

Knowledge Package

Governance and institutions



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Knowledge pack**Governance and institutions****Introduction**

Effective governance and good institutional cooperation are prerequisites for successful just transition in coal-dependent regions. National and regional government authorities provide essential leadership and strategic direction, both developing regional transition strategies and driving transition forward. This knowledge pack relates primarily to thematic Pillar 1 of the World Bank's 'Just Transition for All' three-by-three matrix: Institutional Governance. It is relevant to all three phases of support: Pre-closure Planning, Closure, and Regional Transition.

Approaches to good governance and institutional partnership can be learned from other regions which have undergone, or are undergoing, coal transition. Just as all regions are different, there is no single optimal governance approach. Instead, governance design should be tailored for each region by combining proven principles – vision, leadership, multi-agency coordination, inclusive action, transparency and democratic consistency – with consideration of the regional social and economic situation. This entails a good understanding of regional needs and capacities.

Coal transition experiences in Europe (particularly Germany) and internationally underline the value of anticipative leadership and effective partnership-building between regional authorities and institutions. Mobilising a cross-section of regional institutions and actors is critical. All such efforts should be based on a clear delineation of responsibilities and competences between government and other actors.

Regional authorities, in cooperation with national administrations, can also delegate operational entities to carry out particular transition activities. For example, public-private partnerships (PPPs) can facilitate efficient resource use and ease administrative burden on public authorities. Regional authorities should also consider the budgetary aspects of transition, and the need to attract investment support from the private sector.

Abstracts

World Bank. 2018. *Managing Coal Mine Closure: Achieving a Just Transition for All*, by Stanley, Michael C., John E. Strongman, Rachel Bernice Perks, Helen Ba Thanh Nguyen, Wendy Cunningham, Achim Daniel Schmillen, and Michael Stephen McCormick. Washington, DC:

World Bank Group.

This 2018 report presents 9 lessons for contemporary energy transition in coal regions, drawing from an evidence base of 11 analysed World Bank lending operations on coal sector adjustment, as well as 5 country-level coal transitions. Presenting a macro-level international overview, one of the strengths of the report is its potential to convey the broader context and common challenges in coal transition to national and regional authorities.

The lessons are organised into 3 pillars, with Pillar i–Policies and strategy development – most relevant to the theme of governance and institutions. A key deciding factor in the nature of government leadership is the structure and ownership of the coal sector (public or private), but some lessons are common to all regions. For example, an empowered high-level government body facilitates political decision-making, and setting up a specific mine closure agency can streamline physical mine closure (i.e. the Pre-closure Planning and Closure phases of support).

Key terms: leadership; multi-level governance; transparency; delegation; inclusion

European Commission. 2020. *Toolkit: Governance of transitions*, by Maria Yetano Roche. Brussels.

This toolkit was developed by the Initiative for Coal Regions in Transition (CRiT), a European Commission-funded support platform. It provides guidance and examples on the design of the optimal governance model to support a transition process in coal regions, the implementation of stakeholder engagement, and the role of social dialogue and civil society in the transition process. The toolkit is designed for the use of regional and local authorities, governmental agencies responsible for regional development, and civil society organisations.

The governance of regional transformation is both multi-level and multi-actor. Good governance should begin at an early (pre-closure planning) stage with the establishment of a sound governance model, so that stakeholders can understand the organisation and nature of regional leadership, the need for transition, and the intended pathways to change. This is particularly important for regional stakeholders who do not support transition. The governance model should not be static – it must evolve and develop over time.

Key terms: governance model; multi-level governance; leadership

Asia-Pacific Economic Cooperation (APEC). 2018. *Mine Closure Checklist for Governments*. Singapore.

This checklist is designed to provide a logical, sequential series of steps to enable policymakers to identify gaps in their current mine closure framework, and identify how to address them. The

checklist is not specific to coal mines, but to mines in general. This relates to Phases 1 and 2 in the World Bank's three-by-three matrix: Pre-closure Planning, and Closure.

Guidance for governments and governmental authorities are presented in four phases: getting started, developing policy for the closure plan, developing policy for managing closure, and implementing the closure policy. Key recommended elements include forming a task force, identifying and engaging with stakeholders and partners for policy development, and managing expectations.

