



International experience of implementing revitalisation projects on former mining and industrial sites

Lessons for the project “Revitalization of the closed Coal Mine Brzeszcze Wschód [East] with its surroundings”

START Final Report

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Introduction

This report identifies lessons and insights for revitalization of the former coal mining site of Brzeszcze Wschód [East]. The analysis is based on a desk-based review of literature pertaining to the repurposing of former industrial sites and analysis of brownfield site regeneration in Belgium, Czechia, Ireland, Latvia, the United Kingdom, and Poland. Adoption of international analysis and comparison facilitates broader comprehension of policy options, opportunities, challenges, and good practice. Given the unique Polish economic and institutional context, the international cases are circumscribed in their transferability. Even so, these varied examples can facilitate and assist the actors involved in the revitalization of Brzeszcze Wschód [East] to validate, refine and/or reassess their approach to the site's redevelopment in a wider frame of practical and tested reference.

After a short context setting section, the report identifies the scope and themes of the analysis. In turn, a brief top-level review of literature relating to repurposing and revitalisation of brownfield sites sets the scene for eight varied but relevant cases from across Europe. Subsequently, the lessons and insights from these cases are collated and summarised according to the themes noted earlier in this report. The eight cases are:

- Alexandra Dock, Humberside (UK)
- Dolní Vítkovice industrial complex (Czechia)
- František Industrial Zone, Horní Suchá (Czechia)
- Gliwice Coal Mine (Poland)
- Limburg's coal mining sites (Belgium)
- Ludgate Hub, Skibbereen (Ireland)
- Mūkusala district (Latvia)
- Ravenscraig steel mill, Lanarkshire (UK)

Finally, the authors of this report recognise the analysis, preparatory planning and partner engagement that has already been undertaken for the revitalization of Brzeszcze Wschód [East] and the ambition that exists to create a more diversified future for the site. It is the hope of the authors that this report will help to further develop and refine this ambition.

Context

Brzeszcze is a community located in Western Małopolska, with a population of circa 12,000 residents. In connection with the development of heavy industry (i.e., mining and metallurgy), the town underwent dynamic economic and social changes in the 19th century and the beginning of the 20th century. Coal mine operations began in 1903 and intensified coal mining activities over the next decades led to an increase in population and the expansion of the town's infrastructure. For almost 120 years, the economy of the Brzeszcze area has been based on mining activities (coal, together with sand and gravel pits), providing work to entire families, and reinforcing the mono-industrial aspect of the area. Compared to other municipalities in the largely industrialised subregion, Brzeszcze municipality has one of the least diversified economies in Western Małopolska.

The subregion of Western Małopolska, which has a population of circa 550,000 persons, is experiencing a demographic crisis, with a negative migration balance, negative population growth, and an aging community. It is also an area where job losses are anticipated in the near future, as hard coal production and use are expected to decline in the Upper Silesian Coal Basin. Consequently, Western Małopolska was designated as a Strategic Intervention Area in the Voivodeship Development Strategy "Małopolska 2030".¹

Western Małopolska borders the Silesian Voivodeship, and shares strong social (e.g. family relationships), economic (e.g., commuting to work and schools in nearby towns) and cultural connections, which also reflect the penetration of the mining culture and traditions as well as the similarity of the economic structure (presence of larger industrial plants and operation of hard coal mines, with the resulting narrow industrial employment profile).² Western Małopolska's strong economic ties with neighbouring Silesia Voivodeship are exemplified by a large percentage of taxpayers who live in Western Małopolska but have their tax declarations issued by the Silesia Voivodeship; for example, in Oswiecim County, where Brzeszcze municipality is located, the share of working population employed in Silesia (based on the tax declarations) is 33.5%.³

The process of economic development and energy transformation in Western Małopolska is aligned to

¹ <https://www.fundusze.malopolska.pl/download/program-regionalny/Fundusz-Sprawiedliwej-Transformacji-dla-Malopolski-Zachodniej.pdf>

² https://www.malopolska.pl/file/news/2021/2021_03_11_Zal_1_Zalozenia_TPST_MZ.pdf

³ <https://www.fundusze.malopolska.pl/download/program-regionalny/Fundusz-Sprawiedliwej-Transformacji-dla-Malopolski-Zachodniej.pdf>

the goals of the national “Strategy for Responsible Development until 2020 (with a perspective until 2030)”, in particular in regard to “Specific Objective I - Sustainable economic growth increasingly based on knowledge, data and excellent organisation” and “Specific Objective II - Socially sensitive and territorially balanced development”. The energy transformation process in Western Malopolska is also fully aligned to the three pillars of the Poland’s energy policy until 2040:

- Pillar I - Just transition (including transition of coal regions, energy poverty reduction, new industries related to renewable energy and nuclear energy)
- Pillar II - Zero-emission energy system (including local and community energy)
- Pillar III - Good air quality (transformation of heating, electrification of transport)

Energy transformation activities of Western Malopolska and Brzeszcze are also closely aligned with the objectives of the National Plan for Energy and Climate for 2021-2030 and the Polish National Plan for Reconstruction and Resilience, which contain specific objectives in the following areas

- Improving the energy efficiency of the economy
- Increasing the use of renewable energy sources
- Adaptation to climate change and limiting environmental degradation - in particular, sustainable use of the natural environment, green transformation of cities and functional areas, reduction of the environmental impact of large-scale degraded areas.

At the regional level, Western Małopolska is designated as a Strategic Intervention Area under the Voivodeship Development Strategy “Małopolska 2030”. Finally, development of the region’s investment attractiveness through support for development of investment areas and repurposing of post-mining and post-industrial areas for industry and services is one of the recommended specific objectives of the Malopolska Territorial Just Transition Plan.⁴

Summary of the project for revitalization of Brzeszcze Wschód [East] coal mine

The project envisages the revitalisation of the closed Coal Mine Brzeszcze Wschód [East] and its surroundings (including extractive wastes facilities and municipal waste landfills) based on the principles of a circular economy and climate neutrality. The project partners include the municipality of Brzeszcze (municipal agency), the mine restructuring company (SRK), private energy companies (Tauron, Węglokoks) and other private entrepreneurs, alongside a ‘heritage’ foundation (FRMPA-B)⁵ and university (AGH)⁶.

The project foresees the development of three functional zones, that are harmonious to the presence of historically significant facilities and infrastructure, and compatible with the site’s land and property characteristics. The three proposed zones are:

- **Industrial heritage adaption zone** formed around the facilities of the Andrzej III and Andrzej IV Shaft complexes and accompanying infrastructure (e.g., boiler room, railway tracks, loading station etc.) The infrastructure has historical, artistic, and scientific values, and their importance is increased by the fact that prisoners from the Jawischowitz sub camp worked at the site during the German occupation. The intention is to develop a mix of exhibition functions and facilities for visitors and entrepreneurs, with accompanying interjoining public spaces. The site intends to attract visitors from the Auschwitz-Birkenau State Museum (the site attracted 2.1 million visitors in 2017) that is located only a short distance from a Brzeszcze.
- **Entrepreneurship zone** based on both the adaptation of historic and newly built facilities, and adaptation of the facilities of an existing small business zone to a circular economy and carbon neutral model. The aim of this aspect of the project would be to enhance the development potential and diversification of the commune, through attracting investors and strengthening entrepreneurship.
- **Energy and environment zone** which would

⁴ https://www.malopolska.pl/file/news/2021/2021_03_11_Zal_1_Zalozenia_TPST_MZ.pdf

⁵ Fundacja Pobliskie Miejsca Pamięci Auschwitz Birkenau - Foundation of Memory Sites near Auschwitz-Birkenau.

