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Insights from historical cases of transition

Background paper for the
EBRD just transition initiative

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About the EBRD's just transition initiative

The EBRD's just transition initiative aims to help the Bank's regions share the benefits of a green economy transition and to protect vulnerable countries, regions and people from falling behind. The initiative builds on the EBRD's experience of fostering transition towards sustainable, well-functioning market economies, and will focus in particular on the link between the green economy and economic inclusion. Working with national and regional authorities, EBRD clients and other partners, the initiative emphasises policy and commercial financing interventions that support a green transition while also assisting workers (particularly those whose livelihoods are linked to fossil fuels) in accessing new opportunities.

Overview

Major structural changes to decarbonise economies and energy systems worldwide are already underway and this green economy transition is expected to intensify over the coming decades. Without measures to promote a transition that is “just”, resistance is likely to undermine the ability to move at pace. There is ample historical evidence from deep structural changes not dissimilar to the green economy transition which offer some insights into easing the process and reducing any painful consequences.

On the basis of the analysis conducted, the EBRD’s operational response to just transition should incorporate a series of considerations, notably the need for: strategic planning for impacted communities; governance structures and state capacity to implement just transition actions; and a holistic approach to regional economic development to create viable short-term and long-term solutions for local populations who are affected.

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1. Introduction

Major structural changes to decarbonise economies and energy systems worldwide are already underway and are expected to intensify over the coming decades. Acknowledging that human-caused climate change presents an “urgent and potentially irreversible threat to human societies”, parties to the United Nations Framework Convention on Climate Change (UNFCCC) have committed to keeping global warming “well below” 2 °C and to pursuing efforts to keep warming below 1.5 °C.¹ The use and production of coal in particular must decline significantly if this is to happen. Estimates suggest that at least 59 per cent of unabated coal power worldwide must cease by 2030 to limit global warming to 1.5 °C and that about 80 per cent of the world’s current coal reserves must remain unused to keep global temperatures “well below” 2 °C.²

Changing trends in the global coal market, for example, show that this transition has already begun, but climate policy is not the sole driver of change. Other factors contributing to the decline of coal demand include the rapidly increasing cost competitiveness of renewable technologies, the rationalisation of excess heavy industrial capacity in China, overcapacity in power production in China and India and the switch in some developing countries from industry-based to service-based economies. The appetite among major financial institutions for carbon-intensive investments is shifting quickly, and many have announced divestment from fossil fuels or are curtailing future investments.

Even if climate change presents a compelling reason to shift away from fossil fuels, and even if doing so will usher in new industries, new jobs, and local and global environmental benefits, the transition will create both winners and losers. For example, the International Labour Organization estimates that a transition consistent with 2 °C would generate a net employment increase of 24 million jobs globally, but would also lead to 6 million job losses, with gains and losses felt unevenly.³

Unless these distributional impacts are carefully managed, the “losers” are likely to resist change. Delaying local transitions is not only a bad outcome for the climate, it could also mean that these groups would be left behind as the rest of the world becomes more competitive. The prospects for a successful global transition may well hinge, therefore, on whether societies adequately address equity concerns.

2. Lessons from past examples of social and economic transition

The green economy transition is just one of many transitions that have taken place over the centuries, involving a wide range of sectors and socioeconomic groups. Nowadays, several other drivers – for instance, those linked to digitalisation and globalisation – are simultaneously changing the face of society and interacting with each other.

With this in mind, the objective of this paper is to distill some insights into how transitions impact people, economies and the environment; the effectiveness (or ineffectiveness) of different kinds of responses, including the impacts of not responding; and useful considerations about addressing the needs of those who lose and more generally, concerns about inequality in societies affected by deep structural changes.

The methodology for this relies on an extensive review of literature showing cases from different countries and sectors, complemented by interviews with regional development practitioners and experts in coal and industrial transitions. There is an intentional bias towards examples that show industrial decline – not necessarily in carbon-intensive sectors – in countries and regions with varying degrees of economic development and institutional maturity, since these are considered to be important underlying factors. The ultimate aim of the analysis is to inform the EBRD’s approach to a just transition in the economies where it invests, noting the Bank’s mandate and business model.

The remainder of this section is organised into two sub-sections. The first is a summary of possible negative impacts of industrial decline on local communities, with a focus on mining communities, and the second is a description of some lessons learned from past transitions.

2.1. Negative impacts of industrial decline

A key economic consequence of mine and industry closures in the 20th and 21st centuries has been the direct and indirect loss of jobs. The socioeconomic repercussions can be severe because these relatively well-paid jobs form a stable working class and shape nearby communities. Structural change may result in insecure working arrangements and relatively high levels of unemployment.⁴ In Europe and Latin America, the wave of deindustrialisation that took place at the end of the 20th century led to a dramatic increase in poverty and inequalities in former industrial regions.⁵

A corollary of the economic downturn associated with deindustrialisation and mine closure has been demographic shrinkage, as inhabitants leave affected regions to seek better opportunities elsewhere. While outmigration and relocation may be coping strategies for individuals, affected communities suffer negative ripple effects, such as increasing unemployment rates, economic stagnation, a decrease in public revenue and a degradation of public spaces and property values.⁶

A review of relevant literature extensively documents economic and demographic consequences of industrial decline, but research also finds significant social and cultural impacts.⁷ In cases such as Chile, the United Kingdom and the United States of America, coal mine closures have led to social instability, alienation and apathy.⁸ Miners often share a strong sense of identity and they experience social isolation and a loss of identity after mine closures, as documented in the United Kingdom.⁹ Strong cultural attachment to extractive industries makes imagining futures beyond these activities a difficult prospect for some mining communities.