Key terms: framework conditions; partnership building; risk management; inclusion; risk management; mine closure

Caldecott, Ben, Oliver Sartor, and Thomas Spencer. 2017. Lessons from previous 'coal transitions': High level summary for decision-makers. Paris and London: IDDRI (Institut du Développement Durable et des Relations Internationales) and Climate Strategies.

This report provides a summary of lessons from six historical case studies of regional coal mining transitions that have occurred or are ongoing in Europe and the United States (Czech Republic, Netherlands, Poland Spain, United Kingdom, USA). Thus it presents a distillation of insights from a broader set of studies. The focus is not exclusively only on governance and institutions, but governance issues are at the core of many findings.

The report focusses not only on best practices, but also addresses the governance mistakes or shortcomings which have been realised in the case study nations. For example, a lack of pre-emptive action has often been the root of economic exclusion, particularly of vulnerable communities. Across the case studies examined, coherent visions for how to replace employment and income from coal production were found to be rare.

Critical lessons for governments, institutions and regional authorities are outlined. These include the importance of anticipation, managing uncertainty, and successful approaches in government-business cooperation. A common challenge across the case studies is how best to incentivise, or motivate, workers, companies, trade unions and other stakeholders to buy in to the transition process. Governing authorities have access to a range of instruments, levers and tools which they can use to achieve this, and to promote regional collective interests. A long-term perspective should outweigh short-term gains.

Key terms: leadership; framework conditions; incentivisation; transparency; delegation; inclusion

Bulkeley, Harriet. 2019. “Managing Environmental and Energy Transitions in Cities: State of the Art & Emerging Perspectives.” Background paper for an OECD/EC Workshop on 7 June 2019 within the workshop series “Managing environmental and energy transitions for regions and cities”. Paris.

The value of this paper lies, in part, in its focus on city-level transition. The city/urban context presents particular environmental and energy challenges, which regional governments are under particular obligation to address as regions undertake just transition. As a background paper, the author presents a top-down overview aiming to explain the various ways in which thinking about urban energy transition governance has evolved. For example, cities can be seen as socio-technical systems, which in turn invites consideration of conditions required to leverage transitions towards sustainability (i.e. away from coal energy and its downstream consumption).

More fundamentally, there is gathering momentum behind the need not merely for urban energy transition, but for transformation. Transforming institutions and governance processes involves challenging vested interests, and thus – while consensus-based urban transformation should be the goal – governments should be prepared for a degree of conflict.

Key terms: multi-level governance; incentivisation; partnership-building; structural change; inclusion

Dahlbeck, Elke, and Dr. Stefan Gärtner. 2019. Just Transition for Regions and Generations: Experiences from structural change in the Ruhr area. Berlin: WWF (World Wildlife Fund).

The Ruhr region in Germany is a mature example of structural transition, having experienced a decline and transition away from coal mining since the late 1960s. It thus represents a useful case from which lessons can be drawn. This study reviews the region’s experiences with structural policy (i.e. not only coal transition, but also the wider decline of traditional industries) and identifies the main policy developments and their positive and negative impacts.

The German federal model delegates significant authority to the Länder (regions). In the Ruhr region, the governance model has relied more on a bottom-up rather than a top-down approach in defining political and social values. This democratic approach has proved to be sustainable. Transferable governance solutions identified, and criteria for other regions, are also proposed in the context of recommendations for action. Key insights concern the need for effective multi-level governance, and cooperation from a large number of stakeholders at different political and regional levels (local, municipal, regional, supra-regional, national, supranational, and international).

Key terms: structural change; mine closure; multi-level governance; partnership building; delegation

OECD. 2012. *OECD Principles for Public Governance of Public-Private Partnerships*. Paris.

Though now a somewhat older resource, this document presents the OECD (Organisation for Economic Co-operation and Development) Principles for Public Governance of Public-Private Partnerships (PPPs). These principles are a well-balanced international standard for public oversight of PPPs, and can be applied and translated into any regional coal transition context where the use of PPPs is being considered or applied.