⁶ Akademia Górnicza o Hutnicza im. St. Staszica w Krakowie - AGH University of Science and Technology in Cracow.

encompass a combination of photovoltaic farms on reclaimed land (mining and landfill areas), a methane recovery plant, and rehabilitation of land for recreation purposes and cultivation of plants. The aims of this aspect of the project would be to diversify energy and heating sources and increase energy efficiency of project facilities and residential buildings based on use of renewable sources and, also, to improved biodiversity and enhance landscape values.

Scoping and thematic coverage

The Initiative for Coal Regions in Transition has developed a range of toolkits and good practice reports addressing topics that are highly relevant to the project for revitalization of Brzeszcze Wschód [East] coal mine. Notably, these include toolkits on transition strategies, governance of transition, and environmental rehabilitation and repurposing.⁷ Accordingly, the present document is intended to be complementary to these resources.

With respect to the cases reported here, we have sought to avoid repetition of examples already reported by the Initiative while, also, selecting (international) examples that are pertinent to the situation and characteristics of the Brzeszcze Wschód [East] coal mine revitalisation project. Specifically, example cases have been selected that display similarities in terms of :

- **Socio-economic situation:** projects in regions with a similar level of economic development or challenge as Western Malopolska, with limited industrial diversification, and facing decline of traditional industries.
- **Multidimensionality:** projects of a scale that involve multiple components, multiple actors, and multi-scalar engagement/governance.
- **Temporal perspective:** projects that deliver a range of benefits over the long-term.

The example cases have also been selected and described with reference to some key themes. These themes include:

- **Strategic approach:** projects that are aligned with strategies for the transition from traditional industries and increased diversification of local economies, which also illustrate alternative pathways to change and revitalisation.

- **Governance and partnerships:** projects that illustrate different governance structures for developing and implementing revitalisation projects, while recognising the important role of stakeholder/community engagement.
- **Planning and delivery:** projects that illustrate capacities to effect change and provide solutions to overcome constraints at the local level for initiating, planning, and delivering revitalisation projects.
- **Funding:** projects that illustrate the respective roles of public and private financing of revitalisation projects but show, also, how public administrations can cooperate with the private sector and incentivise private investment.

These themes are returned to and elaborated in the penultimate section on ‘Lessons and insights for Brzeszcze Wschód [East]’. A final section on risk assessment and mitigation concludes the report.

Insights from repurposing and revitalisation literature

Rehabilitation and repurposing of former mining and industrial sites is an important aspect of mitigating the negative economic, social, and environmental impacts of transition in industrial and coal-dependent regions. Effectively repurposing of brownfield sites can create unique post-closure opportunities. Finding new uses for land and physical assets (infrastructure), which create opportunities for subsequent economic activities, can foster economic diversification and create new employment possibilities that can be a basis for a successful just transition in coal-dependent regions. Relevant literature indicates several key recurring factors for effective rehabilitation and repurposing, as noted below.

Understanding the situation and context

Experience indicates that decisions regarding the repurposing and future reuse of former mining sites and infrastructure need rigorous evidence-based deliberation. The potential for successful repurposing and reuse will be influenced by a range of factors, including the characteristics of the site itself (e.g.,

⁷ https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/resources_categories?field_resources_categories_tid=15500&=Refine+results

type of infrastructure, architecture, and landscape ecology), together with the regional and local planning context, and applicable regulatory frameworks and environmental considerations. It will also depend on understanding expectations and current and future needs of stakeholders, including affected communities, and regional, national and international investors.⁸ In short, the revalorisation of brownfield sites is enabled by broad and detailed contextual understanding.

Vision setting

The planning of environmental, economic, and social revitalisation in post-mining areas demands long-term commitment and a common understanding and consensus between key stakeholders.⁹ Ideally this should be articulated in the form of a common long-term vision that sets out the ambitions – in terms of objectives and desired outcomes – for repurposing/redevelopment of the brownfield site. Achieving a common vision will require cooperation among the public sector, developers and investors, landowners, citizens, and other concerned actors which, in turn, can be facilitated through stakeholder consultation processes, including the locally affected communities.

Stakeholder consultation and engagement

Effective stakeholder consultation requires conducting a stakeholder analysis early in the overall redevelopment/re-purposing process to identify relevant parties and to clarify their roles (e.g., initiator, actor, beneficiary, financier, disadvantaged, authority, regulator, and interest group), and their responsibilities/powers, interests, objectives and liabilities. Moreover, to build the needed support for brownfield regeneration, it is important for the stakeholders to know from each other what are their respective roles, responsibilities and interests/expectations.¹⁰

At the preparation stage, stakeholders can be consulted to gather initial development ideas, to identify common goals and possible conflicts, and to weigh potential risks.

Subsequently, a central goal of stakeholder engagement can be to facilitate co-creation activities to achieve an agreed common vision for repurposing/redevelopment of the site, to jointly address conflicting issues, and to draft development plans. As plans are finalised, bringing stakeholders together should facilitate the commitment of stakeholders to the transition plan, reinforce political leadership and responsibilities for implementation, and increase public awareness and acceptance.¹¹

Options identification and assessment

Former mine sites may be repurposed for many different uses and typically large sites will be re-used for more than one purpose.¹² Evaluating repurposing alternatives for former mining and industrial sites requires thinking broadly about possible re-use options. However, before options can be developed and assessed, a preliminary analysis of the site characteristics should be conducted, including ownership, wider socio-economic context, and the policy and institutional environment. This should establish whether the site is amenable to repurposing, or to certain types of repurposing. Moreover, it should identify those domains within the site that are available and suitable for repurposing as, in some instances, not all domains can be repurposed.¹³

Typically, a phased approach to brownfield redevelopment involves the following steps:¹⁴

- Collection and evaluation of environmental, economic, and social data, which aids in the selection of sites and repurposing/reuse options which best align with local or regional redevelopment strategies.
- Pre-feasibility analysis, which includes a first assessment of the redevelopment potential of the site, and engagement with local communities and other stakeholders to understand their perspectives and interests.
- Feasibility analysis, which concerns the precise estimation of costs, the identification of financing and investment arrangements, and clear

8 Finucane, S. J.; Tarnowy, K. 2019. New uses for old infrastructure: 101 things to do with the 'stuff' next to the hole in the ground in AB Fourie & M Tibbett (eds), Proceedings of the 13th International Conference on Mine Closure. Australian Centre for Geomechanics: 479-496. https://papers.acg.uwa.edu.au/d/1915_40_Finucane/40_Finucane.pdf

9 Union of the Baltic Cities' Sustainable Cities commission and Nordregio. 2018. Towards integrated and partnership-based planning of brownfield areas https://www.balticurbanlab.eu/sites/www.balticurbanlab.eu/files/materials/baltic_urban_lab_guide_english.pdf

10 http://www.zerobrownfields.eu/HombreTrainingGallery/HomePage/HOMBRE-D3.1_final_DecisionSupportFramework.pdf

11 Union of the Baltic Cities' Sustainable Cities commission and Nordregio. 2018. Towards integrated and partnership-based planning of brownfield areas https://www.balticurbanlab.eu/sites/www.balticurbanlab.eu/files/materials/baltic_urban_lab_guide_english.pdf

12 Holcombe, Sarah; Keenan, Julia. 2020. Mining as a temporary land use scoping project: transitions and repurposing. Centre for Social Responsibility in Mining. Brisbane: The University of Queensland. <https://www.mineclosure.net/media/resources/352/mining-as-a-temporary-land-usefinal200318-f.pdf>

13 http://www.icmm.com/website/publications/pdfs/closure/190107_good_practice_guide_web.pdf Tool 4

14 Ionescu-Heroiu, Marcel. 2010. The management of brownfields redevelopment: a guide. World Bank. <https://documents1.worldbank.org/curated/en/754171468295822120/pdf/550090WP0P118011PUBLIC10brownfields.pdf>

understanding of redevelopment concepts.