Deindustrialisation and mine closures have also generated psychological effects among wider communities.¹⁰ Mental health issues have emerged, including for younger generations, in countries such as Canada, the United Kingdom and the United States of America.¹¹

These changes affect different social groups in different ways. In post-mining contexts, the loss of jobs largely held by men can leave women with a double burden, bearing responsibility for generating income and taking care of household responsibilities.¹² Nevertheless, past measures of compensation have tended to focus on direct employees of the affected industries, but not on broader gender and social equity concerns.¹³

Large regional industrial shifts can alter the national political landscape, influencing electoral behaviour and political representation. The demise of mining in Scotland and the rest of the United Kingdom has been associated with a resurgence of nationalism as a response to a sense of existential insecurity.¹⁴

Premature closing of operations, insufficient funds for remediation, and inadequate regulatory requirements and community engagement have often prevented complete and effective remediation.¹⁵ This harms the natural environment and may have an impact on human health, also preventing new uses for former industrial lands.¹⁶

Overall, a just transition should anticipate and manage such a spectrum of potential impacts.

2.2. Responses to impacts

Past transition experiences offer guidance on how to address negative impacts. Diverse short-term and long-term measures are essential to support workers and to address major social and economic changes in times of industrial transitions.

Supporting workers (both directly and indirectly impacted) through new jobs, reskilling, mental health support and access to financial resources

In past transitions, both passive and active labour policy measures have been adopted to support workers. These experiences show that passive labour policy measures such as early retirement, adjustment allowances and compensation schemes are helpful in the short term – including in the reduction of conflict – but do not address long-term issues.¹⁷ There is evidence from case studies (for example, Poland) that workers who received lower and/or shorter redundancy payments along with other commitments to facilitate new work (whether through paid retraining, paid relocation or insertion into on-the-job training in a new sector) systematically fared better than those who received larger monetary payments.¹⁸

Active labour market policies – such as employment services, education and training, relocation support, subsidised employment and support for the development of small and medium-sized businesses – can improve outcomes. For instance, in the German Ruhr, the combination of practices, including redistributing workers between jobs, shifts and sites, early retirement support, and worker retraining and development programmes, helped alleviate some social impacts of industrial transition.¹⁹ These practices can also include programmes of mobility within the company, to develop new skills and give exposure to different work environments before redundancy, transfer to new parts or subsidiaries of the company with growth expectations, company on-the-job retraining to fill new positions, and so on.

Experience with training programmes indicates that they are most successful when they are closely tied to the requirements of the labour market and implemented in collaboration with companies and universities or training centres.²⁰ Overall, research suggests that workers are best supported through a combination of active labour measures – including upskilling and early job search counselling, mental health support and access to financial counselling. Raposo, Portugal and Carneiro (2019) employ a rich matched employer-employee dataset for Portugal to evaluate the sources of wage losses of workers displaced due to firm closures.²¹ Their research suggests that job search assistance programmes and mandatory early notification of impending redundancy should be of help. Job downgrading and human capital depreciation, in terms of losses of job-specific training, also play a significant role, meaning that a focus on retraining programmes is justified. A broad range of people as well as direct employees need such measures to deliver just outcomes. For example, in the Latrobe Valley in Australia,* the region effectively extended training and job-seeker support for contractors and workers' family members.²²

Economic diversification strategies tailored to the specificities of the affected community

The design of regional economic development and regeneration policies can influence the outcomes of transitions. Nevertheless, these regions face many challenges such as declining populations, skills limitations, underdeveloped organisational and institutional set-ups and poor connections to markets. The diversity of regional circumstances implies that applying general lessons to specific places requires care.

Past cases of transitions in former mining areas suggest that construction and tourism are activities that may help generate new jobs in the short and medium term.²³ Renewable energy is another economic activity posited as an opportunity to provide new jobs for former miners,²⁴ because some of the required skillsets reflect those of some miners and/or associated local industries, and because there may be few productive uses for highly degraded former mine sites. However, the employment potential of renewables in former coal mining areas can be significantly limited by the local resource potential and it is unlikely to replace the number of jobs lost.²⁵ Attention has also been given to energy efficiency, sustainable agriculture and rehabilitation as sectors with employment potential.²⁶

Typical measures used to promote economic diversification and regeneration include investment in new or upgraded infrastructure (which also generates short-term and medium-term jobs), programmes to expand small and medium-sized enterprises, and fiscal and regulatory measures to attract new businesses to affected areas. A frequently used tool to regenerate depressed areas is the creation of special economic zones; however, there is evidence that this response is unlikely to deliver significant change on its own.²⁷

* The Latrobe Valley went through two rounds of transitional assistance policy. The first one was in 2012-13, under the Gillard government's Clean Energy Future package, and the second one started in 2014 with the creation of the Latrobe Valley Authority, an agency mandated with coordinating efforts for the region's transition.

Empirical studies in Europe and the United States of America show that the successful development of new industries or new technologies in regions usually builds on inherited regional capabilities, in other words, existing local knowledge, skills and institutions.²⁸ The European Union's "smart specialisation" has integrated these insights, and it emphasises a place-based approach to identifying strategic interventions based on an analysis of the strengths and potential of a given local or regional economy and community.²⁹

Measures to attract investments in old industrial regions may generate employment opportunities, but not necessarily with the same salary, status or benefits, or with the need for the same skills or skill levels. Moreover, the forces of isolation and a lack of the potential for economic diversification can stymie economic recovery, as has been the case in the former zinc- and lead-mining town of Pine Point in the Canadian Arctic.³⁰ In such cases, a "managed retreat" may be more appropriate, although there is little knowledge about what measures enable a well-managed retreat. In this scenario, inhabitants of an isolated former mining settlement are encouraged to relocate to areas with better economic opportunities.³¹

As experiences in Germany underscore, when stimulating regional economies, the temptation to revive carbon-intensive industries could lead to further risks. This is because the revival of such industries furthers carbon lock-in, and increases the risks of stranded assets, stranded workers and stranded communities.³²

Environmental legacies are important and need to be addressed

The historical experience with environmental rehabilitation of former industrial and mining sites has often not met the basic principles that environmental rehabilitation should be complete and that costs should not be borne by the public. According to the International Institute for Environment and Development, despite the evolution of closure requirements and best practice guidelines, proper remediation and closure of mine sites remains a widespread challenge that continues to generate significant environmental and health and safety impacts around the world.