Recommendations are relevant to political leadership, and encompass important considerations and practices such as establishing a legitimate institutional framework, minimising fiscal risks, and ensuring the integrity of procurement. The use of PPPs should be preceded by cross-government cooperation and careful planning; thus, both horizontal (inter-institutional) and vertical (national-regional-local) cohesion in governance is encouraged. Because taxpayer's money is used to fund PPPs, transparency and clear political leadership should govern the award and implementation processes.

Key terms: public-private partnerships (PPPs); leadership; transparency; delegation; risk management

Robins, Nick, Vonda Brunsting, and David Wood. 2018. *Climate change and the just transition: A guide for investor action*. London: Grantham Research Institute on Climate Change and the Environment, Harvard Kennedy School.

The low-carbon transition is an increasingly important agenda for investors, offering long-term sustainable portfolio investment opportunities. This guide, developed in cooperation between research institutes at the London School of Economics and the Harvard Kennedy School (the public policy school of Harvard University) is written from an investor's perspective. It can be argued that national and regional authorities also benefit from an understanding of the market perspective, to better leverage private investment (alongside public funds) to support the coal transition process. In addition to site regeneration, private investors can contribute to economic diversification and infrastructure development in the medium- to long- term.

The investment motivations and areas for investor action outlined in this briefing are equally relevant to public investment bodies, private/corporate institutional investors, and individuals; particularly those with an interest in Economic, Social and Governance (ESG) standards. At the sub-national (regional) level, investors could call for multi-stakeholder dialogue to identify the needs of workers and communities, regional finance forums, and the identification of ways in which investors can support just transition programmes.

Key terms: incentivisation; transition investment; framework conditions

Focussed bibliography

Shortlisted documents (abstracts)

Asia-Pacific Economic Cooperation (APEC). 2018. Mine Closure Checklist for Governments. Singapore.

https://www.igfmining.org/wp-content/uploads/2019/04/218_MTF_Mine-Closure_Checklist-for-Governments-1.pdf

Bulkeley, Harriet. 2019. “Managing Environmental and Energy Transitions in Cities: State of the Art & Emerging Perspectives.” Background paper for an OECD/EC Workshop on 7 June 2019 within the workshop series “Managing environmental and energy transitions for regions and cities”. Paris.

<https://www.oecd.org/cfe/regionaldevelopment/Bulkeley-2019-Managing-Transition-Cities.pdf>

Caldecott, Ben, Oliver Sartor, and Thomas Spencer. 2017. Lessons from previous ‘coal transitions’: High level summary for decision-makers. Paris and London: IDDRI (Institut du Développement Durable et des Relations Internationales) and Climate Strategies.

https://www.iddri.org/sites/default/files/import/publications/coal_synthesisreport_vo4.pdf

Dahlbeck, Elke, and Dr. Stefan Gärtner. 2019. Just Transition for Regions and Generations: Experiences from structural change in the Ruhr area. Berlin: WWF (World Wildlife Fund).

https://regionsbeyondcoal.eu/wp-content/uploads/2019/02/2019_01_15_Just-Transition-for-regions-and-generations.pdf

European Commission. 2020. Toolkit: Governance of transitions, by Maria Yetano Roche. Brussels.

https://ec.europa.eu/energy/sites/default/files/documents/governance_of_transitions_toolkit_-_platform_for_coal_regions_in_transition.pdf

OECD. 2012. OECD Principles for Public Governance of Public-Private Partnerships. Paris.

<https://www.oecd.org/gov/budgeting/oecd-principles-for-public-governance-of-public-private-partnerships.htm>

Robins, Nick, Vonda Brunsting, and David Wood. 2018. Climate change and the just transition: A guide for investor action. London: Grantham Research Institute on Climate Change and the Environment.

<https://www.unpri.org/download?ac=9452>

World Bank. 2018. Managing Coal Mine Closure: Achieving a Just Transition for All, by Stanley, Michael C., John E. Strongman, Rachel Bernice Perks, Helen Ba Thanh Nguyen, Wendy Cunningham, Achim Daniel Schmillen, and Michael Stephen McCormick. Washington, DC:

World Bank Group.