- Implementation, involving an iterative process of remediation and redevelopment, and usually also includes monitoring and site marketing.

In the first step, in addition to characteristics and conditions of the site *per se*, information on the local context and characteristics should be collected to inform the identification and/or design of potential site repurposing and reuse options. Such information can assist in assessing if potential repurposing and reuse options are compatible with the location's characteristics and the attractiveness of the site/location for different reuse options. Site repurposing should not be designed and implemented in isolation, but it should be placed in the wider socio-economic context of the concerned area, including market supply and demand conditions at the local, sub-regional, and when relevant regional or national levels.

In a wider context, a local or regional planning approach for brownfield redevelopment may be required to ensure that site-specific rehabilitation and repurposing targets and plans correspond to regional land use needs and to factor-in the overarching planning context. Such an approach can support a more focussed effort, such that rehabilitation and repurposing efforts can be aligned with local or regional needs and capacity requirements in terms of, for example, land productivity, ecosystem functionality, urban development, or renewable energy development drivers.¹⁵

Pre-feasibility and feasibility assessment of repurposing plans for the post-mining and industrial sites should consider the underlying economic viability of rehabilitation and repurposing activities, which is affected by a multitude of factors, such as¹⁶:

- The direct and indirect cost of site rehabilitation (including environmental remediation of contaminated land, water systems and infrastructure) and repurposing activities.
- The expected revenues (or return on investment) from site rehabilitation/repurposing, that will be affected by post-remediation land values and envisaged or potential end-use(s) of the site.
- The fiscal environment, especially regarding national and local taxes and perceived risk of fluctuations.

- The type of financing model for site development and associated financial risk.
- Agreements and potential cooperation between development partners (e.g., site owner, site developer, public administration)

Assessing nature and level of public support and investment

Evaluating the trade-off between costs, revenues and risks provides a basis for assessing the baseline economic viability of the site and the potential need for and scale of public interventions. In general terms, brownfield sites – and different redevelopment options for the site – can be categorised according to their economic/financial viability. The viability will determine the required level of public support (e.g., scale and intensity of public funding):

- Level 1: Private sector investment is viable or likely to be in near term. Public intervention should typically be limited to information provision, advice, and marketing. However, joint ventures with the private sector can be relevant where these aim to share commercial returns, or to enhance/facilitate achievement of public policy outcomes, or to create public goods (e.g., shared infrastructure).
- Level 2: Returns on investment may allow marginal private sector activity (for example, for certain sub-components of the site and/or in combination with supporting public investments for rehabilitation activities and infrastructure provision). Equally, there may be potential for stimulating private investment in the short to medium term through financial support and other instruments (e.g., grants, concessions, soft loans/guarantees).
- Level 3: Private sector-led investment is unlikely, therefore public investment is the principal funding modality.¹⁷

Conclusions from the literature

The literature reviewed above indicated several common factors for effective rehabilitation and repurposing which actors engaged in rehabilitation of brownfield sites should pay attention to. Firstly, planning of repurposing of post-mining and post-industrial areas demands a long-term commitment and a common understanding between key stakeholders. To reach a consensus among stakeholders, stakeholder

¹⁵ Hattingh, R.; Williams, D.J.; Corder, G. 2019. Applying a regional land use approach to mine closure: opportunities for restoring and regenerating mine-disturbed regional landscapes in AB Fourie & M Tibbett (eds), Proceedings of the 13th International Conference on Mine Closure. Australian Centre for Geomechanics: 951-968. https://papers.acg.uwa.edu.au/d/1915_75_Hattingh/75_Hattingh.pdf

¹⁶ Adapted from CABERNET (2006)

¹⁷ Adapted from CABERNET (2006)

consultations and engagement should be conducted to build the needed support for brownfield regeneration. Secondly, evaluating repurposing alternatives requires careful assessment of the site characteristics such as ownership, wider socio-economic context, and the policy and institutional environment. Finally, to determine economic viability of the site, and hence potential need for and scale of public interventions, evaluation of the trade-off between costs, revenues and risks should be carried out.

Insights from repurposing and revitalisation projects

After an initial scanning of approximately thirty revitalisation projects in Europe, eight cases have been selected for analysis. These cases are varied in nature but offer practical and relevant insights and lessons for the revitalization of Brzeszcze Wschód [East]. Each case provides a:

- The title and location
- A brief description of the revitalisation case and why it was selected
- A short overview of notable outcomes
- Key process lessons / features

The eight cases are:

- Alexandra Dock, Humberside (UK)
- Dolní Vítkovice industrial complex (Czechia)
- František Industrial Zone, Horní Suchá (Czechia)
- Gliwice Coal Mine (Poland)
- Limburg's coal mining sites (Belgium)
- Ludgate Hub, Skibbereen (Ireland)
- Mūkusala district, Riga (Latvia)
- Ravenscraig steel mill, Lanarkshire (UK)

Redevelopment of Alexandra Dock, Humberside (UK)

Alexandra Dock was a 56-hectare brownfield site in the Humberside region of England, an economically challenged area with a history of industries associated with carbon-based energy production. In 2014, Siemens, along with Associated British Ports, announced a €350 million investment to develop the site. The investment was focused on the transplantation of new technologies relating to the manufacture of offshore wind turbine blades.

The case is relevant given the area's transition from a dependence on carbon-based energy to renewables; and the role of the private and public sectors working in partnership to enable brownfield site redevelopment, economic diversification and job creation based on importing new technologies to the area.

Since 2014, the investment has directly created over 1,000 jobs, assisted the development of the renewable energy supply chain in the region, reduced the area's economic dependence on carbon-related industries, and given the region a new national and international profile conducive to attracting new investments related to energy transition.

The Siemens investment was dependent on the local authority and a large local landowner and employer (Associated British Ports) seeking new technologies that could assist the area's economic development. In partnership, they identified offshore wind energy as a small market but one with significant growth potential given changes to national regulatory and subsidy regimes. In turn, they targeted a potential investor, Siemens. Associated British Ports (ABP) agreed that it would invest over EUR 150 million in site repurposing works at Alexandra Dock if Siemens would locate there, recognising that this initial (ABP) investment would be recovered in future rental charges.

However, a critical reason for Siemens choosing the Alexandra Dock site as compared with other brownfield and greenfield sites on the east coast of England, which also had Enterprise Zone incentives, was the use of local planning powers to simplify and expedite the construction of Siemens' manufacturing facility. Associated British Ports, the site owner, had previously sought and been granted planning permission for reconfiguration of the site. This speculative, forward-looking act ensured that the site was well placed for rapid redevelopment compared with other English sites. In addition, the local authority, after the signing of a Memorandum of Understanding with Siemens and ABP, put in place a streamlined planning process which

ensured outline planning consent for the Siemens facility was given within months of the investment announcement being made, without the detailed plans of the factory being finalised.

Sources:

- <https://greenporthull.co.uk/>

Revitalisation of Dolní Vítkovice industrial complex (Czechia)

Dolní Vítkovice is a national site of industrial heritage located in the Vítkovice district of Ostrava in the Czech Republic where coal was mined, and pig iron produced between 1828 and 1998. The site includes an extensive industrial area, Vítkovice ironworks, and a unique collection of industrial architecture. Over the past decade, an investment of EUR 80 million, financed via a mix of EU structural funds, state subsidies and private capital, revitalised Dolní Vítkovice area. The site is currently the second most visited cultural site in Czech Republic after Prague (in 2017 it attracted over 1.5 million visitors).