Even when sites are rehabilitated, it may be difficult to use the land productively. Germany's experience in its Ruhr region, for instance, highlights that there may be limited potential for recovering land for agricultural purposes, and also that some public funding often ends up being needed to initiate the reuse of former coal mining sites for alternative purposes.³³

Based on experiences in Finland, Kazakhstan and Romania, the World Bank recommends establishing appropriate and effective regulations and procedures, and ensuring secured resources for remediation from responsible parties (for instance, through financial instruments such as bank guarantees or insurance policies).³⁴ A related issue is how to address liability for such matters in legacy sites where responsibility is unclear.³⁵ As cases in Australia and South Africa illustrate, progressive rehabilitation during a mine's operating life is a valuable strategy, as having larger rehabilitation liabilities towards the end of a mine's life is less likely to lead to sustainable post-rehabilitation outcomes.

Inclusive processes involving relevant actors and ensuring adequate institutional capacity are key for a successful transition

With resources to navigate regional economic shifts limited, coordination between public and private actors is a key factor in enabling the design and implementation of transition measures. Cases from Australia and South Africa offer examples of innovative governance arrangements intended to coordinate regional transitions. In Australia, the Latrobe Valley Authority (LVA) was set up in 2014 as a government authority, but given a flexible mandate to forge close partnerships with the community and industry.

The mission of the LVA included helping workers access training and employment services, facilitating new business development and investing in infrastructure improvements with catalytic potential.³⁶ LVA deliberately included a wide range of local stakeholders beyond immediately affected workers and self-defined "community leaders" and established the flexibility needed to work more creatively than has been the case through traditional government departments.

In South Africa, the National Planning Commission has been conducting a stakeholder dialogue on Pathways for a Just Transition, which explores ways to address environmental sustainability and ensure an equitable transition to a low-carbon economy. Despite its limitations (which include its broad scope, limited constituency and lack of implementation capacity), the dialogue has provided a space to discuss challenges associated with coal decline in South Africa.³⁷

Crescenzi and Giua (2020) assess regional impacts of the EU Cohesion Policy on economic growth and employment for different member states before the financial crisis and during recovery to test whether recovery patterns are even.³⁸ On average, the authors find positive impacts on both regional economic growth and employment during recovery, but with highly uneven recovery patterns and success in adapting and implementing the policy, depending on country capacities and context. As a policy solution, they suggest using performance-based conditions along with capacity-building, support for governance and coordinated action to improve absorption rates and impacts, even in regions that lag behind. The authors also highlight that, in designing conditions and capacity-building efforts, it is important to understand what works and support evidence-based policy learning, as well as pilots, with feedback mechanisms. In further work, Crescenzi, Di Cataldo and Giua (2020) show that this matters for the future of Europe, as in Wales receiving EU money correlated with Remain votes only in areas where it generated visible local impact.³⁹

Locally owned and led approaches delivered with national authorities appear to work best

“Bottom-up” approaches to regional economic development – those designed at the community level – are important in delivering measures and solutions that correspond to workers and residents’ needs and visions.⁴⁰

The state is often called on to play a role, notably by ensuring that existing or new policies can address impacts, by financing new infrastructure and welfare programmes, providing brokers that match workers with job opportunities and adopting policies and incentives to attract new industries. Historical cases have shown that a key variable for success appears to be the institutional capacity and willingness of the state to support complex, multi-stakeholder transitions over a long time period.

Public authorities can implement different types of transitional assistance policies. These may address financial losses only (narrow perspective) or a wider set of losses to include issues such as conditional cash payments and public employment schemes (broad perspective). They may be conservative (backward-looking) or adaptive (forward-looking).⁴¹ Research on historical fossil fuel-related cases, and mining and industrial transitions more broadly, suggests that proactive, holistic policies are rare.⁴² However, it has been argued that comprehensive adaptive support (such as transitional assistance policies that are forward-looking and broad), while costlier, is more likely to deliver “just” transition outcomes.⁴³

Local authorities have been expected to play an important role in managing transitions. They have key responsibilities in many areas: designing and implementing urban and infrastructure planning, guiding relevant cultural policies, addressing environmental protection and monitoring and obtaining necessary support from the state and external actors. For example, the town council of Outokumpu, a former mining town in Finland, played a key role in identifying opportunities for economic diversification, created a public company to provide premises for new industries, coordinated a marketing campaign and secured state resources through existing funding channels linked to regional policy.⁴⁴ At the local level, institutional capacities and leadership are thus particularly important; in practice, local authorities have often taken – or were left with – responsibility for designing and/or implementing economic regeneration activities, and securing technical and financial support from other levels of government.⁴⁵

Overall, establishing clear responsibilities between authorities and taking advantage of existing policies and structures that enable individual and regional assistance are two factors that contribute to the effectiveness of assistance.

Better outcomes are achieved when industries in decline, trade unions, educational institutions and other private sector actors are mobilised at an early stage

The behaviour of companies facing closure or declining production can have a big effect on transition outcomes. In some cases, the private sector has played a role in co-funding training programmes, such as in Canada and the United Kingdom.⁴⁶ An analysis of several practical cases of transition around the world finds that transition may be smoother where companies support multi-skilling within their labour force.⁴⁷ This gives workers greater flexibility to adapt to future changes in the labour market. However, there is evidence that firms are reluctant to bear the costs of reskilling programmes for employees, due to the free-rider problem (that is, other businesses poaching workers trained at a given firm’s expense). This implies a potential need for public intervention to support skill diversification programmes. Companies have supported workers facing redundancy in other ways, including by offering tailored training programmes,

helping workers find new jobs, providing counselling and mental health support and communicating in open and truthful ways about the closure.⁴⁸

A key strategy for companies facing significant downscaling of production has been to diversify their core activities, leading to reduced impact for the community. For instance, in the 1990s as the oil industry in the Santa Barbara Channel in California started to decline, many local, offshore, oil-related firms adapted by diversifying into other realms, such as scuba diving equipment, marine electronics, or sales and rental of environmental impact measurement tools.⁴⁹ In the Rust Belt of Germany, heavy industry firms such as RAG and Thyssenkrupp developed new activities in related fields, including plant engineering, environmental technology and control services.⁵⁰ When confronted with declining competitiveness, the steel industry in Sweden took a different path and specialised in high-quality steel products, with support from the Swedish state.⁵¹ A role for the state and public bodies could thus be to facilitate such transition, not only in the key declining industries but more generally along the whole value chain (often made up of smaller companies that have less capacity to adapt).