<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/484541544643269894/managing-coal-mine-closure-achieving-a-just-transition-for-all>

Additional documents

BloombergNEF. 2020. Investing in the Recovery and Transition of Europe's Coal Regions. White Paper.

<https://data.bloomberglp.com/professional/sites/24/BNEF-white-paper-EU-coal-transition-Final-6-July.pdf>

Cowan, W.R., W.O. Mackasey, and John G.A. Robertson. 2010. The Policy Framework in Canada for Mine Closure and Management of Long-Term Liabilities: A Guidance Document. Ontario: National Orphaned and Abandoned Mines Initiative (NOAMI).

<http://www.abandoned-mines.org/pdfs/PolicyFrameworkCanforMinClosureandMgmtLiabilities.pdf>

Dudău, Radu, Gabriel Ghinea, Kostiantyn Krynytskyi, Volodymyr Kryzhanivskyi, Pao-Yu Oei, Martin Schön-Chanishvili, Klára Sutlovičová, Zuzana Vondrová, and Timon Wehnert. 2019. Transformation Experiences of Coal Regions: Recommendations for Ukraine and other European countries. Center for Environmental Initiatives Ecoaction / K: ALT Company.

https://germanwatch.org/sites/default/files/Study_Transformation_Experiences_Coal_Regions_EN.pdf

Europe Beyond Coal Coalition (2019). Seven Golden Rules for open and inclusive just transition planning at the regional level. WWF.

<https://www.wwf.eu/?uNewsID=349991>

Hoppe, Thomas, and Michiel Miedema. 2020. "A Governance Approach to Regional Energy Transition: Meaning, Conceptualization and Practice." Sustainability 12 (3): 915. <https://www.mdpi.com/2071-1050/12/3/915>

KS, Jomo, Anis Chowdhury, Krishnan Sharma, and Daniel Platz. 2016. "Public-Private Partnerships and the 2030 Agenda for Sustainable Development: Fit for purpose?" DESA (Department of Economic & Social Affairs) Working Paper No. 148, United Nations.

<https://www.un.org/en/desa/public-private-partnerships-and-2030-agenda-sustainable-development-fit-purpose>

OECD. 2015. Monitoring the transition to a low carbon economy: A strategic approach to local development. Paris.

<https://www.oecd.org/cfe/leed/Monitoring-Green-Transition-Final2.pdf>

Sartor, Oliver. 2018. Implementing coal transitions—Insights from case studies of major coal-consuming economies. Paris: IDDRI (Institut du Développement Durable et des Relations Internationales).

<https://www.iddri.org/en/publications-and-events/report/implementing-coal-transition-insights-case-studies-major-coal>

Schepelmann, Philipp. 2018. "Governance of Low-Carbon Energy System Transitions: A Case Study from North-Rhine Westphalia, Germany." Asian Development Bank. The Governance Brief, Issue 32.

<https://www.adb.org/publications/low-carbon-energy-system-transitions>

Schildt, Chris, and Victor Rubin. 2015. Leveraging Anchor Institutions for Economic Inclusion. Oakland: PolicyLink.

https://www.policylink.org/sites/default/files/pl_brief_anchor_012315_a.pdf

Schindler, Hannah. 2019. Managing the phase-out of coal: A comparison of actions in G20 countries. Berlin: Climate Transparency, c/o Humboldt-Viadrina Governance Platform.

<https://www.climate-transparency.org/wp-content/uploads/2019/05/Managing-the-phase-out-of-coal-DIGITAL.pdf>

Trade Union Development Cooperation Network (TUDCN). 2017. Social dialogue as a driver and governance instrument for sustainable development: ILO-ITUC Issue Paper, by Hermans, Maarten, Huib Huyse, and Jan Van Ongevalle. HIVA Research Institute for Work and Society. Brussels: TUDCN.

https://www.ituc-csi.org/IMG/pdf/tudcn_issue_paper_-_social_dialogue_development_en.pdf

Turley, Laura and Abby Semple. 2013. Financing Sustainable Public-Private Partnerships. Winnipeg: International Institute for Sustainable Development.

https://www.iisd.org/system/files/publications/ppp_financing.pdf

U.S. Department of Housing and Urban Development Office of University Partnerships. 2013. Building Resiliency: The Role of Anchor Institutions in Sustaining Community Economic Development. Washington, DC.

