix, the major cost items resulting from phasing out coal mining and coal-based energy generation include (i) transition planning (regional development planning, transition pilot project pipeline development, value chain labor diagnostics, stakeholder engagement); (iv) social assistance, education and skilling; (iii) R&D and small business investments for diversification; i) the capital costs of the physical closure of coal mines and the decommissioning of coal-fired power plants; (v) environmental reclamation of sites and long-term remediation of environmental legacy issues (methane management, geohazards); and (vi) the repurposing of former mining land and assets for new investment use. Although there is a growing awareness of the need for such financing, a significant gap remains in securing the necessary funds to execute these plans effectively.

Of all the costs and investments needed for a coal phaseout, the most substantial is coal mine and powerplant closure and the subsequent site remediation and rehabilitation. These efforts can be costly and are not without significant risks (such as geotechnical and environmental legacies, legal liabilities and regulatory uncertainties) that can discourage investors – whether private or public – who may have an interest in repurposing the site for future use. Ideally, reserve funds for remediation and rehabilitation efforts should be gathered over the lifetime of the activities of the mine or power plant, whether by the mine and plant operators or through contributions to a public fund. Where this is not the case, either because funds were not gathered or are inadequate to meet the costs of remediation and rehabilitation, raising the necessary financing becomes a critical issue, one that typically requires investors to consider the tradeoff between short-term investment costs and future revenue streams.

Public financial support may be required to bridge the gap between the costs of remediation, rehabilitation, and repurposing activities and future returns from these investments. Meeting the eligibility criteria for projects using such financial mechanisms (for example, a national fund dedicated to mine cleanup and remediation) can be an issue, particularly if these mechanisms do not support innovative approaches for utilizing coal-related lands and assets, for instance, using them as part of a green and just transition or to otherwise benefit affected communities.

In the EU context, the Just Transition Fund (JTF) has earmarked EUR 19.2 billion to support coal and carbon-intensive territories in their transitions during 2021–2027. Data on the initial allocations from the JTF indicate

that land rehabilitation is the second-most sought-after category of requested support, behind support for "SME business development and internationalization," with EUR 1.3 billion requested for the rehabilitation of industrial sites and the remediation of contaminated land, and EUR 2.6 billion for SME development.[14]

The increased need for financial assistance is particularly evident in developing nations undergoing the coal transition. Donors designed the JETP initiative to help close this gap, but current funding packages fall significantly short of the necessary levels. For instance, South Africa's energy transition financing needs between 2023 and 2027 are an estimated US$98.7 billion. Its current JETP package, at US$8.5 billion of support for the next five years, represents just a fraction of the required funding. Similarly, Indonesia was promised US$20 billion through JETP, yet the Indonesian government estimates that it will need US$600 billion to decommission just 15 GW of coal power capacity (about 33 percent of the country's coal power capacity) and establish a commensurate renewable capacity by 2050 (Zhou et al. 2023).

The age of a country's fleet of coal plants influences the financial challenge. The loss of foregone revenue streams for a newer power plant that is about to be decommissioned is greater than that for an older plant that is already close to its technical retirement age, and for which initial investment costs have already been entirely or mostly recouped. Accordingly, there may be less resistance to decommissioning aging coal plants, also because they tend to employ subcritical boiler technology, which is the least efficient (and most polluting) method of coal power generation. Where the fleet of coal plants is younger, additional consideration needs to be given to the cost of compensating investors (and their creditors) for the loss of revenue over the longer remaining expected lifespan of the plants.

South Africa boasts the oldest coal fleet, whereas Vietnam and Indonesia both have younger fleets, with most of their coal plants less than a decade old. As a result, plans for the early retirement of Vietnam's and Indonesia's relatively young coal fleets must incorporate additional considerations and compensation for creditors and project companies.

Coal mines and power plants can also become stranded assets because of a range of economic factors or legislative and political developments such as carbon taxes or national decarbonization plans. This poses financial risks for investors and lenders exposed to these assets, necessitating the development of innovative financial mechanisms and instruments to effectively manage and mitigate potential losses. Overall, it is very difficult to say exactly how much a coal transition will cost because it is heavily influenced by a wide range of factors, including national laws and policies related to (i) severance, unemployment benefits, minimum wage and Active Labor Market Programs (ALMPs), (ii) standards of environmental remediation of mine sites; (iii) ability to recycle, reuse, or sell power plant materials; and most importantly (v) energy access and pricing.

These costs can also be influenced by how the government understands what a Just Transition is. Interpreting what a Just Transition means includes defining the scope of workers covered by transition packages (direct and indirect), establishing whether the transition's goal is sustainable economic recovery, determining the criteria for identifying which regions are "coal regions," and deciding whether to address structural barriers to the transition such as infrastructure, existing unemployment, and lack of funding for research and development.

But above all, the pivotal financial challenge associated with coal is ensuring that the transition is indeed a genuine "Just Transition." This entails not only addressing the environmental aspects of coal phaseout but also mitigating the social and economic impacts on coal-dependent regions and communities. The ILO emphasizes the importance of investing in social protection systems, skills development, and job creation in green sectors to cushion the adverse effects of the transition on workers and their communities.

3.2 Taking stock of existing taxonomies

Given the massive investment needs that must be addressed in the coming decades, finance and financial institutions have a critical enabling role to play in achieving the net-zero transition and transforming economies. The roles of financial institutions are twofold: i) providing capital to projects,

companies, or sectors that support the low-carbon transition ("green finance") and ii) providing capital to companies in high-emitting and hard-to abate sectors undergoing key transformations and phasing down emission-intensive economic activities ("transition finance") (ILO and Grantham Research Institute 2022).

In tandem with addressing the pressing investment requirements of the transition, various innovative instruments, tools, and taxonomies have been developed around the world. These include green and sustainable finance taxonomies, financial products and arrangements (green, social and sustainability linked bonds, loans, equity), investment and portfolio evaluation guidance, methodologies, and a proliferation of other innovative tools. In this section, we explore the growing significance of taxonomies in the context of the transition, compare environmental and social taxonomies, and take stock of existing social taxonomies.

3.2.1 The role and importance of sustainable and green taxonomies

Within the sustainable finance ecosystem, sustainable and green finance taxonomies play an important role in facilitating transition efforts. These structured classification systems provide a common language and framework for identifying and categorizing sustainable economic activities, thereby enabling investors, financial institutions, and policymakers to allocate capital more effectively to environmental and social beneficial projects and investments. The roles and advantages of taxonomies include these:

- **Facilitating informed investment decisions** by helping investors and companies to determine the degree of environmental sustainability of an investment (in some cases, also social sustainability)
- **Creating a unified language and common approach** that helps market participants identify economic activities, projects, or sectors that are taxonomy-aligned.
- **Attracting capital to taxonomy-aligned activities** by channeling financial flows from international and private investors toward them
- **Supporting policymakers** by providing versatile tools to develop and refine policies. Since taxonomies encompass and define policy-relevant activities, offer usage guidelines, establish reporting mechanisms, and facilitate data collection, they help in seamlessly integrating green and sustainable financing considerations into the policymaking process
- **Mitigating greenwashing** – the deceptive use of false or misleading marketing statements to get the public to believe that a company's products, practices or mission are more environmentally friendly than they are – by offering a transparent and objective benchmark for evaluating the environmental impact of investments and activities

Given these advantages, various countries around the world have developed, or are developing, sustainable finance taxonomies.

3.2.2 Environmental versus social taxonomies

To date, most sustainable and green finance taxonomies around the world have concentrated on environmentally sustainable activities, with a strong emphasis on addressing climate-related concerns, such as in the EU's taxonomy (2020) and the Climate Bonds Initiative's Green Taxonomy (2013).

It could be said that, globally, many of today's existing taxonomies do not take social justice aspects into sufficient consideration (Grantham Research Institute 2022). In some parts of the world, alongside ongoing discussions and initiatives to broaden these taxonomies to incorporate additional environmental dimensions that are increasingly acknowledged as vital components, such as water and biodiversity, there is increasing attention to developing or extending existing taxonomies to incorporate the social justice aspects of transition.