There are very few studies that have looked specifically at the role of the private sector during and after industrial transitions. However, there are some examples of private companies supporting initiatives for economic diversification in the local economy – for instance, by providing matching funding or in-kind assistance for infrastructure development and/or contributing finance and knowledge to research and funding schemes.⁵² Private companies in Zasavje, a former coal-mining region in Slovenia, helped establish a regional development centre created to identify strategic sectors for the future, and support regeneration measures.⁵³ In the iron-mining town of Kiruna, in northern Sweden, enterprises established a local financing company to make risk capital more readily available for new economic activities.⁵⁴ There are also several cases where private companies have been involved in the development of heritage tourism in former mining regions, including in Spain⁵⁵ and in South Africa.⁵⁶

Research suggests that failing to involve trade unions undermines the prospects for a just transition, as evidenced, for example, in Canada and Romania.⁵⁷ In Germany, often described as a successful example of transition, cooperation between the state, the private sector and trade unions is posited as a key factor.⁵⁸ This was also true in the closure of a major steelworks in Newcastle, Australia.⁵⁹

Overall, economies with greater state-industry-union coordination have seen high levels of compensation for workers and businesses, compared with more liberal market economies.⁶⁰ In Spain, the closure of remaining coal mines was negotiated between the Spanish government and trade unions, resulting in a €250 million framework agreement to support a just transition in coal-mining areas. The agreement includes support to coal miners with early retirement schemes, redundancy payments and reskilling schemes for green industries, environmental restoration work in pit communities, and investments in coal-mining regions over the following 10 years in facility upgrading and economic regeneration projects.⁶¹ Union leaders have referred to it as an example of good practice in just coal transitions.⁶²

When the Italian electricity multinational Enel announced the closure of 13 GW of coal-powered electricity generation, it set up a framework agreement with global sectoral unions and a just transition agreement with Italian unions. These agreements included a commitment to respecting human rights and fair labour practices, supporting retraining and retention schemes, and providing early pensions for older workers.⁶³ In Bavaria, Friends of the Earth has been collaborating with the Bavarian Metalworkers' Union to identify how to improve the energy efficiency of plants and processes, as well as how to develop skills and generate employment in the context of challenges facing the German automotive industry.⁶⁴

Lastly, civil society organisations have played a role in designing and implementing projects supporting socio-cultural cohesion and economic diversification, especially in the tourism and leisure sectors, as demonstrated by cases from Chile, South Africa and the United Kingdom.⁶⁵ In the United States of America, civil society organisations helped mobilise Superfund resources to rehabilitate a former copper mining area on the Keweenaw Peninsula of Michigan.⁶⁶

2.3. Challenges to transition

There are a number of potential challenges inherent in approaching transitions.

Resistance and vested interests

Resistance to closure and structural changes in the economy is common among those groups who are likely to suffer most. Trade unions, workers and municipal authorities often seek to stop or delay the closure of mines or other deindustrialisation plans. Massive labour strikes characterised the decline of the coal sector in Romania, Russia, Ukraine and the United Kingdom in the past decades.⁶⁷ In Klimpfjäll, Sweden, local authorities used lobbying and media strategies to campaign against the decision by the publicly owned mining company to close the town's copper mine in the mid-1980s.⁶⁸ Structural adjustment programmes in the 1980s and 1990s led to riots and political uprisings in Jordan, Venezuela and Zambia.

Concern about future livelihoods can emerge in decision-making in unexpected ways. For example, in March 2018, one of the main coal unions in South Africa requested and obtained a court ruling to prevent the public electricity utility Eskom from signing renewable energy contracts with independent power producers. Referring to just transition principles, the union argued that more renewable energy would disproportionately affect the region's lower-income groups through increased electricity prices and through the loss of some 30,000 coal-related jobs from plant closures.⁶⁹ The court's decision to prevent new renewable energy contracts because of these potential impacts stands at odds with some core just transition principles, including those relating to equity and reducing climate impacts.

Similar unrest and resistance to fossil fuel subsidy reform has surfaced, for example, in Ghana and Indonesia,⁷⁰ and in Ecuador.⁷¹ However, many countries including Egypt, India and Ukraine have nonetheless been able to phase out at least some fossil fuel subsidies.⁷² Key factors for the success of fossil fuel subsidy reform efforts include conducting clear communication around the reform, showing clear reform-related benefits for the population, providing support to vulnerable groups through targeted subsidies or cash transfers, and/or using subsidy savings to strengthen social safety nets.⁷³

Disincentives to provide time or be transparent

The effect of time – including anticipation of closure – is a regular theme in the transitions analysed. Planning for closure needs to start during the profitable stages of mining or industrial operations⁷⁴ because the process will depend on (private and public) decisions about labour policy, infrastructure investments and the allocation of public revenue. Foresight and anticipation allow some of the necessary changes to be introduced gradually, so that there is more space for “social dialogue” and therefore greater likelihood that transition plans for regional economic development and the retraining of workers reflect community needs and have local ownership.⁷⁵ This research suggests that the most beneficial sequence of measures emerges with planning that allows for sufficient time between the start of transition responses and industrial closure. Historically, however, transition response measures have tended to come only after the initial impacts of decline or closure.⁷⁶

Ideally, industries facing closure or major production declines would enable a smoother transition for communities by publicly communicating these changes well ahead of time, allowing existing workers to leave through retirement or natural attrition, and ceasing to recruit new workers. However, this seldom happens in practice. The lack of transparency from mining companies about impending closures has had devastating impacts in the past. In Ravensthorpe, Australia, for example, a nickel-mining company did not warn workers and the community in advance that it faced closure; just days before the announcement of the closure, the company was still hiring new staff. The shock of the sudden closure was immense for workers and the local community.⁷⁷