This case is an example of successful transformation of a former mining and industrial complex into an educational, cultural, and social centre with an international reach. It demonstrates that building a strong stakeholder engagement strategy around prominent initiators and developing a shared vision are key elements in the process of successful conversion of industrial heritage.

In terms of impacts, the repurposing of Dolní Vítkovice led to creation of new businesses around the services linked to the revitalisation of the industrial complex and generated new jobs within individual projects in the areas of creative industry, digital agenda, tourism and science. Tailored programmes for schools and other educational and interest groups were also created which attract a wide range of visitors to the site. Currently Dolní Vítkovice complex consists of:

- Science and Technology Centre located in the former energy station and in a new purpose-built building (the only one in Dolní Vítkovice). The centre has more than 100 interactive exhibits which explain science and technology in an entertaining way.
- Congress Centre for 1,500 people constructed in a 100-year-old disused gas tank.
- Bolt Tower where a former blast furnace, which represents the historic continuum of pig iron production, provides a viewpoint over Ostrava town and the nearby area.

- Creative Centre Hlubina hosted in the former operational and administration buildings. The Centre is a multi-genre cultural centre with cinemas, music rehearsal rooms and recording studio, presentation rooms, dance rooms and a climbing wall.
- Triple Hall Karolin, which originally served as a power plant supplying electricity to neighbouring ironworks, mines and industrial facilities, is now a sports and leisure centre.
- Lanek Park which contains a mining museum, a sports and recreation area, including a camp and catering facilities.

The revitalisation of Dolní Vítkovice illustrates how adaptive re-use of industrial heritage requires leadership, cooperation of various stakeholders (e.g., politicians, private sector, universities, and local communities), as well as creation of a common vision. The revitalisation process of Dolní Vítkovice, was originally initiated and driven by the private site owner, a local entrepreneur, who signed a memorandum with the National Heritage Institute and engaged renowned architects to broaden the vision for the site, which led to increased stakeholder engagement. An adequately skilled and resourced implementation team - that was put in place with the capacity to conceptualise, plan, design and manage large projects and find synergies - has also been a crucial element of the success of revitalisation of Dolní Vítkovice. Over the years, the revitalisation has involved carrying out dozens of projects in various fields, which have been guided by the common vision for the site and have progressively assigned new functions to the original structures.

Sources:

- https://nws.euocities.eu/MediaShell/media/MORAVIAN_SILESIA_REGION_Doln_V_tkovice.pdf
- https://ec.europa.eu/energy/sites/ener/files/documents/5_lessons_from_czech_republic_regeneration_of_the_lower_area_of_vitkovice_moravskosleszky_region_daniel_konczynna_bepartner_co.pdf

František Industrial Zone, Horní Suchá (Czechia)

The František Industrial Zone is located in Horní Suchá on the site of the former František coal mine. After closure of the coal mine in 1999, and after metal thieves had stripped much of the buildings and engineering plant, the municipal authorities set about developing a modern industrial zone on the site. The site was

transferred to municipal ownership in 2005, and with support from national and European funds, the František Industrial Zone was officially opened in 2010 with further development activities on the mine site continuing up to the present day.

The case is relevant, as it demonstrates how the determined efforts of a local administration can drive successful redevelopment of a former mining site to meet local needs. There are several relevant learning points:

- The development of František Industrial Zone is an example of a successful municipality-led brownfield redevelopment of a former mining site. It illustrates the difficult position of the municipality, especially in the initial stages, to secure cooperation of the original site owner to develop a regeneration project aligned to local needs. Mainly, the need for municipal action came from necessity, given the absence of other stakeholders able or willing to lead the process. In turn, the persistence from the local administration in pursuing its ambitions for the site, also in dealing with funding applications given their limited capacity, was essential.
- The alignment of development objectives of the municipality and the mine closure and rehabilitation company (DIAMO), together with regulatory change allowing the free of cost transfer of the site to the municipal administration, were important for ensuring the conditions in which a municipality-led redevelopment project was feasible.
- The project would not have been possible without the substantial funding available from the public sector, both for initial remediation of the site and subsequent investments to develop the industrial zone. The municipality was among the first regional governments in the Czech Republic to utilize the subsidy program for regeneration of land, which was subsequently supported also through the Operational Programme and Structural Funds.
- The project has successfully attracted businesses and created local employment opportunities, including during the construction phase which helped to take persons out of (long-term) unemployment. The fact that the project won a prize for “Brownfield of the Year” also helped with the promotion of the site and the attraction of businesses.
- Development of the site has been an ongoing process, with the initial 14 ha industrial site being expanded over the years. It has also become,

in recent years, an illustration of a shift from traditional industry (coal) towards new energy technologies (Li-ion batteries).

Due to Czech government regulations, operations at the František Hard Coal Mine terminated in 1999. In common with the wider Ostravian coalfield region that was afflicted by mine closures and declining iron production, the town of Horni Sucha was facing industrial decline and high unemployment. To counter this adverse situation, the municipal authorities formed the intention to build an industrial zone on the site of the closed František mine. Initially, these efforts were frustrated as the municipality was unable to reach an agreement with the private owner of the site. However, this situation improved in 2002 when the site was acquired by the state-owned enterprise DIAMO, which had a responsibility for liquidation and remediation works of former mining sites and that undertook costly demolition work on the František site. Following negotiations between the municipality and DIAMO, and a change in the law that allowed for transfer of the site for free (a symbolic payment was made), the site was transferred to municipal ownership in 2005. In this regard, it helped that both DIAMO – as a state enterprise – and the local administration shared the same goals of reducing unemployment and revitalising of the former mining area. Meanwhile, essential reclamation works around the site covering an area of over 120 hectares was completed at the end of 2010, which was followed by further maintenance work and environmental reclamation.

The development of the František Industrial Zone was assisted when it was selected by the Czechinvest agency as one of 5 brownfield pilot sites for a study on potential future uses. Based on this study, the Horni Sucha municipal administration employed a private design company to elaborate pre-project documentation for submission of a grant project proposal for funding from EU Structural Funds. Meanwhile, finance for construction of infrastructure came from the Ministry of Finance from funds set aside to revitalize the Moravian Silesian region after mining and metallurgic activities finished in 2009.

Due to the presence of remnants of mining activities (e.g., mine shaft and protected security zones) requiring continuous access for monitoring and maintenance, the site was not suitable for utilisation for a single large investment project. Accordingly, the project development plan envisaged that the mine area would be divided into different areas (units), an approach which also allowed for existing infrastructure to be used to link together smaller units. This was also in line with the original intention to create an industrial zone primarily for micro, small, and medium enterprises. The project involved *inter alia*:

- reconstruction of administrative buildings with funding support from the Operational Programme ‘Industry and Business’ (circa. CZK 20 million / EUR 0.71 million); and
- construction of a new production hall (circa 2,000 m²) with a combination of funding from EU structural funds (circa CZK 20.6 million / EUR 0.74 million), the Operational Programme ‘Industry and Business’ (circa CZK 6.8 million / EUR 0.24 million), and from the municipal budget (circa CZK 12.6 million / EUR 0.45 million).

The František Industrial Zone (circa 14 ha) was officially opened in 2010, creating employment for about 300 persons in the approximately 25 businesses on the site. In the same year, the František Industrial Zone won the prize for “Brownfield of the Year”, in a competition run by the Ministry of Industry and Trade and CzechInvest. Further investment in construction on the site continued thereafter, with an expansion of the initial area and the creation of a František II development zone (circa 30 ha) and a further 30 ha with development potential. The ongoing development of the site is being undertaken by a private real estate company (the Asental Group) in cooperation with the Horní Suchá municipality.