From the Just Transition perspective, existing taxonomies may include criteria related to renewable energy adoption, but they often lack criteria for evaluating the sustainability of activities such as responsible mine closure, the reskilling of workers, social dialogue, and so on. Furthermore, some taxonomies, such as the EU taxonomy for sustainable activities, incorporate Minimum Safeguards (Platform on Sustainable Finance 2022) as a criterion for alignment, compelling companies to adhere to specific minimum governance standards and to refrain from violating social norms, including human and labor rights. These criteria are not, however, explicitly tailored to the principles of a Just Transition.

To delve deeper into the distinction between environmental and social criteria, it is important to understand that environmental criteria primarily assess a company's environmental stewardship and focus on the impact of its operations on natural resources (air, soil, water quality) or of its greenhouse gas emissions. By contrast, social criteria evaluate how companies manage their relationships with various stakeholders, including employees, suppliers, customers, and the communities where they operate. Social criteria may, for instance, consider human rights in a supply chain, consumer protection, and living standards. A social taxonomy helps investors to identify opportunities to finance projects that, for example, offer decent work, empower inclusive and sustainable communities, or deliver affordable healthcare and housing.

3.2.3 Existing social taxonomies

The EU has made some efforts to develop a social taxonomy. In February 2022, the European Commission Technical Expert Group on Sustainable Finance released a **Draft Social Taxonomy** (Platform on Sustainable Finance 2021) outlining the framework and proposed structure of a social taxonomy. However, no further progress was made to develop it. The underlying concept of this social taxonomy is to promote sustainable investment in Europe, with a focus on safeguarding human rights and considering the social impacts on the primary stakeholder groups within businesses, namely, employees, customers, and communities. According to the report of the Technical Expert Group, the activities that could be considered sustainable from a social perspective should make some type of "substantial contribution" to one of the three horizontal (cross-cutting) objectives proposed under the taxonomy:

- **Objective 1 – Ensuring decent work:** This aims to advance equality and human rights across the value chain. It involves, among other things, ensuring equal pay, providing social protections, and eliminating job insecurity. It also seeks to promote workplace equality and non-discrimination by addressing issues such as wage gaps, female underemployment, and opportunities for disadvantaged groups. This objective also includes safeguarding employees' human rights throughout the value chain.
- **Objective 2 – Promoting customer interests:** This focuses on enhancing the quality of life and wellbeing of end users by paying attention to data protection and cybersecurity for users, responsible marketing and communications practices, accessibility to high-quality products, and essential services like food, healthcare, housing, education, water and support services. It also promotes the design of durable, safe, and repairable products.
- **Objective 3 – Enabling inclusive and sustainable communities:** This objective centers on providing essential economic infrastructure, generating and preserving decent jobs particularly in the context of digital transitions, and fostering a green and equitable environment. Gender equality is another core component of this objective.

There are also two vertical objectives: 1) promoting adequate living standards and 2) improving people's access to basic economic infrastructure.

Looking outside the EU, the Mongolian Green Taxonomy (MSFA 2019) includes livelihood improvement as one of its overall objectives, and the Malaysian Taxonomy (Central Bank of Malaysia 2021) encourages financial institutions to assess if the economic activity contravenes national human rights and labor laws during the classification process. As mentioned, the EU Taxonomy embeds social considerations in the minimum social safeguard requirements, as does the Bangladesh Taxonomy, though it is not clearly elaborated how the

minimum safeguards are implemented in practice. South Africa, in addition to its Green Taxonomy (National Treasury, South Africa 2022), has the larger ambition to develop a social and just transition taxonomy and a brown taxonomy in the years to come.

The updated version of the ASEAN Taxonomy (2023) (BIMP-EAGA 2023) brings two significant revisions to the fore. First, it introduces enhanced social safeguards and, second, it addresses coal phaseouts. As to the first, the new version highlights the importance of the social aspects of economic activities and adds this dimension as a third essential criterion. This requires that investment projects uphold human and labor rights and that they mitigate risks and adverse impacts on affected people and vulnerable groups. As to the second, the inclusion of coal phaseout criteria reflects the region's commitment to the early retirement of coal-fired power plants in Asia. This marks the first instance where any regional taxonomy has clearly articulated conditions for coal phaseout that are eligible for transition financing. It seeks to strike a balance by laying out different tiers[15] of conditions under which coal phaseout can qualify for sustainable financing. Similarly, Singapore is planning to include coal phaseout in their green finance taxonomy.[16]

Figure 5 Sustainable finance taxonomies around the world, 2023

Source: Natixis (2023)

3.3 How sustainable finance can support a Just Transition

Sustainable finance refers to any form of financial service or product that takes ESG factors into consideration when making business or investment decisions. Sustainable finance seeks to go beyond traditional financial metrics by considering the longer-term risks and opportunities associated with environmental sustainability, social responsibility, and ethical governance. Sustainable finance encompasses a wide range of products and services, including loans, investments, and insurance.

Sustainable finance has **three main objectives:**

- **Environmental:** to address risks related to issues such as climate change, loss of biodiversity, and pollution, and to intentionally seek positive impact by directing capital toward eco-friendly projects and businesses.
- **Social:** to address risks and promote positive outcomes related to human rights, labor standards, and community relations.
- **Governance:** to address governance risks and ensure that companies operate transparently, ethically, and responsibly, focusing on areas like corporate structure, employee relations, executive remuneration, and shareholder rights.

Besides managing ESG risks, many investors and lenders are dedicated to generating positive impact intentionally. They do so by allocating capital to investments that aim to generate measurable environmental and social benefits alongside financial returns. By doing so they are able to

- **Diversify portfolios:** provide access to a diverse range of investments across various sectors, including renewable energy, sustainable agriculture, health, education, and affordable housing
- **De-risk projects:** pool public, private, and philanthropic funds to de-risk projects and thus make them more attractive to investors
- **Design innovative financial products:** design new financial instruments tailored for impact such as green bonds, social bonds, and sustainability-linked loans.
- **Scale and achieve impact goals** by offering technical assistance to the ventures they support
- **Access networks** of diverse stakeholders and facilitate collaborations to further enhance and amplify the positive impact of a project
- **Achieve transparency and accountability:** ensure that projects genuinely contribute to positive societal and environmental change by insisting on rigorous impact measurement and reporting

Investors are increasingly prioritizing both sustainability and financial returns. Consequently, financial markets are adapting. To achieve substantive results, investors must deeply embed sustainability considerations into their decisions. This involves weighing both the environmental factors, such as climate transition risks, and the social aspects, including the potential costs and benefits. A comprehensive framework that defines Just Transition would provide the necessary clarity to enhance investment decision-making, and offer a compelling rationale for action to support a Just Transition.

Despite the growing importance of sustainable finance in addressing climate issues, the Just Transition paradigm remains notably absent from discussions surrounding climate investments. The explicit and targeted use of sustainable finance for Just Transition activities, including those in challenging sectors like coal and other hard-to-abate sectors, remains underdeveloped.

In the past decade, the focus has been on environmental concerns and decarbonization, with reasonably well-established mechanisms for investors to demonstrate their commitment in these areas. This highlights a noticeable disparity between the emphasis placed on environmental aspects as compared to social considerations.

Achieving a Just Transition may involve substantial costs, especially for actors within the coal value chain. Nonetheless, sustainable finance provides an avenue for adopting a more disciplined approach to capital and investment planning, ultimately reducing the weighted average cost of capital, and mitigating physical and transition project risks. This should in turn support the actors within the coal value chain to kickstart their transition.

Currently, there is no framework that assesses investments in terms of emissions reductions, the creation of new, good-quality employment opportunities, and the economic diversification for coal communities. To bridge this gap, the development of a dedicated Just Transition Taxonomy of activities holds significant potential. It could attract investors and spur demand in this domain, leading to increased funding for activities that are considered just.

In addition to requiring companies to have low emissions-compatible plans and adherence to environmental taxonomies, adherence to a Just Transition Taxonomy would require, or at the very least acknowledge the importance of, incorporating Just Transition objectives into investment planning, taking into account the company's workforce and the communities where it operates. For instance, at COP27, the ILO introduced the Just Transition Finance Tool (ILO and Grantham Research Institute 2022), which provides financial institutions with practical advice and links to resources to help them embed Just Transition in their strategies and operations, in alignment with the Paris Agreement. Since the criteria for taxonomy-aligned activities will become more and more defined and refined over time, it will be increasingly important for participants in the coal and carbon-intensive sectors value chains to meet the minimum standards specified in these taxonomies in order to access financial resources. Eligible activities can be financed with Just Transition-themed bonds.