Time is also a crucial parameter after closure. Recovery following the closure of mining or industrial activities in an undiversified economy usually takes a long time. Relatively successful cases of economic transitions – such as in the former iron-mining city of Atikokan in Canada,⁷⁸ in the former coal region of Limburg in the Netherlands⁷⁹ and the Rust Belt in Germany⁸⁰ – took a decade or more. The German experience shows that time is also an important consideration after closure, to ensure that support for regions and workers is maintained over the longer term as needed.⁸¹

An analysis of past experiences with implementing industrial policies around the world suggests that weak institutional capacity, weak civil society and low transparency or accountability of governmental organisations threaten effective implementation.⁸²

Existing trust deficits

Social trust is considered a key ingredient for enabling radical societal shifts towards sustainability. Some transition situations begin from a point of trust deficit; sometimes, trust deficits are the legacy of past periods of change, for instance, in situations in which some affected groups perceived the impacts of structural adjustment, deindustrialisation and mine closure as unfair.⁸³

Failure to acknowledge pre-existing injustices and inequality, and failure to address their underlying causes may exacerbate feelings of injustice in affected communities; this further undermines trust and slows down transitions.⁸⁴ So, trust is an essential characteristic not only for a just process, but also for a smooth and efficient one.

The question of compensation for industry

Common practice suggests that owners of carbon-intensive assets should “generally be required to bear losses where it is possible to sufficiently anticipate risks, even regulatory ones”. This is a relevant issue in the context of pursuing a just transition. Compensation for industry is a burden on taxpayers. This means fewer resources are available to address other aspects of the transition.⁸⁵

3. Case studies of industrial transitions

This section offers insights from four specific cases studies selected to reflect major downscaling processes in locations with different geographical and development characteristics, and different subsectors within the mining and industry sectors. In addition, they cover different scales. Two cases, steelworks in Newcastle, Australia, and Kodak in Rochester, United States of America, are plant-specific closures, so they explore very localised transition issues and how cities have fared. One case, the Free State Goldfields in South Africa, is mostly regional – although it links to the national level in some of the responses. And one case is national, examining the decline of steel in the United Kingdom, a setting that allows for the exploration of the effects of responses by the national government, notably through regional economic development policy.

3.1. Demise of the century-old Kodak industry operations in Rochester, New York, United States of America

Between 1880 and 1970, Rochester in New York state became a thriving production centre for the industries of photography, radiology and impression as home to the Eastman Kodak Company and, later, Xerox and Bausch & Lomb. However, beginning in the 1980s, Kodak suffered sustained decline that stemmed from a combination of poor strategic choices and increased global competition.⁸⁶ With Xerox and Bausch & Lomb reducing their workforces, too, Rochester lost 40 per cent of manufacturing jobs between 2000 and 2010, on top of earlier employment reductions.

Despite these losses, total employment and population have since increased in the Rochester metropolitan area.⁸⁷ The region's top employers are now varied, addressing a range of services and industries (for instance, food, computers and electronics). These manufacturing companies are leaner and they employ an even more highly skilled workforce than was the case in the bygone Kodak-dominated era. Numerous research and higher education institutions are believed to have provided an important foundation for attracting new businesses looking for skilled workers.⁸⁸

These changes have been attributed to several factors. A network of private and not-for-profit partnerships was established to diversify Rochester's economy by providing training for entrepreneurs and support for innovation.⁸⁹ In addition, to attract business, the region repurposed Kodak's old industrial infrastructure. Repurposing the existing infrastructure helped overcome financial constraints for new businesses.⁹⁰ Urban regeneration efforts sparked by demographic change contributed to new residential development and renovation projects, helping to regenerate some of the city's core.⁹¹

Nevertheless, the effects of the economic shift in Rochester were unevenly distributed within the community; the city faces challenges from growing inequality and persistently high poverty rates. Re-employment opportunities surfaced largely for skilled workers but unemployment levels remain high among less skilled people within the working-age population.⁹² Among those employed, considerable income disparities exist by race and gender.⁹³ Overall, wages and job security have declined.

These inequalities divide the city, with wider negative social impacts evident. The downtown area – home for many of the less skilled people who worked on the factory floor at the Kodak plant – has decayed and lost population.⁹⁴ In addition, Kodak's demise left behind significant environmental legacies, with related rehabilitation costs now borne by the public.⁹⁵

Since Kodak's collapse, the mayor's office has led various initiatives to target the poverty gap and to stimulate new business and employment. These include loan programmes for small businesses, youth employment programmes, and a non-profit enterprise that supports worker cooperatives. Reports suggest that progress has been slow, but that trends are headed in a positive direction.⁹⁶

The Rochester case shows that the basic infrastructure and skills of the workers left behind by declining industries can provide a foundation for economic regeneration. Economic diversification takes time, however. This case also underscores the important role of local health and educational institutions, which can provide an ongoing employment base for the community and offer new businesses a stream of skilled employees. However, it also highlights an uneven distribution of negative impacts and new opportunities, and the persistence of high poverty rates shows that even when new jobs emerge the most vulnerable segments of society may be left out. The Rochester case also provides an example of the ramifications that can emerge when the state must assume environmental clean-up costs, which syphon off public revenues that could instead have funded assistance measures for workers, their families and the wider community.

3.2. The national decline of the UK steel industry

From the 1970s onwards, the steel sector in the United Kingdom has suffered a long period of decline, with both policy and market factors eroding its competitiveness. The steel industry workforce today is roughly 5-10 per cent of the size of the 1971 steel workforce.⁹⁷ The decline of the industry led to lower wages and jobs losses in other businesses⁹⁸ and left behind environmental legacies for the public sector to address.⁹⁹

In the early years of decline, the UK government introduced various policy initiatives aimed at preventing further erosion of the steel industry itself.¹⁰⁰ However, as individual steelworks progressively closed, attention shifted to mitigating the effects on workers. Efforts to provide assistance – though seed capital, financing of SMEs, business advisory services and the provision of a handful of “managed workspaces” to help start new businesses – were largely unsuccessful.¹⁰¹ In 2015 the government pledged £80 million for a support package, including training measures for workers and financial assistance for local entrepreneurs and small businesses, in the area around the former Teesside Redcar steel plant. A further £71 million was recently announced to develop the Teesside site into a local business park.¹⁰²

However, efforts to re-employ steelworkers have been confronted with the types of challenge commonplace in deindustrialising regions. Replacement jobs match neither the wages nor the status levels previously enjoyed by steelworkers.¹⁰³ And, because personal identities are often tied to the kinds of work people do, efforts to help workers move to new economic sectors associated with a lower status or a different identity face resistance.