<https://www.huduser.gov/portal/publications/AnchorInstitutions.pdf>

GLOSSARY

Brownfield redevelopment refers to the process of site development – remediation, reclamation, rehabilitation and repurposing – to restore the physical, environmental, economic, and social/community aspects of a brownfield site.

Carbon neutrality refers to a state in which the activities of an individual, an organisation, a city or a country result in net-zero CO₂ emissions. For a given set of activities to be carbon neutral, either the activities themselves must have zero CO₂ emissions, or the same amount of CO₂ released by the activities must be permanently sequestered (i.e. removed). Carbon sequestration can be achieved by making use of a so-called natural carbon sink, which are the natural ecosystems (e.g. forests, soil, oceans) which have the ability to absorb more carbon than they emit. To date, no artificial carbon sinks are able to remove carbon from the atmosphere on the necessary scale. Offsetting emissions made in one sector by reducing them somewhere else through investment in renewable energy or energy efficiency could contribute to carbon neutrality.

Civil society refers to the wide array of non-governmental and not for profit organizations that have a presence in public life, express the interests and values of their members and others, based on ethical, cultural, political, environmental, scientific, religious, or philanthropic considerations.

Clean energy technologies refer to any processes, products or services that reduce negative environmental impacts of energy production through emissions reduction, energy efficiency improvements and sustainable use of resources (use of renewable and clean sources of energy such as geothermal, hydropower, solar, wind, and sustainable biomass).

Coal phase-out is the cessation of coal extraction and related utilisation activities, as part of a broader fossil fuel phase-out and transition to carbon neutrality.

Decommissioning of infrastructure refers to the removal of redundant infrastructure (equipment, buildings, material) when a coal mine or a power generation facility has reached the end of its service life. The level of decommissioning work, together with site clean-up, will depend on potential future reuse options.

Energy transition refers to the (global) energy sector's shift from fossil-based systems of energy production and consumption – including oil, natural gas, and coal – to renewable energy sources like wind and solar. The need to reduce energy-related CO₂ emissions to limit climate change is at heart of energy transition. Adoption of renewable energy and energy efficiency

measures are needed to achieve the required carbon reductions.

Future proofing refers to processes for anticipating future developments and events and taking actions to prepare to minimise possible negative consequences and maximise possibilities to seize opportunities. In the context of energy transition, ‘future proofing’ often refers to making investments that are resilient towards the effects of climate change and/or aligned with and adaptable to expected trends and changes in energy production and consumption, including climate neutrality. Future proofing investments in emerging post-transition sectors provide, therefore, a safeguard for long term employment and productivity potential of the local or regional economy.

Governance model refers to the arrangement put in place by public authorities to deliver its coal transition strategy in a way that is effective within the broader prevailing governance context. Successful governance models rely on close cooperation among the various governance levels (local, regional, national) and the various actors (public, private, social) in the concerned coal region(s).

Inclusion, also known as social inclusion, is the process and outcome of improving the terms on which individuals and groups, who might otherwise be excluded or marginalized, take part in society. An inclusive approach to energy transition is one that recognises and addresses in a meaningful way the disproportionate effects of the transition on certain groups and individuals. It may also encompass an approach whereby transition is recognised as an opportunity to improve the well-being of those that are already excluded or marginalized.

Industrial reconversion refers to conversion of former industrial areas, including post mining areas, and related activities into alternate socio-economic uses. Regions with a historical legacy of mining and industrial heritage have an opportunity to use the industrial infrastructure as an asset for future economic activity (e.g., industrial zone, cultural centre, or business and technology park).

Just transition encapsulates the principle that the transition to a climate neutral economy should happen in a fair way, whereby the benefits and costs of transition are distributed equitably, and where those that stand to lose economically or socially from the transition are adequately supported to ensure that no one is left behind. Consequently, just transition focus on jobs and livelihoods, and on advancing social and economic justice. It also incorporates the principle that transition processes should be based on dialogue and cooperation between workers, employers, communities, and governments to draw-up and drive the concrete policies, plans, and investments to achieve transition.