3.4 Instruments for financing a Just Transition

Currently, a range of instruments – in particular, grants, debt, concessions, bonds, and equity – are employed to finance Just Transition activities. These instruments can be used individually or in combination, with the most appropriate mix depending on the borrower's specific context and needs. But to ensure that they are truly contributing to a just and sustainable transition, it is vital that these instruments are used within the context of strong governance and accountability mechanisms. Governance and accountability mechanisms are indispensable to the success of Just Transitions because, as an emerging and novel paradigm that is still trying to find its footing, the chances that attempts to undertake Just Transition activities will fall short or get derailed in one way or another, and for one reason or another, are far greater than in the case of the financing of conventional, tried-and-tested development activities, where public and market actors typically come with a high degree of understanding of what they are doing.

The five main known categories of financing instruments are outlined below. The right column of each table below presents possible activities associated with the World Bank pillars that were introduced earlier (that is, institutional governance; people and communities; and land asset repurposing).

i. Grants

- **Institutional governance:** Support for policy development, capacity building, training sessions, and creating transparency platforms.
- **People and communities:** Immediate relief programs, reskilling workshops, community engagement initiatives, and health and safety programs.
- **Land and asset repurposing:** Early-stage evaluations, stakeholder consultations, environmental assessments, and methodologies for repurposing.

Table 1 Types of grants used in financing Just Transition activities

Financing Instrument	Applications of the Financing Instrument
Technical Assistance	Supports the identification and development of policies and/or bankable projects by allowing local, regional, or national authorities to hire experts
Subsidies	Provided to projects following pre-determined criteria, earned on achieving each milestone. Funds are raised from levies on miners and a host of other tools, ranging from carbon taxes to state budgeting
Subsidies Withheld	Government redirects budget from polluters or operators to incentivize change
Carbon Finance; Carbon Credits	Public sector funds (cash, tax credits, debt forgiveness, concessional interest rates) can be earned per tonne of emissions reduced for the same value of energy produced, if they are then used to fund costs related to coal phasedown, repurposing and regional transition
Government Environmental Funds	Accumulated taxes paid by mining companies during the life of a mine and set aside for remediation work

ii. Debt

- **Institutional governance:** Financing for infrastructure development, establishing research institutes, and launching awareness campaigns.
- **People and communities:** Long-term initiatives such as community centers, extended reskilling programs, and health infrastructure.
- **Land and asset repurposing:** Advanced planning, feasibility studies, environmental impact evaluations, and critical repurposing infrastructure.

Table 2 Types of debt used in financing Just Transition activities

Financing Instrument	Applications of the Financing Instrument
Development Policy Loans	Funds designed and implemented for specific policy reform objectives to enable effective land repurposing, redevelopment, and/or spatial planning
Municipal Credit Lines	State budget works with municipal needs and, where possible, with the mine owners
Project Preparation Facilities	MDBs finance feasibility or impact assessments of repurposing projects as part of a large lending operation or program to do with Just Transition

iii. Concessions

- **Institutional governance:** Leverage international partnerships and joint research, and support policy harmonization efforts.
- **People and communities:** Social welfare programs, pension schemes, and long-term benefits for affected communities.
- **Land and asset repurposing:** Major tasks such as mine closure, land remediation, and the development of new industries on repurposed lands.

Table 3 Types of concessions used in financing Just Transition activities

Financing Instrument	Applications of the Financing Instrument
Blended Finance	Concessionary rates on climate finance loans from the Direct Registration System (DRS) in exchange for phaseout, emissions targets, and support of workers and communities
Carbon Finance (results-based)	A financing arrangement in which the payments are contingent upon the achievement of predefined and verified results that indicate progress toward reducing greenhouse gas emissions.
Challenge Funds	MDB, DFI and climate funds: competitive financing facility to disburse donor funding for international development projects, typically using public sector or private foundation funds for market-based or incentive-driven solutions. Examples include guarantee funds, first-loss provisions, risk-pooling initiatives, and grants matched with loan or investor finance to derisk projects and crowd in the private sector
Concessional Finance	MDBs, DFIs and climate funds reduce investment costs and risks while supporting innovative technology or business models
Debt Subordination	This diversifies risk through structuring and facilitates private investment
Financial Assurances	Examples include cash or cash equivalents, bank guarantees, letters of credit, trust or assignment of income flows, pledges on export returns or corporate guarantees, surety bonds, and insurance and reinsurance policies
Guarantees and Insurance	MDBs, DRS and climate funds reduce the risk of debt offering for investors, for example, MIGA political risk and non-honoring guarantees
Loan Syndication	This mitigates risk for private investors and builds on the due diligence capacity of development banks
Matched Funding	Private sector funds matched with government grant funding, and development finance leveraged with partially guaranteed loans from local commercial banks
Project Bond Credit Enhancement	MDBs, DFIs, and climate funds support debt instruments, reducing the risk to investors and making them more investible by backstopping project bonds with a guarantee that improves their credit rating on loans made for remediation, for example, World Bank guarantees, MIGA reinsurance, and donor funds
Viability Gap Funding	Public funding covers the costs if cash flows do not cover costs and liabilities

iv. Labeled bonds

In the rapidly evolving landscape of sustainable finance, bonds have already emerged to address diverse environmental and social concerns. These include (i) **Green Bonds**, which focus on environmental projects, (ii) **Social Bonds** dedicated to social causes, (iii) the intersection of both in **Sustainability Bonds**, and (iv) the innovative approach of **Sustainability-Linked Bonds**. Although not a widely recognized label, a handful of private sector actors have also issued "transition bonds" to demonstrate their transition away from high-emission and high-polluting activities. Each instrument plays a unique role in financing activities that promote a more sustainable and equitable future. Within this context, ICMA offers a set of principles that serve as voluntary standards for issuing labeled bonds that align with sustainability objectives.

Green bonds are bond instruments whose proceeds, or an equivalent amount, are exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green projects (see Use of Proceeds section below), and which are aligned with the four core components of the Green Bond Principles (GBPs). The GBP categories[17] include renewable energy, energy efficiency, pollution prevention and control, environmentally sustainable management of living natural resources and land use, terrestrial and aquatic biodiversity, clean transportation, sustainable water and wastewater management, climate change adaptation, the circular economy, and green buildings.

Social bonds are bond instruments whose proceeds, or an equivalent amount, are exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible social projects (ICMA 2023a). The categories of the Social Bond Principles (SBPs) include affordable basic, access to essential services, affordable housing, employment generation and programs designed to prevent and/or alleviate unemployment, food security and sustainable food systems, socioeconomic advancement and empowerment.

Sustainability bonds are bonds whose proceeds finance or re-finance a combination of both green and social projects. Sustainability bonds are aligned with the four core components of both the GBPs and the SBPs (ICMA 2021b).

Sustainability-linked bonds (SLBs) are bond instruments for which the financial and/or structural characteristics can vary depending on whether the issuer achieves predefined sustainability/ESG objectives (ICMA 2023b). Entities operating in sectors with well-established transition paths, such as real estate, transport, and utilities, can easily identify projects, assets, and expenditures suitable for green bond financing. For entities operating in hard-to-abate sectors such as cement, steel, and basic chemicals, the pathways are only beginning to be established and the journey to net zero can still, at least partially, rely on untested technologies. For these entities, the SLB structure may be more suitable for financing vehicles. The activity of issuing a sustainable debt instrument, be it a green bond or an SLB, signals to investors that the issuing entity is identifying and addressing climate-related business risks and opportunities as well as sustainability impacts. As of March 2024, Bloomberg NEF recorded USD 298.9 billion of SLBs (Bloomberg NEF 2024). These financial instruments have counterparts in the loan market.[18]

Moreover, by providing standardization and clarity (for potential bond issuers and investors), trust and credibility (confidence among investors), and clear identification of the risks to be managed (useful for bond issuers), **the Just Transition Taxonomy could be used by national development banks, sovereigns, state-owned electric utilities, cities, and regions to issue a Just Transition-themed bond to mobilize capital to meet the urgent need for funds in those regions most affected by the energy transition.** To enable the rapid and responsible scaling of financing, borrowers could leverage existing labeled bond frameworks as models, connecting the well-recognized and well-accepted green bonds with social bonds, but focusing on the theme of Just Transition and ensuring Just Transition-focused outcomes.