Various initiatives have sought to rejuvenate local economies and find replacement sources of employment in steel regions. A 4,500-acre site that includes former steelworks land in the Tees Valley area received a Special Economic Area designation, for example. This designation allows a new entity, the South Tees Development Corporation, to retain rent and business rates (taxes) for reinvestment in further development of the site as part of a broader mission to boost economic growth. This model aims to reduce the costs that would otherwise fall on local taxpayers for redevelopment of the site. It is too soon to measure the results of this recent initiative.

Overall, much of the national response to the decline of the steel sector has not been specific to the steel industry but instead has sought to address the wider pattern of deindustrialisation of the British economy. Regional development strategies have been promulgated through development corporations, regional development agencies, other forms of local economic partnerships, and, more recently, through devolution to give more local governance power to cities in the north of England and the Midlands.

However, some analysis suggests that by prioritising employment over industry needs, regional policies have sometimes supported clusters that were in irreversible decline; at other times, regional policies have inadvertently broken up clusters of nascent sectors.¹⁰⁴ They have also typically been used to promote the replication of manufacturing economies, instead of reinventing economies by replacing jobs in traditional industries with jobs in new, more knowledge-focused activities such as information technology (IT) and digital media.¹⁰⁵ Indeed, strategies that focus on creating out-of-town business parks (for multinational call centres or distribution warehouses) have not generated economic vitality. By contrast, cities that have succeeded in regeneration (such as Manchester and Leeds) have a highly skilled workforce, the result of the presence of local universities. These cities have also invested in a “gradual renaissance” of their city centres.¹⁰⁶

The decline of the United Kingdom’s steel industry illustrates that supply-chain businesses may be poorly prepared for the loss of their main customer, and that they may not have the networks, knowledge or finance to reorient towards other opportunities. Targeted support for these businesses could help buffer impacts on businesses and also on the wider community, improving resilience during the transition period.

The case also points to some key factors that are likely to facilitate such transitions, such as urban regeneration. Urban centres are important to community revitalisation, and they are more likely to attract knowledge-based industries than remote sites.

A further insight from this case is that regional economies of the future should not be designed to look like the economies of the past. This means economic and employment strategies should avoid casting about to find a new industrial panacea to replace the industries in decline. Swinney and Thomas (2015) suggest

strategies for areas in industrial decline should centre on: (i) improving the overall skill level of the workforce, to allow workers to gain skills needed to participate in knowledge-based economies; (ii) supporting innovation through clustering and place-specific knowledge networks; and (iii) encouraging density of employment while also dealing with land remediation of former industrial sites.¹⁰⁷

3.3. Closure of major steelworks in Newcastle, Australia

Between 1914 and 1980, heavy industries – including coal mining, steel production, electricity generation (from coal), and shipping – came to dominate the economy of Newcastle and the surrounding Hunter region. However, in the early 1980s, a combination of low global demand for steel, increased competition from Asian steel producers and growing community concerns about air pollution led to production decline. The Broken Hill Proprietary Company (BHP), owner of the Newcastle steelworks, started to decommission its blast furnaces in 1982. In 1997, the company announced that steel production would close in 1999.

When declining profitability first became a concern in the 1980s, BHP's initial response was to restructure its operations, with financial support from the federal government and with the collaboration of the trade unions.¹⁰⁸ This laid the ground for a more cooperative relationship between BHP and the unions, which would later prove invaluable to a smooth closure of the site. Though restructuring increased productivity, competitiveness continued to decline. Meanwhile, Newcastle – mirroring other parts of Australia at the time – changed from a heavily industry-based to a more service-based economy.

In 1992, the New South Wales state government had established a new authority, the Honeysuckle Development Corporation (HDC), to help redevelop and revitalise inner-city Newcastle. This urban renewal effort to help stabilise the city thus began well before the closure announcement. In 1996, before the closure announcement, the steelworks itself had established a joint Transition Steering Team (TST). This consisted of representatives from BHP management, labour unions, and other (non-union) employees. In the wake of the announcement, the TST played an important role in negotiating redundancy packages and redeployment benefits for workers. It also helped develop and promote the highly successful “Personal Pathways” programme, a series of individual, employee-tailored measures that included support services for retraining and finding new employment, and for financial planning and mental health needs.

Outside the steelworks, a joint “Common Purpose Group” emerged to provide community leadership. The group included representatives from regional development, business development, research and educational institutions, industry and labour unions. It served a key role in developing a vision for the city and surrounding region, identifying investment priorities, and mediating with government and BHP to mobilise financial resources. This channelled support for workers and the region. Within this process, the University of Newcastle helped devise strategies for economic diversification and employment. Though it played an important role during the closure period itself, this community-led effort to coordinate an economic development strategy did not persist long after closure because of fading commitment from leading participants and funders.

When the steelworks closure was announced in 1997, the state government established an Economic Development Office and initiated an Economic Development Strategy for the Hunter Valley region. An assistance package, the Hunter Advantage Fund, provided land for various new manufacturing ventures (also supported by the fund) and coordinated studies for development of a new container port on the steelworks site.¹⁰⁹ Importantly, most of the actual strategies were devised at the local level, with lobbying and financial support from BHP itself. Participants in the process suggest that the state government's effectiveness increased when it shifted its role, from positioning itself as the leading proponent to serving as a supporting participant in the transition process.