In the short term, the industrial park did not generate revenues, requiring the local municipality to subsidise operations.¹⁸ However, the site has continued to attract a range of small and medium sized manufacturing businesses, for which there was some preference to attract domestic companies. More recently, at the end of 2019, the first Li-ion battery came off the newly constructed production line of the Magna Energy Storage factory in the František Industrial Zone. The production line, representing a total investment of circa CZK 1 billion (EUR 35 million) by the Battery Unite Fund, will have an initial annual production capacity of 1.2 gigawatt-hours of batteries after being put into full operation. Eventually, production could be expanded to an annual production of 15 gigawatt-hours, which would make it one of the largest battery factories in the world with the potential to employ over a thousand workers within the next five years. In 2021, in another interesting development, and a reversal from its former use, Magna Energy Storage has treated the mining elevator tower – which could not be demolished because of its proximity to other buildings – with a photocatalytic coating developed by Czech scientists that should turn it into the largest air purifier in Europe.

¹⁸ Information on the municipal website (<https://www.hornisucha.cz/industrial-zone-frantisek>) indicates that annual costs and revenues for the industrial zone have stabilized at about CZK 5 million. However, this information seems to date from 2010.

Sources:

- <https://www.hornisucha.cz/industrial-zone-frantisek>
- http://fast10.vsb.cz/bribast/document/handbook_EN_final.pdf
- https://www.okd.cz/en/media/press-releases/attitude-to-land-reclamation-has-been-changing-golf-courses-an?FfArticleItem_page=14
- <https://oze.tzb-info.cz/akumulace-elektriny/20083-he3da-priprava-vyroby-v-horni-suche>
- <https://fn-nano.com/2021/01/29/largest-air-purification-tower-in-europe/?lang=en>

Transformation of the Gliwice Coal Mine (Poland)

The “New Gliwice” Business and Education Centre GAPR Ltd. is located a short distance from the city centre of Gliwice on the site of the former Gliwice Coal Mine and is an example of the repurposing of a complex of mining buildings. One of the negative consequences of the restructuring processes of traditional industrial sectors, especially the coal mining industry in Silesia during the 1990s, was the appearance of strongly degraded post-industrial areas and facilities. Inhabitants located in the vicinity of these sites were also threatened with social exclusion due to imminent structural unemployment. Reclamation and development of post-mining and sites through the introduction of new economic and social functions, which in turn stimulated job creation, was considered particularly important to overcome the challenges caused by restructuring.

The case “New Gliwice” is relevant as it demonstrates that with the right enabling conditions, it is possible to implement a comprehensive revitalisation project; involving a combination of activities related to the redevelopment of post-industrial facilities with the simultaneous support for small and medium-sized enterprises and higher education.

Carried out between 2005 and 2009, the “New Gliwice” project concerned two components: reclamation and revitalization of circa 16 ha of land, and the modernisation of 4 buildings. The cost of the project was €24 million, including €9.5 million of support from European Structural Funds. The revitalised area and facilities are divided into two zones: education and business. The project provided:

- Office spaces with an area from 30 to 100 m²
- Investment areas
- 10 training rooms that can accommodate from 16

to 70 people

- 5 auditoriums that can accommodate from 78 to 301 people
- Exhibition area of 235 m², which can be arranged according to the exhibitor's needs

Currently, "New Gliwice" hosts 45 companies from sectors such as electronics, energy, telecommunications, IT, and aviation.

The success of "New Gliwice" is due to several factors. The "New Gliwice" site is conveniently located a short distance from the city centre, and close to important motorways. Companies investing in this area have access to the local labour market and qualified personnel educated at the Gliwice University of Technology. They can also benefit from the proximity of potential business partners located in the Silesian agglomeration. The "New Gliwice" site itself, in addition to office space and investment areas, also offers business an attractive place for the organization of large conferences, training sessions, workshops, trade fairs and exhibition initiatives as well as small business meetings and presentations. Finally, the "New Gliwice" site and facilities are all managed by a single entity, the Upper Silesian Agency for Entrepreneurship and Development Ltd.

Sources:

- https://tracer-h2020.eu/wp-content/uploads/2020/07/D2.4_Factsheet_Nowe-Gliwice.pdf
- Gumienny, Józef, and Tomasz Szulc. „Nowe Gliwice–studium przypadku rewitalizacji terenów pokopalnianych.” *Problemy Rozwoju Miast* 3 (2013): 57-67.

Redevelopment of coal mining sites, Limburg (Belgium)

In Limburg seven large coal mines had a profound impact on the development and character of the local economy and communities. The discovery of coal in 1902 led to very rapid socio-economic and industrial development in what was primarily a rural region. The coal mines were in effect the socio-economic *raison d'être* of central Limburg in the twentieth century. Therefore, the reconversion and repurposing of the mining sites following their rapid closure, between 1985-1989, was of critical importance.

This case demonstrates the need for policy makers to adopt a long-term, integrated regional perspective to site repurposing and the need for a combination of bottom-up and top-down approaches and the active involvement

of communities. Moreover, it emphasises the need for co-ordination, specialisation and complementarity across municipalities when developing several regional brownfield sites.

The seven mining sites have now been successfully repurposed to accommodate new economic functions, although much still needs to be done. Each site has a specialised economic purpose, thus minimising duplication and displacement of investment and economic activities across the seven sites. Hundreds of new jobs have been created through development of diverse economic activities, for example, in relation to energy and clean technologies, tourism, art and culture, business start-ups, research and education.

During 1993 and 1994, Limburg municipalities organised and co-ordinated a programme of study days to engage and mobilise local communities. This programme of engagement facilitated bottom-up vision building. Conferences and seminars at which experts could explain new concepts and opportunities were coupled with working group meetings through which creative ideas could be developed and tested by and with residents. This transparent and collective process had strong political input from the mayors of Limburg who adopted a consultative and collaborative approach to joint working. In turn, a Regional Platform (1994 to 2000) was established through which the mayors and the municipal authorities could discuss development problems and share solutions both formally and informally. This collective dialogue and consultation were particularly important for assessing the re-use of mining assets and understanding the opportunities offered by these assets at the regional level. The Regional Platform enabled the municipal authorities and potential project promoters to adopt a pragmatic and informal and yet successful approach to "multi-site master" planning: one central theme per mining site.

The redevelopment of former mining sites was subsidised, inter alia, by a €217 million grant pledged by the Flemish government, which made it possible to develop an extensive investment plan. The government also provided tax incentives and subsidies for companies and academic institutions to work in the area. To finance these subsidies, an Integrated Territorial Instrument (ITI), which made it possible to also use multiple EU Funds (ESF, ERDF and the Cohesion Fund), was developed.

Each of the seven mining sites identified a unique theme that would drive the development of the site and contribute to both local and regional place development, diversification, inclusion and profile. This focused approach promoted a targeted use of resources, whilst minimising duplication, mutual conflict and rivalry (e.g., in terms of attracting investment). Furthermore, this new

regional development approach and narrative could be communicated to higher authorities and could assist co-ordinated, effective lobbying for national and EU funds. The unique themes of the seven sites are:

- Beringen: history and heritage (museum) and leisure (Leisure & Retail)
- Eisden: nature development (national park with climate research centre), leisure & retail
- Houthalen: “cleantech” linked to a business incubator
- Waterschei: energy (with research and training centres)
- Winterslag; culture (arts, theatre halls, cinema, higher art education)
- Zolder: “sustainable construction” education, training and research
- Zwartberg: art and biodiversity

In addition, three region-wide themes were identified and progressed: 1) the redevelopment of a disused railway line connecting the seven coal mines; 2) the natural development of regional slag heaps; and 3) the region becoming a national tourist destination based on industrial heritage.