Legacy infrastructure relates to physical structures, utilities and machinery that were previously used in the extraction, preparation and transportation of coal and which are no longer utilised due

to the cessation of mining activities. These can represent both assets and liabilities; their status being dependent on their condition, maintenance, investment, and future plans for a site or a locality.

Mine closure is the process undertaken when the operational stage of a mine is ending or has ended, and the final decommissioning and mine rehabilitation is due to commence or is underway.

Mine closure liability is the situation of being legally responsible for a mine closure, which usually falls on the mine operator who should prepare and execute a mine closure plan. Government may face a risk of having to assume the liability for mine closure if an operator fails to or is incapable of closing the mine in a responsible manner.

Mining communities are communities, towns, or larger urban areas where miners and/or former miners and their families live. Mining communities are usually created around a mine or a quarry and are often characterised by a mono-industrial economy (an economy dominated by a single industry or company). They also often have strong local identity and display a place attachment to their community – a cultural and emotional bond between person and place.

Mining heritage relates to heritage values of former mining places, such as specific cultural and social values and meanings. Upon closure, the mining industry often leaves behind a large number of tangible and intangible assets which are a reminder of the past importance of mining and which contribute to regional identity. Physical mining heritage, such as buildings, machinery and equipment, are often transformed into cultural attractions of historical value that attract visitors to the region.

Multi-level governance (MLG) refers to models for both the decision making and implementation of policies and strategies that rely on interactions between different levels of government (i.e., local-regional-national). Effective multi-level governance models can enhance cooperation across levels of government, enabling synergies among different actions that can improve implementation of transition strategies and better achieve national and sub-national policy goals. Multi-level governance enables synergies between the priorities, powers, functions and regulations of differing levels of government.

Participatory methods refer to ways for active involvement of ‘the public’ in decision-making processes. The public can be citizens, stakeholders in a particular project or policy, experts, and other concerned parties. Participatory methods are considered to be integral to achieving a just transition in coal regions, as they can empower affected communities, enhance transparency, accountability, and responsiveness, and improve public policies and services. There are various participatory methods, including focus groups, consensus building conferences, thematic workshops and social dialogue activities. These methods can form the basis for partnership-

based planning and co-creation of a transition strategy.

Perpetual obligations are ongoing actions, such as pumping of mine water, that need to be continued indefinitely after cessation of mining activities. Such obligations depend on the type of coal mine and on specific regulatory requirements.

Public-private partnerships (PPPs) are long-term contractual agreements between a government entity and a private party for the provision of a public asset or service, in which the private party bears significant risk and management responsibility. This may relate to infrastructure assets (such as bridges, roads) or social assets (such as hospitals, utilities) and their associated services.

Reclamation are actions performed during or after a mining operation to shape, stabilize, revegetate or otherwise treat the land in order to return it to a safe, stable condition consistent with the establishment of a productive post-mining use of the land and the safe abandonment of a facility in a manner which ensures the public safety, as well as the encouragement of techniques which minimize the adverse visual effects.

Regional mine closure planning applies a regional land use approach to mine closure that goes beyond site-specific plans and aligns site-specific rehabilitation and repurposing targets to regional land use needs and capacities within an overarching planning context. Such an approach should lead to more focussed and co-ordinated efforts, as rehabilitation can be aligned to wider considerations of land productivity, ecosystem functionality, urban and rural development, or renewable energy drivers.

Rehabilitation planning is planning for restoration of land on which mining has taken place to prepare it for its intended post-closure land uses, which may be to restore the landscape to its pre-mining land uses (environmental rehabilitation). Rehabilitation planning may include measures relating to physical mine closure, environmental reclamation and rehabilitation (including the removal of mine equipment), securing the stability of remaining dumps and impoundments, water management and surface stability at closed underground mines, and monitoring and managing any post closure environmental and human health impacts.

Remediation is an action of remedying something, i.e. reversing or stopping environmental damage. Often used in context of contaminated soils or water. Remediation may include activities carried out to clean up or mitigate contaminated land or water.