The outcome for workers was remarkably positive. Around two-thirds of the BHP workers made redundant at closure reportedly found re-employment. The unemployment rate in the region actually dropped, and the workforce participation rate (especially women's) increased in Newcastle and the region. Further, the nature of manufacturing in the regional economy shifted towards higher-skilled, value-adding industries, mainly small businesses.¹¹⁰

Despite these successes, not all outcomes were as positive. Patterns of social exclusion have persisted. The character of employment in the region has changed because a significant portion of the expansion in jobs came through casual, part-time, low-paid, and temporary positions. Moreover, redevelopment of the former steelworks site has not proceeded as the community and local authorities had envisaged and hoped. While some development has taken place, most of the land remains idle. Residual contamination

may have negatively affected sales and put off potential lenders.¹¹¹ Several years after steelworks closure, responsibility for the site and remediation of contamination was transferred to the state.¹¹² BHP provided some financial resources for the clean-up, but the state had to make up the difference – meaning that some environmental clean-up costs fell on taxpayers.

This case study highlights some key factors that contributed to what is widely viewed as a positive transition process. These include establishing local, multi-stakeholder governance mechanisms, taking an innovative and committed approach to supporting workers and involving educational institutions. The case also illustrates the importance of taking advantage of any available lead time prior to closure. The foundations for economic diversification were set up over a period of 15 years; the two years between BHP's announcement of closure and the plant's eventual shutdown provided time to implement programmes for workers, and to help the community articulate a strategy for future economic development.

Another important lesson is the need to carefully evaluate the roles played by governments at various levels. Public finance and government policy levers are crucial, but the interests of governments may not always align with local economic development priorities and visions. Government support needs to respond to, and properly target, local needs. This case study also shows the transition's reliance on champions: people within the community, the company itself, and political leaders, who played key roles in driving the transition. Lastly, the dissipation of community-led development initiatives after closure suggests the value in establishing mechanisms that can sustain these initial efforts over time, particularly given that these initiatives played a positive role during the initial transition phase.

3.4. Decline of the Free State Goldfields in South Africa

Large-scale gold extraction started in the Free State Goldfields (FSG) in what is now the Matjhabeng municipality, Free State Province, in South Africa after World War II. With the gold boom of the 1970s and 1980s, the economy of the region grew to rely on this sector. However, a combination of external and internal factors led to the rapid decline of the gold industry from 1989 onwards. The decline had profound environmental, demographic, economic and social impacts across the province.¹¹³ The downturn proved to be particularly difficult for women due to increased gender-based violence and limited access to capital or land.¹¹⁴

In the wake of the collapse of the mining sector, the mindsets of local authorities and people in general remained focused on the return of mines; this impeded realistic transition planning. Still, some measures were put in place to encourage economic diversification. The cornerstone of the municipality's response was the creation of the Free State Goldfields Development Centre (FSGDC) in 1992. Created jointly by neighbouring towns and the private sector, the centre aimed to attract new investment, support new economic activities and find new ways of generating jobs.¹¹⁵ The FSGDC included representatives of seven municipalities, the mining companies, organised business, parastatal organisations, black business organisations and the regional services council. It first focused on marketing the region's potential for setting up new, secondary industries and on supporting entrepreneurs from the informal economy in formalising their businesses. Incentives included free industrial sites and free administrative services, subsidies for loans and rents, and discounted tariffs for water, electricity and waste disposal.

However, local factional politics undercut the FSGDC's efforts and the centre itself dissolved in 2004 following changes in the municipal legislation. While the FSGDC was rather successful in its initial years, the longer-term results are mixed. The considerable number of jobs created represents only a fraction of jobs lost. Big projects did not materialise and many small firms ultimately failed. Contributing factors include the difficulty of obtaining land, and poor management of public services and infrastructure, which have hindered private investments in the region. In addition, no policy or measure addressed the gender-specific consequences (such as lesser access to land and capital and increased gender-based violence).

Meanwhile, the national government has adopted a blanket approach across the whole mining sector through the *Mineral and Petroleum Resources Development Act* (2002). The act introduced Social and Labour Plans (SLPs) as a prerequisite for obtaining mining rights; SLPs aimed to tackle the socioeconomic problems associated with mining and mine closures and to support integrated planning between municipalities and mines. There was little guidance, however, addressing how to manage downscaling. SLPs have also failed to improve collaborative planning in mining.¹¹⁶ In the absence of coordination, no local or regional strategies could coherently steer the financial resources of mining companies towards high-priority investments for mining regions.

Despite this rather bleak picture, the FSG community and economy also demonstrate a capacity for resilience. Efforts to decentralise public services provided new employment opportunities in the area. Thanks to its central geographical location and the infrastructure legacy of the gold boom, the area has played an increasing role in providing services to the broader region, notably in terms of trading, education, health and some manufacturing industry.

The private sector played an important role in new economic activity, although through independent, rather than collaborative efforts.¹¹⁷ Non-mining companies, many of them part of the mines' supply chains, managed to diversify core activities, or found new regional or national markets for their products and services.

Overall, efforts to navigate the transition have encountered significant obstacles. Among them are political rivalries that impeded the functioning of development agencies and eroded trust between key players; the transferability of the industry-specific skills base of many of the workers who were made redundant; and insufficient support from the national government, both in terms of providing funding and nuanced, place-specific strategies. Poor local governance, especially weak leadership, and the absence of effective and integrated local-level planning have been key barriers to positive change. The environmental legacy of the sector constitutes not only a threat to the health of people and the environment, but also a constraint on future economic development. The absence of effective social safety nets has exacerbated the negative effects of industrial decline.

As with previous cases, the FSG case illustrates how a local, convening organisation outside government can play a key role in transitions. A dedicated entity – established locally and afforded the flexibility to work across policy and legal frameworks, and in creative ways – can be a key driver of the transition process. Nevertheless, all levels of government should be involved. Multi-stakeholder collaboration and planning are needed, which may in turn require incentives and capacity-building strategies. For instance, helping local authorities strengthen their capacities for engaging with strategic planning would be a valuable focus for transition support.