Sources:

- <https://dtek.com/content/files/kris-baeckers.pdf>
- https://ec.europa.eu/energy/sites/default/files/documents/genks_ongoing_transition_-_platform_for_coal_regions_in_transition_.pdf

Redevelopment of derelict commercial property, Ludgate Hub, Skibbereen (Ireland)

The Ludgate Hub is a digital co-working space for young professionals and SMEs. It is in a repurposed former bakery and cinema in the town of Skibbereen, a relatively rural community of 3,000 in the south of Ireland. Skibbereen was selected as a pilot town by a joint venture company between ESB (a state-owned electricity company) and Vodafone to deliver a 100% fibre-to-the-building broadband network and to install for the first time in an Irish rural town 1GB of internet connectivity. Since its establishment in 2014, the Ludgate Hub has created many quality jobs in a small community and created a national profile for the town.

The case demonstrates that the innovative adoption of new technologies, in this case ICT, linked to

the repurposing of old commercial buildings, in relatively small, peripheral economies, can facilitate entrepreneurship, diversification and place development and competitiveness.

The Ludgate Hub offers hot desk space for 75 workers, private offices and meeting rooms for mobile workers. Together with the office space, and the opportunities for networking, mentoring and events, the Hub has attracted 55 full-time members (entrepreneurs and young professionals) and created 146 jobs. 15 of the members moved to the area with their families. The Hub has also stimulated over 3,000 bed nights for local tourist businesses through its activities. The initiative’s success has led to the development of Ludgate 2.0, an expanded version of the original Hub.

Before the project, Skibbereen had poor broadband provision and some areas had no fibre connection. Skibbereen was the only town in the region without an e-centre or an enterprise park and had limited opportunities to encourage or accommodate incoming mobile workers. In 2014, a steering group was established - comprising local entrepreneurs and business owners (representing professional services, retail, tourism, agriculture etc.) and digital ambassadors (all volunteers) - to transform the derelict commercial premises into a state-of-the-art digital co-working space. The steering group worked for 18 months to develop the concept and used local expertise (much of it pro bono) for financial and legal advice, and the networks and contacts of steering group members for mentoring, marketing and technical support. In addition, the local chamber of commerce promoted the town and the initiative through a dedicated website. By developing this local vision, capacity and momentum, the town was selected as a pilot by a joint venture company between ESB and Vodafone to upgrade the local broadband network and to install 1GB of internet connectivity.

Sources:

- <https://www.ludgate.ie/>

Revitalisation process of Mūkusala area, Riga (Latvia)

Mūkusala area is a former industrial territory included in the protection zone of the UNESCO World Heritage Site “Historic Centre of Riga”. The area is characterized by a strong commercial, industrial and corporate identity that throughout history has been displayed through value creation in various forms: from woodworking and agrarian industrialization of the 19th century to industrial manufacture and workshops during the years

of the planned economy. Since the 1990s, while retaining its industrial image, the area has searched for a new identity. Over the past few years, a steady transformation of brownfield areas into office and business spaces has led to significant employment growth in the area. However, the potential of the area has not been used to its full capacity and, to overcome this situation, the city of Riga organized a student competition to find new ideas for the development of Mūkusalā site.

This case is relevant as it demonstrates how innovative methods can be used to actively engage local stakeholders in the revitalisation process to overcome the lack of a coherent development vision. It also shows how urban planning can be improved by developing and testing new integrated planning approaches and Public-Private-People partnership models.

Various approaches have been used to consult and involve stakeholders in the revitalisation process, such as surveys of local inhabitants and entrepreneurs, events to raise awareness, and co-design workshops with landowners, entrepreneurs, and inhabitants. A novel approach was to organise a student competition to find new and fresh ideas for the development of the area. The student teams were tasked with coming up with a development proposal for a pilot site, taking into consideration the results of baseline analysis and the feedback and ideas collected from different stakeholder groups. All student proposals emphasized the development potential of the Mūkusalā territory by visioning it as a multifunctional urban environment that would be liveable for residents, prosperous for developers, and exciting for visitors.

Drawing on all three student group competition proposals, the Development Department of Riga City Council City prepared an Action Plan that serves as a key driver for development and the basis for a cooperation platform to encourage stakeholders to implement activities. The Action Plan sets out both public and private stakeholder responsibilities for redevelopment of the Mūkusalā area and defines a timescale of short-term (until 2022), medium term (until 2027), and long term (until 2050) activities. The activities are categorised into seven thematic areas: a new recreational space in Riga; mobility; infrastructure; common placemaking; strengthening communities; free time and leisure activities; and contemporary planning and management. In addition to the Action Plan, the main outcome of the revitalisation process has been to activate stakeholder groups, which are now more interested to promote Mūkusalā district development and cooperate with each other to implement activities included in the Action Plan.

Sources:

- <http://www.balticurbanlab.eu/goodpractices/brownfield-revitalization-social-process-%E2%80%93-case-m%C5%ABkusala-riga>
- <http://www.balticurbanlab.eu/goodpractices/student-competition-planning-method-brownfields-riga>
- https://www.balticurbanlab.eu/sites/www.balticurbanlab.eu/files/mukusala_area_development_concept_business_knowledge_and_community_summary.pdf

Redevelopment of Ravenscraig Site, Lanarkshire (UK)

Ravenscraig is a 485-hectare brownfield site in Lanarkshire, Scotland, an economically challenged area with a history of heavy industry. The site contained the largest steel mill in Western Europe, which closed in 1992 with the loss of thousands of local jobs. The industrial buildings and infrastructure on the site have been removed, and significant land rehabilitation works undertaken. Redevelopment of the site is being advanced in stages and is progressing gradually. The aim is to create a new town with a mix of residential, educational, commercial, and sporting/leisure facilities.

This case is relevant as it demonstrates the utilisation of local and regional demand to stimulate development involving a mixture of site uses. It also illustrates the potential need for long-term planning and the requirement for the public sector to act as a partner to the private sector and as an anchor investor in a weak local economy / property market.

Over the past decade, investment of EUR 250 million has led to the establishment of a further education college, a world-class indoor sports centre, and a community centre on the site. In addition, 1,000 homes have either been developed or are consented and significant green space is being developed. Another EUR 370 million has recently been announced for creation of a major private sector logistics hub and an upgrading in road access and linkages to the motorway network.

Working in close partnership with the local authority, Ravenscraig Ltd published a mixed-use masterplan for the site in 2006. This provided a vision and planning framework for the creation of a new town. In turn, the plan facilitated national, regional and local government investment in the site, delivering enabling road and transport infrastructure and two key public anchor investments, a new college for the area and a sports

centre of excellence. The master plan also generated wider community buy-in and transparency. The master plan is now being revised to accommodate changing economic circumstances and regional and national demand and ensure complementarity with the region's wider spatial development and competitiveness.

Although it is three decades since the steel works closed, redevelopment is partial and far from complete. It is an outcome that emphasises the need for patient, long-term partnership working between the public and private sectors when redeveloping a large brownfield site. Finally, it should be noted that much of the related socio-economic activities and benefits may well have occurred at other locations in the wider region. However, by focusing key investments at Ravenscraig, one of the largest brownfield sites in the UK is being transformed by a critical mass of diverse developments.