The ICMA Social Bond principles already include many of the key areas of Just Transition, such as education and vocational training, affordable housing, employment generation, and socioeconomic advancement and empowerment.

Some relevant activities in this context include

- **Institutional governance:** sustaining long-term governance structures and oversight.
- **People and communities:** large-scale community projects, education programs, and health facilities.
- **Land and asset repurposing:** funding for extensive repurposing efforts, remediation, and development projects.

Table 4 Types of labeled bonds used in financing Just Transition activities

Financing Instrument	Applications of the Financing Instrument
Climate or Green Bonds	Banks, companies, municipalities and finance ministries can issue these bonds to fund green energy transition projects such as land remediation and liability management
Social Bonds	Banks, companies, municipalities and finance ministries Just can issues these bonds to fund projects related to education and vocational training, affordable housing, employment generation, as well as socioeconomic advancement and empowerment or remediation, and the social costs of land unfit for repurposing
Sustainability Bonds	Sustainability bonds connect green bonds with social bonds and can be used to fund both types of Just Transition-aligned activities.
Sustainability-Linked Bonds (SLBs)	A coal power producer can issue an SLB with KPIs related to the decommissioning of coal generation capacity by a specific date. Commercial banks can fund a portfolio of sustainability-linked loan notes by issuing a use-of-proceeds bond. A development bank can issue an SLB using a KPI related to Just Transition-related social activities such as training or re-skilling affected workers.
Transition Bonds	Transition bonds can be used to fund a company's transition to lower environmental impact or lower carbon emissions. These could be issued to support activities that would not normally qualify for green bonds, such as large carbon-emitting industries like oil and gas, iron and steel, chemicals, aviation, and shipping
Single Asset Refinancing	The operator borrows to retire debt and to buy out fuel supply agreements, using funds for activities related to mine closure and repurposing
Ratepayer-backed Securitization	Proceeds fund projects that are either economic or social And related to repurposing

Box 1: Just Transition Bonds

Globally, the total amount of green, social, sustainability, and sustainability-linked bonds issued in the bond market reached US$4.9 trillion in 2023. Green bonds represent 64 percent of that amount, and emerging market issuances 17 percent. The remarkable success of this labelled bond market indicates that such dedicated sustainable financing vehicles are an effective way to raise substantial capital for investments that generate positive environmental and social return. The growth of these financing instruments can be attributed to rising interest among asset owners to use their capital for purposeful, impactful investments, and secondly, to an increase in regulatory pressure to properly label what is sustainable. Investor demand for such bonds has typically been exceeding expectations, indicating that there is high investor interest in transactions that offer both positive financial and ESG returns.

Such labelled bonds offer a unique opportunity to unlock ESG financing streams for Just Transition-related activities. The main challenge is in providing investors with attractive opportunities to participate by clearly articulating the rationale behind specific investments, and inspiring trust and commitment by modeling transparency and accountability. The tangible benefits need to be demonstrated through clear key performance indicators (KPIs). The first step to issue such a bond would be to align with existing global standards, that is, ICMA Green and Social Bond Principles, and Sustainability Bond Guidelines and Sustainability-Linked Bond Principles.

Just Transition Use-of-Proceeds Bonds

A Just Transition-themed use-of-proceeds bond would follow the Sustainability Bond Guidelines. The bond documentation would disclose the issuer's decarbonization and coal phaseout goals and strategy to help the investor (lender) understand the transaction's potential contribution to the Just Transition theme and alignment with the Just Transition Principles highlighted in section 2.2. The documentation would also outline the governance process established in line with the core components of the ICMA standards:

1. The issuer should specify the kind of activities that will be funded with the transaction, that is, Use of Proceeds, which should also be appropriately described in the bond's legal documentation.
2. The issuer should clearly communicate to investors the project evaluation and selection process, including processes in place to identify and mitigate or manage material environmental and social risks related to financed activities.
3. The issuer should disclose the process for tracking the allocation of proceeds to activities identified in the framework, with appropriate verification or audits by a qualified, independent professional.
4. The issuer should explain how they will regularly measure, monitor, and report the environmental and social impact of activities funded using clear metrics.

The issuer would then obtain a second party opinion (SPO) that verifies that the proposed use of proceeds is aligned with the Just Transition Principles, and the project selection and evaluation process, as well as oversight and reporting structure, is in line with the ICMA Sustainability Bond Principles.

Just Transition Sustainability-Linked Bonds

A Just Transition-themed, Sustainability-Linked bond would follow the ICMA Sustainability-Linked Bond Principles. The issuer would identify Just Transition as a core and material issue and follow the ICMA's guidance and prerequisites to determine the relevant KPI (ensuring it is material and relevant to the issuer's business and operations) and expected disclosure. ICMA has identified KPIs related to Just Transition for Sustainability-Linked Bonds (Illustrative-KPIs-Registry-June-2023-220623.xlsx (live.com) that can be used in addition to the climate- and environment-related KPIs that will be used to measure the issuer's progress toward the Sustainability Performance Targets.

v. Equity

Equity-based financing instruments can be used at all phases, but where it is necessary to attract the private sector, it is best to employ it during final phases. Equity-based transactions can also be structured, levered, leased, and securitized to encourage private sector investment.

- **Institutional governance:** Establishing public–private partnerships (PPPs) for governance frameworks..
- **People and communities:** Drawing private investments for community projects and social entrepreneurial ventures.
- **Land and asset repurposing:** Engage the private sector in repurposing, attracting investments for ventures on repurposed lands.

Table 5 Types of equity used in financing Just Transition activities

Financing Instrument	Applications of the Financing Instrument
Income Strip	Sale and multi-decade leaseback that returns ownership at period end, generating revenue upfront for the government to spend on a Just Transition, and generating revenue upfront for the developer to spend on raising funds to cover development costs
Joint Venture	Government puts land in, developer develops it, and the proceeds are split between the two
Land Value Capture	Land near the development site is granted to the developer and increases in value in line with the development project. Taxes rise as the property value rises as a result of infrastructure, innovation, security, education, and investment
Ratepayer-backed Securitization	Consumers pay a surcharge on energy that is used by the operator to pay the coupon on the debt raised to pay off obligations, such as plant owners recouping investment
Auction	Governments and DFIs can design auctions to find the minimum cost of replacing coal in order to maximize emission reductions
Asset Portfolio Securitization	Operator uses future increases in cashflow from selling lower-cost renewable energy to raise debt today that funds the transformation to renewables
Co-investment Platforms or Funds	Pooling investor capital directly into projects bypasses intermediaries. Blended finance funds pool public and private capital to mobilize additional capital
Currency Hedging	This is vital for infrastructure investment in a foreign country to protect against currency fluctuations, passing on the FX risk to commercial counterparts
Equity Funds	Global climate funds, regional development funds, rehabilitation funds, and foundations partner with mainstream institutional fund managers and pension funds

4

4. Defining a taxonomy of activities for Just Transition

4.1 What is a Just Transition Taxonomy?

The Just Transition Taxonomy categorizes and defines investment activities that contribute to a socially equitable transition to a more sustainable and low-carbon economy. It is a tool to guide financiers, policymakers, and other stakeholders in recognizing which investments and interventions support communities, workers, and regions that might be adversely affected during shifts away from high-carbon industries, notably coal. Drawing parallels with green taxonomies such as those described in guidance by the OECD (OECD 2020) and by EU institutions, a taxonomy typically provides a structured classification system to identify and categorize activities or investments based on certain criteria. In the context of finance, taxonomies help standardize definitions and create a common language for investors, thereby enabling them to make informed decisions. They delineate what qualifies as, for example, a "green" or "sustainable" investment.

The Just Transition Taxonomy is primarily definition-based. Its primary goal is to offer clear, standard definitions for what constitutes investment activities that support a Just Transition.

By being definition-centric, the Just Transition Taxonomy intends to provide

- **Clarity and consistency:** The taxonomy ensures that different stakeholders share a consistent understanding of what constitutes an investment that promotes a Just Transition.
- **Investment guidance:** For financiers and investors, it serves as a guide to channel funds into activities that have a positive social and environmental impact in the context of transitioning economies.
- **Policy alignment:** For policymakers, it aids in creating regulations and incentives that are aligned with promoting activities that support a Just Transition.