This case also offers some lessons on potentially successful economic regeneration strategies. Investments are needed to ensure that urban management systems remain functional; municipal governments may need support with municipal debt to ensure this happens. Addressing the management of basic services in urban areas is a critical step towards instilling public confidence and attracting private investment and businesses that underpin any prospects for urban regeneration. Furthermore, regional centres should build on services (for example, in education, trade and health sectors) that they can provide, rather than focusing on “big ticket” projects. Land management should create conditions for private sector-led local development, with clear land zoning regulations and a functional administrative system for land management to encourage investment.

4. Conclusion

Transitions are an intrinsic feature of human development, and they generally entail gains that largely outweigh losses. Alas, the distribution of costs and benefits can be uneven, and there is no guarantee that winners will compensate losers. The deep economic restructuring linked to fighting climate change requires an unprecedented effort in terms of resources, timescale and global nature. While the vital need for the transition is widely acknowledged, resistance is found among certain communities, notably those that are impacted most by it. Without measures to promote a transition that is “just”, resistance is likely to undermine the ability to move at pace on the green transition.

The good news is that there is ample historical evidence from deep structural changes not dissimilar to the green economy transition which offer some insights into easing the process and reducing painful consequences (in number and duration).

Examples of success normally include early planning and wide involvement of affected communities – not forgetting civil society and trade unions – as well as clear roles and responsibilities for the different levels of the administration. Municipalities are often at the centre of the action. The setting-up of agencies and other structures solely dedicated to the implementation of multi-dimensional plans is often reported as a positive experience.

Alongside passive labour force measures (such as early retirement and compensation schemes), upskilling, reskilling and job relocation services are deployed everywhere, and tend to be more effective when designed and implemented in coordination with educational centres, private businesses and the sectors in decline. Mental health support and financial counselling are newer approaches, which can add to the success of relocation and decrease the stress linked to changing jobs.

It is important to expand the offer of training and job relocation to workers and individuals beyond those that are directly working in the company that is closing, since businesses along the value chain are often smaller and more vulnerable. Equally, the closure of a large industry may trigger the entry of new members of the community into the labour market; these people also need to be trained so that they can take up the new jobs.

Another lesson from historical analysis is that the closure of a large company or industry will rarely be replaced by another large company or industry. A more usual scenario is the emergence of multiple smaller businesses and entrepreneurs in a range of sectors – tapping into the strengths of the workforce, infrastructure and natural resources (including land) of the area. A one-size-fits-all plan will therefore not work, and fiscal measures that channel advantages mainly to large corporations may not show the best outcomes over the longer term – although they may trigger some impactful temporary relocations.

Past cases of transition in mining areas suggest that promoting tourism and construction (including energy and infrastructure) can help generate new jobs in the short term. However, policies prioritising sectors that create more jobs may not lead to long-term, sustainable outcomes when compared with those that have a less directional approach and are more reliant on inherited regional capabilities and the relative comparative advantage of the area.

The green economy transition is a source of opportunities that regions in decline should not miss. Renewable energy is posited as a natural destination for former miners because of the similarity in the skill set required and the ease with which mining land can be converted into a renewable energy site. However, recent empirical evidence indicates that employment potential can be significantly restricted by the resource potential of the site and by the relatively low ratio of jobs per unit of output. Therefore, it is crucial to expand the range of options and tap into other green or sustainable activities: buildings, agribusiness, sustainable tourism, environmental remediation, and so on.

In some cases a “managed retreat” of part of the workforce to more prosperous regions may be appropriate, although there is limited knowledge about what measures enable that retreat to be well managed.

Environmental legacies, including proper remediation and rehabilitation of former industrial and mining sites, remain a widespread challenge that – if not fully implemented – generates negative environmental and health and safety impacts. It is also a deterrent for new activities and populations. It is therefore crucial to set up appropriate regulations and resources for cleaning up and preparing the sites for reuse.

Lastly, the role of infrastructure and the quality of life in the regions in decline should not be underestimated. This points to the need to preserve and reinforce vital assets and services –

including digital connection – so the regions concerned remain attractive for existing and prospective population and businesses.

On the basis of the EBRD's analysis, the Bank's operational response to just transitions should incorporate a series of considerations, notably the need for: strategic planning for impacted communities; governance structures and state capacity to implement just transition actions; and a holistic approach to regional economic development to create viable short-term and long-term solutions for local populations who are affected.

Interventions that build on current EBRD expertise could include:

- supporting carbon-intensive companies to help them diversify their core activities and use more sustainable alternatives where feasible. This diversification would include the conversion of stranded assets (for example, coal to solar). The support would also encompass hard-to-abate sectors where there may be few realistic low-carbon alternatives and therefore investments may be directed towards expanding the technological frontier. It should cover SMEs that are part of the value chain, as they typically have a much lower capacity for conversion and for the management of a crisis.
- strengthening investments in climate change projects – both in mitigation and resilience – as a source of new economic opportunities and employment. Aside from power-sector renewables, investments could flow into other areas such as green buildings, district heating with renewables, and sustainable transport.
- supporting the remediation and rehabilitation of land and other assets, without weakening local or national regulatory requirements.
- strengthening the EBRD's involvement in programmes that provide reskilling opportunities to workers and communities affected by closures, in cooperation with the industry, the wider private sector and educational institutions. The EBRD, through its programme of economic inclusion, could design both short-term and long-term solutions for those impacted.
- offering tailored support for promoting new and growing SMEs, as well as for entrepreneurs. The EBRD already has programmes that provide SMEs and entrepreneurs with access to finance and technical assistance. These initiatives will remain important in regions that are in transition, as will efforts to further facilitate the emergence of aggregators for small-scale projects.
- financing infrastructure, where this would support economic development in an impacted region. Investments could focus on increasing connectivity between carbon-intensive regions and surrounding regions, and on rural-urban connectivity. Support for urban renewal and the prevention of decay can play an important role in maintaining or building positive sentiment in the private sector, which can create a positive feedback loop in terms of investment.
- using the transition to address other inequalities, for instance, those linked to gender, age, ethnicity or disability. Support measures should be targeted in a way that avoids transferring higher cost burdens to the poorest members of society. In practice, this means identifying and understanding current social inequalities.

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