Sources:

- <http://ravenscraig.co.uk/>

Lessons and insights for Brzeszcze Wschód [East]

As noted earlier, the report's authors would like to acknowledge the analysis, preparatory planning and partner engagement that has already been undertaken in relation to the revitalization of Brzeszcze Wschód [East]. Even so, case analysis and comparison (and the preceding review of literature) can facilitate broader comprehension of potential policy options, opportunities, challenges, and good practice. The lessons and insights generated by this research can assist partners involved in the revitalization of Brzeszcze Wschód [East] to validate, refine and/or reassess their approach to redevelopment in a wider frame of practical and tested reference.

Strategy Development

Long-term vision: It is evident that a vision which is based on a realistic forward-looking assessment of strengths, opportunities and challenges is critical for creating vital consensus, commitment and co-operation amongst multiple stakeholders across different scales (local, regional national and EU). Realism should not mean a lack of ambition for a brownfield site. All the cases attempted to deliver site repurposing that was exceptional in character and notable at the regional and national levels, whether that was in relation to creating

a European hub for green energy manufacturing, creating a national and international tourism attraction, delivering world-class business premises and office facilities in urban and rural locations, or building a new town. However, the success of each project was based on a profound understanding of the site's assets and liabilities, the multi-scalar socio-economic environment¹⁹ in which the site was set and evidence-based foresight of changing economic demand and the drivers behind such change.

Demand - determining what is an asset: All the cases demonstrate the need for comprehending potential demand at the local, regional, national and international levels for the specificities of an individual site to understand its mix of potential assets. A key lesson is that market demand is not contiguous with administrative boundaries. Project developers should identify and engage with opportunity beyond the local level. All the cases examined framed their projects in the wider regional, national and/or international contexts. This is a critical lesson for Brzeszcze given its proximity to Silesia.

Demand, whether from public, private and social actors, not only utilises a site's assets but can also revalorise latent assets (many of which are in effect liabilities such as vacant buildings, disused transport infrastructure, legacy utilities). The cases demonstrate how dormant assets can be revalorised by linking them to demand and broad socio-economic drivers of change. Moreover, the cases illustrate how unique heritage, culture and identity can be active assets that enable site repurposing.

Foresight: The success of most of the cases was based on an understanding of not only the past and the present but also the future. By understanding changing consumer and demographic patterns a new town was constructed and new world-class tourism and leisure facilities created. The early recognition of emergent green technologies and a deep understanding of related value and supply chains facilitated the repurposing of old industrial sites as green manufacturing sites. Prescience regarding the importance of excellent digital connectivity as a driver of local economic business and change, allowed derelict historic buildings to have a new lease of economic life.

Site ownership is vital: A credible vision and strategy for redevelopment must secure the commitment of the site owner. A development actor can have an excellent plan for repurposing a brownfield site but unless there is active support from the owner, the plan will not succeed. For example, the owner may demonstrate a rent seeking

¹⁹ Economy and society functions on number of interacting geographic levels (scales): local, regional, national, international.

behaviour or may have a vested interest that militates against the wider public good. Therefore, the cases indicate that either a site owner should be the promoter or instigator of the strategy and its implementation (e.g., acting in a developer role) or be in partnership with the public, private and/or civil partners to create and implement the strategy. Alternately, the site could be transferred to pro-active development actors.

Proportionate, site-specific ambition: All the site strategies were proportionate to the potential scale of opportunity; calibrating ambition, planning and resourcing with site specificities and demand. Strategies were tailored to the scale of a site and its characteristics, proximity to markets, level of connectivity (motorways, maritime waterways, ICT), and probable level of end-user demand and / or investor interest. Also, strategies were developed in line with available funding. Thus, some sites were developed to accommodate local / regional functions, whilst others had national and international functions.

Strategic Fit: All the selected cases recognised that success was conditional on ambitions, policies and activities at other geographic levels. Even the smallest of the cases recognised the need to nest its strategy for repurposing in the wider regional, national and EU goals of public and private actors. Moreover, the successful regeneration of most of the sites was contingent on explicit alignment of local bottom-up strategy and top-down regional, national and EU plans. Furthermore, all the cited examples recognised wider policy, regulatory and technological inter-dependences, and determinants in their planning. By explicitly seeking strategic coherence with other actors, project promotion, lobbying and funding were enabled (see also section on Communications and Profile).

Large-scale site repurposing exhibits a high level of multi-scalar conditionality i.e., what happens outside the locality of the site, whether at the regional, national and international levels will affect the success of its redevelopment. Therefore, developers must understand and where possible influence these other scales (e.g., non-local public and private actors and institutions).

Minimise regional competition and duplication via regional co-ordination and specialisation: The case of the simultaneous redevelopment of seven coal mining sites in Limburg demonstrates the benefits of regional co-ordination. To avoid the multiple brownfield sites competing, thereby leading to duplication and the waste of scarce public resources, each site developed a unique function and proposition to take to investors and funders. This also promoted a complementary and region-wide approach to regeneration that gave Limburg greater influence and profile at the national and EU levels. The whole was greater than the sum of its parts.

In such cases, the potential co-ordinating role of a regional authority (such as a Marshal's Office) or regional agency is evident.

Pathways of change

Mechanisms for valorisation: The cases demonstrate that site repurposing is contingent on site-specific assets being valorised by private, public and social actors. Just as a variety of actors are involved in this process, so too are a range of often interacting mechanisms, including:

- Technology transfer, either in the form of radical new technologies (e.g., green energy technologies) or state-of-the-art generic technologies (e.g., ICT).
- Transplantation of international (foreign direct investment) and national enterprises as a means of site valorisation.
- Entrepreneurship as a means of repurposing sites and buildings via business growth, start-ups, spin-offs and diversification.
- Social development to initiate and drive revalorisation e.g., housing, heritage and culture, educational and leisure facilities.

These mechanisms are not mutually exclusive. However, their activation is often controlled by different actors operating in differing socio-economic domains (a point that will be returned to later in the paper). Thus, it was evident from the cases that in some instances public investment acted as the catalyst for mechanisms to be activated, especially in more marginal economies, whilst in other instances, the private sector represented the initiator.

Enabling investment – a pre-requisite for wider leverage: All the sites required enabling investment(s), in addition to the costs of site rehabilitation, either in terms of an anchor function(s), the provision of utilities, enhancements to connectivity (physical and virtual) etc. Such enabling investments were proportionate to the scale of the site and the related opportunity. In some cases, the enabling investment was provided by the public sector (e.g., access road infrastructure, a regional college), a private sector actor (e.g., a landowner reconfiguring a site for the needs of a specific investor) or a partnership between national and international public and private actors (e.g., to provide state-of-the-art ICT connectivity).

Governance: leadership, influence, and partnerships

Whether viewed from a regional perspective, or at the level of individual sites, redevelopment and revitalisation of former coal mining areas requires interventions of multiple actors and at multiple levels. The CRIT Initiative's governance of transitions toolkit²⁰ describes many of the key elements of good governance in the context of coal regions, emphasising the elements of leadership, power and influence, and alignment of governance with strategy formulation and policy cycles.

Actors and leadership: Governance of transition can be a top-down led process, with national or regional administrations determining the policy agenda and controlling the transition programme and funding. However, as many of the examples show, regeneration can be driven by the actions initiated by local actors, such as the directly affected local administrations (e.g., Horní Suchá) or the site owners (e.g., Dolní Vítkovice, Humberside). In these cases, the proactive leadership of local actors was instrumental for creating the momentum that led to eventual successful regeneration outcomes. While individual leadership – whether by site owners or government bodies – is undoubtedly an important factor in regeneration efforts, it is worth noting that leadership can come from a variety of stakeholders, such as trade unions, NGOs, citizen groups, or business associations. Where these different stakeholders come together to develop and implement projects, we can see the emergence of distributed leadership governance models. On the one hand, the direct engagement of a wider range of stakeholders can sustain wider buy-in and societal acceptance of strategies and projects. On the other, it can provide a means to strengthen and widen capacities for project development and implementation. Such an approach can be seen in the case of Skibbereen, where a multi-stakeholder steering group was adopted to develop the redevelopment concept and mobilise necessary expertise and technical support.