Put simply, the objective of the Just Transition Taxonomy is to help lenders and borrowers see what they can finance that is Just Transition-aligned. It is not designed to be a disclosure tool over the short term.

As the taxonomy matures and evolves, it could develop further to incorporate more stringent thresholds and performance standards. In other words, the thresholds could be updated through a collective effort that reflects the current performance in developing economies. Such enhancements would provide more tangible benchmarks for investments, allowing stakeholders to measure the effectiveness of their investments against predetermined standards. This evolution would not only enhance transparency but also foster a deeper level of accountability and trust among investors, policymakers, and the public. The inclusion of such thresholds and standards would ultimately strengthen the taxonomy's role in guiding the transition to a more sustainable and equitable future. In this first iteration of the Just Transition Taxonomy, we simply provide the existing relevant criteria, benchmarks, legislation and/or industry standards. This comes with challenges since, for example, thresholds developed as part of EU frameworks may not be as useful in other developing economy contexts. These "minimum requirements" need more interrogation from an operational perspective as the Just Transition Taxonomy moves toward implementation.

The Just Transition Taxonomy can serve to identify and list investment activities that can make a substantial contribution to the Just Transition agenda. For an activity to be considered as substantially contributing to Just Transition, it must demonstrate consistency with Just Transition principles. Thus, as illustrated in the table below, even in the absence of agreed criteria and standards, the principles set out in the taxonomy provides a means to assess what kinds of investments and other activities can be considered as contributing to a Just Transition:

Table 6 Links between the Just Transition Principles, the SDGs, and taxonomy-aligned activities[19]

Just Transition Principle	Match to SDGs	Taxonomy-aligned activities
Decarbonization and climate neutrality efforts		• Design, establish and implement Just Transition platforms • Design a vision and plan for coal phasedown and coal mine closure • Design, establish, or reform mine-closure policies and regulations • Design, establish, and implement appropriate national and/or subnational governance structures • Conduct financial and cost-benefit analysis of coal phasedown and coal mine closures – Technical assistance • Establish a special purpose entity (SPE) or a special purpose vehicle (SPV) to manage new land use for former coal-mining lands • Design PPPs for transition investments at the local level • Simulate alternative energy pathways • Energy planning/strategy • Develop Regional Transition Plans • Policy and regulatory development
Stakeholder dialogue and communication		• Design, establish, and implement Just Transition platforms • Design and implement communication and awareness-raising strategies for Just Transition information – Technical assistance • Provide education on Just Transition • Develop and implement a stakeholder engagement plan (SEP) • Plans and assessment for land repurposing
Equitable transition of the workforce		• Conduct capacity building for coal mine closures • Deliver training to workers affected by coal mine closures • Offer labor market support for workers affected by coal mine closures • Empower vulnerable groups in coal regions

Just Transition Principle	Match to SDGs	Taxonomy-aligned activities
Economic diversification and local job creation		• Conduct socioeconomic assessments in coal regions • Coal supply chain investments for economic diversification purposes • Deliver training for workers affected by the coal mine closure • Labor market support for workers affected by the coal mine closure • Install solar photovoltaic systems, solar hot water panels, and ancillary equipment • Install heat pumps • Install thermal or electric energy storage units and the ancillary equipment • Install wind turbines and the ancillary equipment • Construction and civil engineering works or preparation thereof for repurposing former coal-mining lands • Construct and renovate existing buildings • Generate electricity using solar photovoltaic technology • Generate electricity using concentrated solar power technology • Generate electricity from wind power • Generate electricity from bioenergy • Create electricity storage systems • Transmit and distribute electricity • Cogenerate heating/cooling and power from solar energy • Produce heating/cooling from bioenergy • Produce heating/cooling using waste heat • Landfill gas capture and utilization • Material recovery from non-hazardous waste • Coal power plant closure and demolition • Coal power plant closure and demolition, with complete or partial remediation of land • Coal power plant conversion to alternative fuels • Coal power plant retirement without demolition • Coal power plant retirement without demolition but (partial) repurposing of components • Carbon capture, storage and utilization (CCSU) • Methane reduction • Undertake needs assessment and analysis for economic diversification

Just Transition Principle	Match to SDGs	Taxonomy-aligned activities
Vulnerable groups		• Conduct socioeconomic assessments in coal regions • Design and implement social protection measures • Undertake assessments and planning of social investment activities and services • Support authorities for essential services delivery • Support community empowerment • Empower vulnerable groups in coal regions
Environmental rehabilitation and land repurposing		• Design, establish or reform mine-closure policies and regulations • Conduct financial and cost-benefit analyses of coal phasedown and coal mine closure – technical assistance • Establish an SPE or SPV to manage new land use of former coal-mining lands • Perform simulations of alternative energy pathways • Construction and civil engineering works or preparation thereof for repurposing of former coal-mining lands • Environmental remediation of underground coal mines • Coal power plant closure and demolition, with complete/partial remediation of land • Coal power plant conversion to alternative fuels • Coal power plant retirement without demolition but (partial) repurposing of components • Undertake assessments and planning for environmental remediation of post-coal-mining lands • Undertake assessments and planning for environmental remediation of water bodies of post-coal-mining lands • Undertake assessments and planning for repurposing and retrofitting of assets, for renewable energy generation purposes • Undertake assessments and planning for land repurposing • Plans and standards for the technical and safety aspects of coal-mine closures • Research, development and innovation studies • Policy and regulatory development

The following tables show how the activities listed in the taxonomy contribute to the Social Bond Principles (in yellow) and Green Bond Principles (in green), following the pillars of the World Bank's 3X3 matrix. Note that only the relevant categories of the SBPs and the GBPs have been added to the table; the rest were omitted.

Table 7 Contributions of various activities to the project categories of the Social Bond and Green Bond Principles under the Institutional Governance Pillar

Institutional Governance					
Activities / Categories	***Employment generation and programs for unemployment prevention and/or alleviation***	***Socioeconomic advancement and empowerment***	***Energy efficiency***	***Environmentally sustainable management of living natural resources and land use***	***Circular economy adapted products, production technologies and processes***
Design and implement communication and awareness-raising strategies for Just Transition information - Technical assistance		X			
Provision of education on just Transition		X			
Design, establish and implement Just Transition platforms		X			
Design of a vision and plan for coal phasedown and coal mine closure		X			
Design, establish or reform mine closure policies and regulations		X			
Design, establish and implement appropriate national and/or sub-national governance structures		X			
Conduct financial and cost-benefit analysis of coal phasedown and coal mine closure - Technical assistance		X			
Develop and implement a Stakeholder Engagement Plan (SEP)		X			
Establish a Special Purpose Entity (SPE) or a Special Purpose Vehicle (SPV) to manage new land use for former coal mining lands				X	X
Design of public/private partnerships for transition investments at the local level	X				
Alternative energy pathways simulations		X	X		
Energy planning / strategy		X	X		

Table 8 Contributions of various activities to the project categories of the Social Bond and Green Bond principles under the People and Communities Pillar

People and Communities			
Activities / Categories	***Access to essential services***	***Employment generation and programs for preventing or alleviating unemployment***	***Socioeconomic advancement and empowerment***
Capacity building for coal mine closures			X
Socioeconomic assessments in coal regions			X
Development of Regional Transition Plans			X
Design and implementation of social protection measures	X		
Assessment and planning of social investment activities and services	X		
Support to authorities for essential services delivery	X		
Delivery of training for workers affected by the coal mine closure		X	
Investments in the coal supply chain for economic diversification purposes		X	
Support for community empowerment		X	
Labor market support for workers affected by coal mine closures		X	
Empowerment of vulnerable groups in coal regions			X

Table 9 Contributions of various activities to the project categories of the Social Bond and Green Bond Principles under the Land and Asset Repurposing Pillar

Land and Asset Repurposing									
Activities / Categories	*Affordable basic infra-structure*	*Afford-able housing*	*Socioeconomic advancement & empowerment*	*Renewable energy*	*Energy efficiency*	*Pollution prevention and control*	*Environmentally sustainable management of living natural resources and land use*	*Circular economy-adapted products, production technologies, and processes*	*Green Buildings*
Construction and civil engineering works or preparation thereof for repurposing former coal mining lands		X							
Construction and renovation of existing buildings	X	X							
Plans and assessment for repurposing and retrofitting of assets for renewable energy generation purposes	X								
Needs assessment and analysis for economic diversification			X						
Research, development and innovation studies			X						
Policy and regulatory development			X						
Installation of renewable energy technologies and ancillary equipment (solar, wind, thermal, heat pumps,				X			X	X	