Renewable energy is energy that is produced by natural resources—such as sunlight, wind, rain, waves, tides, and geothermal heat—that are not depleted or are naturally replenished within a short time span (i.e., within a few years or on a ‘human timescale’). Biomass (organic material from animal or plant matter) is also defined as a renewable energy source but for it to make an effective contribution to

reducing greenhouse gas emissions, it must be produced and managed in a sustainable way.

Repurposing refers to the beneficial reuse of a closed mining or other industrial operation, whether through value-added changes or reuse of the land (e.g., energy generation or residential use), reuse of infrastructure at its present location or at another site, or derivative business opportunities that create new economic activity.

Revitalisation refers to policies and processes implemented to return and sustain the economic, environmental and social dimensions/contribution of the former mining (or industrial) sites for the benefit of the local community. Conducting revitalisation is aimed at preserving the mining cultural heritage, while introducing new economic and social functions. Successful revitalisation can attract visitors and investors, increase attractiveness of the region and revitalise local communities.

Social dialogue refers to negotiations, consultations or simply exchange of information between, or among, representatives of government, employers, and workers, on issues of common interest typically relating to economic and social policy. It can exist as a tripartite process, with the government as an official party to the dialogue or it may consist of bipartite relations only between labour and management (or trade unions and employers' organisations), with or without indirect government involvement. Social dialogue processes can be informal or institutionalised, and often it is a combination of the two. It can take place at the national, regional or at enterprise level. It can be inter-professional, sectoral or a combination of these.

Social impacts refer to socio-economic and cultural aspects of mine closure. Some of the common social impacts of closure include changes to the affected community's economic structure (e.g., loss of employment and business opportunities) and dynamics (e.g., demographic changes, departure of employees). In the context of coal phase out, social impacts can also encompass gender dimension (e.g., gender-related economic and employment inequalities), health and well-being of miners.

Smart specialisation is an approach that combines industrial, educational and innovation policies to suggest that countries or regions identify and select a limited number of priority areas for knowledge-based investments, focusing on their strengths and comparative advantages. In the EU Member States, smart specialisation is a place-based innovation policy concept used to support regional prioritisation in innovative sectors, fields or technologies. Regions impacted by coal phase out are under pressure to identify and develop new areas of specialisation, and to support local economic actors to exploit latent economic specialisms and diversify their local and regional economies.

Stakeholder engagement refers to the process by which an organisation leading the

transition away from coal engages with and involves those who are concerned or affected by the decisions that are made. Stakeholder engagement goes together with partnership building, both of which allow stakeholders to pool their resources to solve common problems. Effective stakeholder engagement can enhance the quality of decisions and outcomes, strengthen public trust, and enhance broad acceptance. If implemented properly, stakeholder engagement fosters legitimacy, especially through improving transparency and inclusivity. The inclusion of a broad and diverse set of stakeholders, including citizens, is considered a key element to successful stakeholder engagement.

Stranded assets are now generally accepted to be those assets that at some time prior to the end of their economic life (as assumed at the investment decision point) are no longer able to earn an economic return (i.e. meet the company's internal rate of return), as a result of changes associated with the transition to a low-carbon economy (lower than anticipated demand / prices). Or, in simple terms, assets that turn out to be worth less than expected as a result of changes associated with the energy transition.

Structural change refers to a qualitative transformation and evolution of economic systems. It is represented by a change in the relative weight of significant components of the economy such as production, consumption, employment, and population, and is seen in a shift or change in the ways a market, industry or economy functions or operates. Structural change is often sparked by technological innovation, new economic developments, changes in resource availability, changes in supply and demand of resources, and changes in the political landscape. In coal regions, structural change is associated with a transition from a carbon-intensive economy, where coal-related activities play a major role in the local economy, to a carbon-neutral economy, which utilises clean technologies and processes.

Welfare support is a government intervention intended to ensure that members of a society can meet their basic needs. Welfare support is usually part of an integrated portfolio of interventions that constitute the broader social protection (social security) system. In the context of a coal phase out, welfare support measures will be typically needed for workers that have lost or are about to lose their jobs. Welfare support can come in various forms, including income replacement benefits, early retirement options, or assistance in seeking alternative employment.