Land and Asset Repurposing									
Activities / Categories	*Affordable basic infra-structure*	*Afford-able housing*	*Socioeconomic advancement & empowerment*	*Renewable energy*	*Energy efficiency*	*Pollution prevention and control*	*Environmentally sustainable management of living natural resources and land use*	*Circular economy-adapted products, production technologies, and processes*	*Green Buildings*
Construction and civil engineering works or preparation thereof for repurposing former coal mining lands									X
Construction and renovation of existing buildings									X
Electricity generation from renewable energy sources (solar, wind, bioenergy)				X					
Electricity storage					X				
Transmission and distribution of electricity				X					
Co-generation of heating/ cooling and power from solar energy				X					
Production of heating/ cooling from bioenergy				X					
Production of heating/ cooling using waste heat						X			
Environmental remediation of underground coal mines						X			
Landfill gas capture and utilization						X			
Material recovery from non-hazardous waste						X			

Land and Asset Repurposing									
Activities / Categories	*Affordable basic infra-structure*	*Afford-able housing*	*Socioeconomic advancement & empowerment*	*Renewable energy*	*Energy efficiency*	*Pollution prevention and control*	*Environmentally sustainable management of living natural resources and land use*	*Circular economy-adapted products, production technologies, and processes*	*Green Buildings*
Coal power plant closure and demolition						X	X		
Coal power plant closure and demolition, with complete or partial remediation of land							X	X	
Coal power plant conversion to alternative fuels, retirement without demolition and/or (partial) repurposing of components						X	X		
Carbon capture, storage and utilization (CCSU)--						X			
Carbon capture, storage and utilization (CCSU)						X			
Methane reduction						X			
Plans and assessments for the environmental remediation of post-coal-mining lands						X	X		
Plans and assessments for environmental remediation of water bodies of post-coal-mining lands						X			
Plans and assessments for repurposing and retrofitting of assets, for renewable energy generation purposes							X		X

Land and Asset Repurposing									
Activities / Categories	***Affordable basic infra-structure***	***Afford-able housing***	***Socioeconomic advancement & empowerment***	***Renewable energy***	***Energy efficiency***	***Pollution prevention and control***	***Environmentally sustainable management of living natural resources and land use***	***Circular economy-adapted products, production technologies, and processes***	***Green Buildings***
Plans and assessments for land repurposing							X		
Plans and standards for the technical and safety aspects of coal mine closure						X			

The Just Transition Taxonomy is designed to bridge the gap between the aspirational goals of a just transition and the tangible, actionable steps required to achieve them. Its architecture and the information encompassed in it reflect the World Bank's commitment to providing comprehensive yet practical guidance for stakeholders involved in the transformative journey toward sustainability in coal regions across a diversity of contexts and geographies.

The outlined structure and contents of the taxonomy build on existing market standards – such as the Green Bond principle and the Social Bond principles – that underpin the global, sustainable bond markets. It was informed by the following objectives for its future development:

- **Resource optimization:** Clear categorizations and detailed descriptors that enable lenders to efficiently allocate resources, ensuring higher return on investment in both financial and social impact terms.
- **Stakeholder engagement:** A clear, comprehensible structure that facilitates effective communication with and among stakeholders, ensuring a common understanding and facilitating the alignment of actions.
- **Monitoring and evaluation:** The inclusion of KPIs and risk and mitigation measures that facilitate a streamlined monitoring and evaluation process, thereby promoting accountability and impact assessment.
- **Scalability and replicability:** The taxonomy should be adaptable by including features such as standardization that allow the taxonomy to be applicable in different geographies and socioeconomic contexts so that it has relevance for coal regions globally.

The social dimension is particularly important to a Just Transition Taxonomy. Thresholds that can be applied meaningfully to a diversity of contexts are difficult to develop (see, for example, the ongoing but stalled effort to develop an EU list of socially sustainable activities). Social activities should comply with at least the minimum social safeguards as specified in such international standards and regulations as:

- UN (1948). The Universal Declaration of Human Rights (UDHR).
- UN (1966). International Covenant on Civil and Political Rights.
- UN (2007). United Nations Declaration on the Rights of Indigenous Peoples.
- UN (2011). United Nations Guiding Principles on Business and Human Rights (UNGPs).
- ASEAN (2012). ASEAN Human Rights Declaration (AHRD).
- ASEAN (2013). ASEAN Declaration on Strengthening Social Protection.
- OECD (2023). OECD Guidelines for Multinational Enterprises on Responsible Business Conduct.
- ASEAN (2023). ASEAN Declaration on the Protection of Migrant Workers and Family Members in Crisis Situations and its Guidelines.
- ILO. ILO Declaration on Fundamental Principles and Rights at Work.
- ECHR. European Convention on Human Rights.
- WBA. Corporate Human Rights Benchmark.

At a minimum, actors involved in carrying out the activities must meet the legal social requirements of the country in which they operate. To mitigate risks, the following measures should be observed:

- Provide transparent, accurate information about potential harm and mitigation measures
- Establish mechanisms to hold parties accountable for any harm they cause
- Avoid exacerbating existing inequalities and ensure the fair distribution of benefits and burdens
- Avoid actions that significantly harm the wellbeing and livelihoods of local communities
- Ensure compliance with internationally recognized labor standards and workplace safety regulations
- Provide wages that meet or exceed the living wage in the region, and ensure equal pay for equal work
- Prohibit child and forced labor

Within the taxonomy structure, it is suggested that the following set of information items be developed for each activity. This recommendation aims to strike a balance between, on the one hand, the desire for depth and completeness of information and, on the other, the pragmatic need for the items to be easy to

reference and act upon. Each listed item is intended to capture elements that decision-makers would need to effectively prioritize and implement the activities. The accompanying Excel-based workbook provides an initial taxonomy based on this structure and information.

1. **Activity ID:** A unique identifier for each activity
2. **Category of activity:** Categories refer to ICMA's Green Bond Principles and Social Bond Principles:
   - ICMA (2021a)
   - ICMA (2 023)
3. **Sector:** The relevant sector where the activity is primarily applied, for example, energy, agriculture, manufacturing, services, and so on
4. **Activity name**
5. **Activity description**
6. **Contribution to Just Transition principles:** The rationale for including the activity in the taxonomy, based on the Just Transition principles
7. **Geographical applicability:** Whether the activity is applicable at the local, regional, national, or global scale
8. **Estimated duration:** Time required for completing the activity
9. **Relevant criteria, benchmarks, legislation and/or industry standards:** This subsection used the following sources:
   - EU Taxonomy Climate Delegated Act
   - EU Taxonomy Environmental Delegated Act Annex I: Sustainable use and protection of water and marine resources
   - EU Taxonomy Environmental Delegated Act Annex II: Transition to a circular economy
   - EU Taxonomy Environmental Delegated Act Annex III: Pollution prevention and control
   - EU Taxonomy Environmental Delegated Act Annex IV: Protection and restoration of biodiversity and ecosystems
   - Technical annex to the TEG final report on the EU Taxonomy
   - Climate Bonds Taxonomy
   - Singapore sustainable finance taxonomy: DNSH criteria
   - South African Green Finance Taxonomy
   - ASEAN Taxonomy for Sustainable Finance
10. **Risks and mitigations (DNSH):** Possible challenges or risks associated with the activity, and their suggested mitigation strategies. This subsection used the following sources:
    - EU Taxonomy Climate Delegated Act
    - EU Taxonomy Environmental Delegated Act Annex I: Sustainable use and protection of water and marine resources
    - EU Taxonomy Environmental Delegated Act Annex II: Transition to a circular economy
    - EU Taxonomy Environmental Delegated Act Annex III: Pollution prevention and control
    - EU Taxonomy Environmental Delegated Act Annex IV: Protection and restoration of biodiversity and ecosystems
    - Technical annex to the TEG final report on the EU Taxonomy
    - Singapore sustainable finance taxonomy: DNSH criteria
    - South African Green Finance Taxonomy
    - ASEAN Taxonomy for Sustainable Finance

11. **Stakeholders involved:** Entities or groups that need to be engaged, for example, government agencies, NGOs, industry groups, and so on.

12. **Social safeguards:** Minimum social safeguards to which the activity should adhere. This subsection used the following sources:
    - Final Report on Social Taxonomy
    - South African Green Finance Taxonomy
    - ASEAN Taxonomy for Sustainable Finance
    - UNEP Guidelines for Social Life Cycle Assessment of Products

13. **Metrics:** Metrics to be used to evaluate the activity's success or impact. This subsection used the following sources:
    - EU Taxonomy Climate Delegated Act
    - EU Taxonomy Environmental Delegated Act Annex I: Sustainable use and protection of water and marine resources
    - EU Taxonomy Environmental Delegated Act Annex II: Transition to a circular economy
    - EU Taxonomy Environmental Delegated Act Annex III: Pollution prevention and control
    - EU Taxonomy Environmental Delegated Act Annex IV: Protection and restoration of biodiversity and ecosystems
    - Technical annex to the TEG final report on the EU Taxonomy
    - Singapore sustainable finance taxonomy: DNSH criteria
    - ICMA Handbook Harmonized Framework for Impact Reporting for Green Bonds June 2023
    - ICMA Handbook Harmonized Framework for Impact Reporting for Social Bonds June 2023
    - ICMA Illustrative KPIs Registry June 2023
    - Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development
    - South African Green Finance Taxonomy
    - ASEAN Taxonomy for Sustainable Finance

14. **Matching to EU Taxonomy (where applicable):** This subsection used the following sources:
    - EU Taxonomy Climate Delegated Act
    - EU Taxonomy Environmental Delegated Act Annex I: Sustainable use and protection of water and marine resources
    - EU Taxonomy Environmental Delegated Act Annex II: Transition to a circular economy
    - EU Taxonomy Environmental Delegated Act Annex III: Pollution prevention and control
    - EU Taxonomy Environmental Delegated Act Annex IV: Protection and restoration of biodiversity and ecosystems

15. **Matching activity to the SDGs (where applicable):** This subsection used the following sources:
    - Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development
    - ICMA Handbook Harmonized Framework for Impact Reporting for Social Bonds June 2023

16. **NACE codes (where applicable):** According to Regulation 2023/137 amending Regulation 1893/2006, establishing the statistical classification of economic activities NACE Revision 2

17. **ISIC codes (where applicable):** According to the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4

4.2 Future implementation possibilities

Ongoing implementation activity is critical to ensuring the credibility and relevance of any financial taxonomy and to demonstrating its effectiveness, especially a taxonomy focused on sustainability or Just Transition in coal regions. Those implementation-related activities should include:

Development and regular update of the taxonomy criteria

- Establishing clear, evidence-based criteria for what qualifies under the taxonomy
- Regularly reviewing and updating these criteria to reflect new scientific findings, technological advancements, and market developments

International collaboration and harmonization

- Engaging in dialogue and cooperation with international bodies to ensure global alignment and to avoid a fragmentation of standards
- Learning from and contributing to international best practices and standards

Compliance monitoring

- Implementing mechanisms to monitor and ensure adherence to the taxonomy criteria by entities that use it
- Regularly assessing and auditing projects or investments to verify compliance

Validation and certification

- Establishing processes for the independent validation or certification of compliance with the taxonomy criteria
- Accrediting credible third parties to conduct validations and audits

Reporting and disclosure requirements

- Mandating comprehensive and transparent reporting by entities that use the taxonomy
- Establishing standard reporting formats to ensure consistency and comparability

Enforcement and sanction mechanisms

- Setting up mechanisms to enforce compliance, including sanctions or penalties for non-compliance or misrepresentation
- Establishing a process for handling violations and disputes

Training and capacity building

- Providing training and resources for entities that are required to comply with the taxonomy
- Building capacity within organizations to better understand and effectively fulfill the taxonomy criteria

Stakeholder engagement

- Actively involving a wide range of stakeholders, including industry experts, NGOs, financial institutions and affected communities, in the development and periodic review of the taxonomy
- Ensuring transparency and considering diverse perspectives and interests

Public awareness and education

- Promoting understanding and awareness of the taxonomy among the broader set of stakeholders, including the public
- Educating potential investors and the market about the importance and implications of the taxonomy

Impact assessment and review

- Regularly assessing the impact of the taxonomy in achieving its intended goals, such as reducing emissions or facilitating Just Transition
- Making necessary adjustments based on feedback and impact analysis

Using the taxonomy

The possible models for using the taxonomy – especially where its application may need to be highly geographically specific – can be placed on a spectrum ranging from highly centralized to highly decentralized. These models will influence the effectiveness of any resulting/linked financial instruments, for example, issuing sustainability bonds. Where appropriate governance models already exist, they can be used / extended for using the taxonomy. Some examples of taxonomy governance models (and their advantages / challenges) are listed below:

The central regulatory authority model: Here, a single, central authority or a specially appointed regulatory body is responsible for setting and enforcing the taxonomy criteria and overseeing the issuance and management of financial instruments.

- *Advantages:* Clear, centralized control can ensure consistency and enforceability
- *Challenges:* May lack flexibility and responsiveness to regional differences or new developments

The multi-agency collaborative model: In this model, multiple agencies, possibly including government bodies, financial regulators, and environmental agencies, work together to govern the taxonomy and financial instruments.

- *Advantages:* Brings together diverse expertise and perspectives, potentially leading to more comprehensive and robust governance
- *Challenges:* Coordination can become complex, and decision-making may be slower

The stakeholder advisory council model: A council or committee comprising stakeholders from various sectors – government, private sector, NGOs, academia – provides guidance and recommendations for the governance of the taxonomy and financial instruments.

- *Advantages:* Encourages inclusivity and a broader balance of perspectives
- *Challenges:* It is advisory in nature, so its decision-making power may be limited

The independent third-party validation model: An independent entity or entities, such as auditing firms or certification bodies, are responsible for validating compliance with the taxonomy criteria.

- *Advantages:* Can provide objectivity and credibility to the validation process
- *Challenges:* Requires rigorous oversight to ensure the integrity, independence, neutrality, and competence of the validators

The hybrid public-private model: A combination of public sector oversight with private sector execution, where government or IFIs set the broad framework and private entities handle day-to-day operations and compliance.

- *Advantages:* Balances public interest with private sector efficiency and innovation
- *Challenges:* There are risks around the (mis)alignment of public and private interests and the potential for conflicts of interest.

The decentralized or Distributed Ledger Technology (DLT) model: This model employs blockchain or similar technologies for the transparent, secure recording of compliance and transactions related to the taxonomy and financial instruments.

- *Advantages:* Offers high transparency, security, and efficiency in record-keeping and validation processes
- *Challenges:* Technical complexity and the need for widespread public adoption and trust in the technology

The international standards-based model: Aligns the taxonomy and the financial instruments with existing international standards or frameworks, potentially managed or overseen by an international body.

- *Advantages:* Promotes international recognition and harmonization
- *Challenges:* May require adaptations to suit local contexts and needs

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Footnotes

[1] Net-zero emissions, or "net zero" for short, is a policy goal and target that now serves as the main framework for global climate action, and refers to a planetary state in which the rate at which human activities release carbon into the atmosphere no longer exceeds the rate it is removed from the atmosphere. Achieving net zero requires both (i) reducing human-caused emissions, such as those from burning fossil fuels, to a manageable level and (ii) removing carbon through the restoration of forests, which absorb massive amounts of carbon dioxide, and through various carbon dioxide removal technologies.

[2] In this report, the terms "Just Transition," "Just Transition for All," "Just Coal Transition," and "coal transition" are used interchangeably. The taxonomy and report are intended to be read through a coal-focused lens rather than fossil fuels in general. Section 2 examines the various working definitions of Just Transition.

[3] To access the full list of members, visit https://poweringpastcoal.org/members.

[4] For additional information about CIF-ACT, see Climate Investment Funds, "Coal-to-Clean Transition," Accelerating Coal Transition website, https://www.cif.org/topics/accelerating-coal-transition.

[5] For additional information on the Just Transition Centre, visit the Centre's website at https://www.ituc-csi.org/just-transition-centre#:~:text=A%20Just%20Transition%20secures%20the,with%20communities%20and%20civil%20society.

[6] For additional information about the EU's approach and the Just Transition Mechanism, see European Commission, The Just Transition Mechanism: making sure no one is left behind (2020), https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en.

[7] For further information on the World Bank's approach to Just Transition, see "For a Just Transition Away from Coal, People Must Be at the Center," November 3, 2021, Who We Are, https://www.worldbank.org/en/news/feature/2021/11/03/for-a-just-transition-away-from-coal-people-must-be-at-the-center.

[8] This is also referred to as the "3x3 Matrix" or the "Coal Regions in Transition" framework.

[9] The ILO (2019) defines social dialogue to include all types of bipartite and tripartite negotiations, consultations, and exchanges of information, both formal and informal, between and among governments representatives, employers, and workers, on issues of common interest relating to economic and social policy.

[10] The Net Zero Emissions by 2050 Scenario (the NZE Scenario) illustrates a path for the world's energy sector to achieve net zero carbon emissions by 2050, and is consistent with reaching the target of limiting the rise in global average temperatures to no more than 1.5°C.

[11] Ibid.

[12] The Announced Pledges Scenario (APS) assumes that all net zero pledges made by governments are met on time and in full.

[13] Ibid.

[14] European Commission. "Cohesion Open Data Platform." https://cohesiondata.ec.europa.eu/funds/jtf/21-27#.

[15] Those tiers of conditions are based on the taxonomy's "traffic light" model. The lowest tier, which labels the activity as Amber Tier 3, qualifies coal plants built between 2023 and 2027 that adopt "best-in-class technology," provided that these technologies are affordable, accessible, and reliable, and can be implemented within a reasonable timeframe. For the middle and top tiers, only coal plants built before 2023 qualify. The two tiers – Amber Tier 2 and Green, respectively – must align with an average global temperature scenario of 1.5°C above its pre-industrial levels. (To put that number in perspective, the average temperature in 2023 – the warmest year on record – was 1.35 °C above the pre-industrial average.) But while Amber alignment can be tied to regional or country science-based pathways, the Green alignment must be tied to the IEA's 2050 net-zero pathway.

[16] https://www.pinsentmasons.com/out-law/news/singapore-to-include-phase-out-of-coal-in-green-finance-taxonomy.

[17] The categories may be found in ICMA (2021).

[18] See the Loan Syndications and Trading Association (LSTA) website https://www.lsta.org/content/?_industry_sector=guidelines-memos-primary-market.

[19] Taxonomy activities align with multiple principles, which is why they may appear duplicated in this table.

[20] The Ecorys Brussels team led the work on identifying and analyzing Just Transition principles.

APPENDICES

Appendix I. The World Bank "Coal Regions in Transition" framework (3X3 Matrix)

Figure 6, below, shows the World Bank's "Coal Regions in Transition" framework, also referred to as the 3X3 Matrix, developed in 2019 by the World Bank's Energy and Extractives unit. This simple conceptual framework is organized around three pillars: (i) institutional governance; (ii) people and communities; and (iii) environmental reclamation and repurposing of land and assets. It also covers three time phases: (i) pre-closure planning; (ii) closure; and (iii) regional transition.

Figure 6 The World Bank 3x3 Matrix

Shaping a National Vision for Coal Phasedown

	Institutional Governance	People & Communities	Repurposing Land & Assets
Initiate dialogue	• Strengthen laws, policies and regulations relevant to coal industry transition • Build vision and strategies for coal industry transition through an inclusive stakeholder engagement	• Assess labor profiles, user-needs and current social protection programs • Develop a pre-layoff plan, including income support, active labor market policies and institutional capacity building • Appraisal of social sustainability outcomes	• Identify and assess land and assets to be closed and decommissioned • Prepare for reclamation and repurposing • Assess environmental remediation costs • Community engagement in repurposing process
Phase 1 Pre-closure planning **18 months**			
Phase 2 Coal mine closure **3+ years**	• Develop institutional structures for implementing closure and repurposing • Coordinate closure and decommissioning activities between government agencies and firms	• Provide social assistance to workers and communities • Active labor market policies for workforce transition, including re-skilling, education and incentives	• Develop and apply health, safety and environment (HSE) and technical standards for closure and decommissioning • Apply careful monitoring mechanism for environmental legacy issues
Phase 3 Coal region transition **10+ years**	• Coordinate transition implementation through institutional arrangements • Manage funding sources and budgetary support	• Provide longer term re-skilling and education to help preparing workers for future jobs • Locally-led participatory planning and development investments for regional economic development	• Environmental remediation of land/assets • Re-permitting and re-purposing land/assets to sustain regional transformation • Mobilize private investment through public-private partnership

Source: World Bank 2018

Appendix II. Methodology for developing the Just Transition Principles

Within the existing literature, there is no universally accepted definition of Just Transition and consequently, no single set of Just Transition principles. The selected principles that inform the Just Transition Taxonomy are instead based on a synthesis of documents from leading organizations that work on, or advocate, Just Transitions around the world (see table 4), from which the Just Transition Taxonomy team[20] identified the recurring themes and core components of a Just Transition. These themes and components were then incorporated into the final selection of the principles. To begin the process of identifying the principles, a comprehensive literature review was undertaken encompassing documents from the organizations actively working on the concept and principles of Just Transition. The principles presented in these materials were then compiled.

From this compiled list, recurring themes or principles were selected, with an emphasis on the most frequently mentioned ones, and curated into a final list of Just Transition principles. The process applied a coal transition lens to ensure alignment with the objectives of the Just Transition Taxonomy.

Alongside this analysis, the team assessed the limitations of the principles proposed by different organizations. Some principles reflected a distinct trade unionist or activist perspective – ILO, ITUC, CJA or SOLIDAR – while others focused on the EU. Certain other documents, for example, the JTF regulation, described activities instead of explicitly outlining principles. Despite these limitations, these documents proved highly valuable in guiding the selection of the principles.

Table 10 Summarized table of documents with Just Transition principles

Organization	Documents with Just Transition principles	Year
ITUC CSI IGB	*What makes a "just" transition?*	2009
International Labour Organization	*Guidelines for a just transition toward environmentally sustainable economies and societies for all*	2016
United Nations Framework Convention on Climate Change	*Just Transition of the Workforce and the Creation of Decent Work and Quality Jobs – Technical Paper*	2016
Friedrich Ebert Stiftung	*Guiding Principles & Lessons Learnt For a Just Energy Transition in the Global South*	2017
OECD	*Just Transition: A Report for the OECD*	2017
CJA	*Climate Justice Alliance Just Transition Principles*	2018
Council of the European Union	*Silesia Declaration on Solidarity and Just Transition*	2018
IISD International Institute for Sustainable Development	*Real People, Real Change: Strategies for just energy transitions*	2018

Organization	Documents with Just Transition principles	Year
THE WORLD BANK IBRD • IDA | WORLD BANK GROUP	*Managing Coal Mine Closure: Achieving a Just Transition for All*	2018
gov.scot	*The Scottish Government Just Transition Commission*	2019
EUROPE BEYOND COAL	*Seven Golden Rules for Just Transition Planning*	2019
SEI Stockholm Environment Institute	*Seven principles to realize a just transition to a low-carbon economy*	2020
European Bank for Reconstruction and Development	*The EBRD just transition initiative*	2020
European Commission	*Just Transition Fund Regulation*	2021
CAN Europe	*TEN Principles Underpinning the Vision for a Societal Just Transformation*	2021
WWF	*Territorial Just Transition Plan Scorecard Assessment*	2021
ADB	*Five Just Transition Principles based on MDB Just Transition High Level Principles*	2021
Wuppertal Institut	*Just Transition Toolbox for coal regions*	2022
EUROPEAN ALLIANCE for a JUST TRANSITION	*A Call to Deliver a Just Transition to a Social and Sustainable Europe: A Joint Declaration by the European Alliance for a Just Transition*	2022
FUTURE ECONOMY SCOTLAND	*Transforming Scotland's Economy to Deliver a Just Transition: Framing paper*	2023
WORLD RESOURCES INSTITUTE	*Just Transition and Equitable Climate Action Resource Center*	N/A
LSE The London School of Economics and Political Science / Grantham Research Institute on Climate Change and the Environment	*Components of the just transition*	N/A
PPCA Powering Past Coal Alliance	*Just Transition*	N/A

Source: Ecorys' Brussels own elaboration, 2023

Appendix III. Just Transition Taxonomy — list of economic activities

Click here to view Appendix III: Just Transition Taxonomy — list of economic activities

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