Power and influence: The design of an appropriate governance structure depends on the powers available to regional and local administrations and other actors, which are strongly dependent on the specific multi-governance institutional framework in which they belong. In general, development of a governance structure requires an understanding of political and institutions roles and responsibilities for transition – in terms both of setting transition goals and objectives and for implementation of transition actions – but also the power structures and roles of different actors to

influence and affect the implementation of transition strategies and actions. For example, as noted earlier, the success of redevelopment and revitalisation projects is typically conditional on relevant policy frameworks and plans at regional, national, and even EU levels. Conversely, the feasibility of specific projects may be subject to very local or regional spatial planning rules and permissions. Similarly, as discussed earlier, activation of different mechanisms to valorise different aspects of a site's specific assets, may require intervention or, at least, coordination of actors working in many different socio-economic domains (e.g., economic, technological, culture & heritage, employment, education, environment, social and welfare, etc.).

While it may not be feasible to involve representatives from across all government levels and relevant policy domains, it is important that project governance structures are cognisant of these diverse frameworks, and how and by whom these frameworks can be influenced; in order to set realistic ambitions that are aligned to policy and funding objectives, and planning and regulatory requirements etc. Obviously, there will be cases where it is advantageous to formally involve certain actors in the governance structures, for example by including them in formal partnerships (below). Alternatively, cooperation may be secured through other forms of agreement. For example, in the Dolní Vítkovice case, the private investor signed a memorandum with the National Heritage Institute to secure cooperation for the repurposing technical heritage for new uses. Similarly, in the Humberside case, the site owner and the lead investor signed a Memorandum of Understanding based on which the local authority implemented a system to expedite planning permission.

Partnerships: Effective governance requires recognition of vested interests and potential power imbalances that may be detrimental to achieving desired broader economic and social transition outcomes. This may be addressed through implementation of a partnership model that provides for cooperation based on an agreed vision and objectives, and allocation of roles and responsibilities. As noted earlier, for example, developing partnerships with the site owner can be important for effective, mutually beneficial governance of transition projects. Partnerships can also provide a mechanism for widening the knowledge base and capacities available for project development and implementation. An appropriate partnership model will depend on a variety of factors, including legal and financial obligations and liabilities, level and type of commitment, and mutual trust/confidence. The examples presented in this report illustrate several different models:

- The case of Ravenscraig provides an example of a

²⁰ https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/resources/governance-transitions-toolkit_en

formal public-private partnership arrangements through the creation of a **joint venture**.

- The Mūkusala-Riga case illustrates an effort to widen governance through explicit recognition of the public through an inclusive **public-private-people partnership**.
- The Limburg case illustrates an alternative model for engaging with the public, based on a **regional platform** that enabled a trilateral dialogue between municipal authorities, sites owners and potential project promoters. This approach facilitated cooperation between the participants, including among different municipalities, and building consensus over transition themes and priorities.

Community engagement

Giving a meaningful degree of involvement to community stakeholders is crucial to the success of transition strategies in coal regions.²¹ Effective stakeholder engagement helps to build trust and strengthen legitimacy of the governance of redevelopment and revitalisation efforts and is a means to understanding and finding solutions to overcome possible community resistance to redevelopment projects. Importantly, by informing and raising awareness among stakeholders, and enabling them to contribute to shaping strategies and projects, it casts stakeholders – particularly in affected local communities – as agents of change in their communities rather than victims of forces beyond their control. While the cases described in this document feature engagement with a range of stakeholders, the Limburg case and the Mūkusala-Riga case provide notable examples of innovative resident and student engagement methods contributing to successful outcomes.

Planning and Delivery

Capacity to effect change: Capacity provides the means to convert intentions into actions. All the cases examined developed the appropriate and proportionate mix of dedicated human resources, skills and knowledge to make the projects happen. For example, the redevelopment of derelict commercial buildings in a small rural town in Ireland was driven forward by a voluntary steering group comprising local entrepreneurs and business owners and digital ambassadors and utilised local expertise (much of it on a pro bono basis) for expert financial and legal advice. Whereas in larger

scale industrial contexts e.g., in Czechia, Latvia and the UK, dedicated multi-disciplinary teams were assembled to conceptualise, design, plan and manage the related projects.

Regulatory powers to effect change: All the cases required a mix of regulatory powers and permissions to be utilised to allow implementation. Some of these powers - relating to spatial planning, building control, environmental consents, transport infrastructure permissions etc. - were held at the local / regional level whilst others were held at higher government levels e.g., state aids. Therefore, all the cases required a comprehension of what powers local actors had direct control over and what powers they had to understand and influence. Furthermore, in the case of Humberside having planning permissions in place for the site and offering streamlined permitting processes were significant incentives for attracting a large international investor. Permission for a change of site use and streamlined regulatory processes were as important as financial incentives for attracting the investor to the site. Clarity and expediency about regulatory procedures can be a very powerful marketing proposition (see also section on Communications and Profile).

Long-term planning to effect change: It is evident from the cases that redevelopment of a large-scale site, especially in a marginal local economy, is a long-term process that can take decades rather than a few years to achieve. Over such a duration, market and economic conditions and institutional circumstances can change markedly. Therefore, change must be planned in a phased and long-term manner and local partners must be responsive and adaptive as conditions change. For example, a major multi-use, integrated masterplan, from 2006, for the creation of a new town on the site of a former steel mill is now being revised to reflect changes in demand and supply at the regional and national levels and respond to a slower rate of site development. Furthermore, the seven mining sites in Belgium that were closed in the 1980s took over two decades to regenerate with new economic functions (and work is still underway). Therefore, it is important to manage the expectations of local stakeholders regarding the long-term nature of transition.

Resources and funding

Diversity of funding: The cases demonstrate the reluctance of the private sector to be the sole agent in the revitalisation of brownfield sites. This is due to the uncertain costs and timelines associated with brownfield revitalisation and a difficulty in securing capital, as financial institutions are reluctant to provide loans

²¹ Governance of transitions toolkit, *ibid*.

given the higher risk profile of these sites. However, the cases demonstrate that the public sector can develop innovative incentives, assistance and funding partnerships to enable private sector involvement in the rehabilitation phase and/or the repurposing phase. In the case of Humberside, the local council was instrumental in supporting a memorandum of understanding that facilitated rehabilitation of the site by the owner on the understanding that the initial capital costs would be offset by future rental income from the anchor tenant. In Ireland, investment by utility providers (ESB and Vodafone) to provide ICT enabling infrastructure levered significant public funding for the wider project. In several sites, special tax and fiscal incentives were used, often in tandem with other public funds, to stimulate private investment. In the Belgian, Czech, Latvian and Polish cases, the role of EU structural funds in leveraging private sector investment was notable. Access to this EU resource was based on a credible plan for each site. In Limburg in Belgium, an Integrated Territorial Instrument (ITI), which made it possible to use multiple EU Funds (ESF, ERDF and the Cohesion Fund) was developed. The ITI was possible due to the co-ordinated regional approach that was adopted for the development of the seven former coal mining sites.

Financial analysis and sustainability: All the cases had capital and revenue financing implications over the life of the project; and financial risks to be managed and mitigated in the short and long terms. To understand these fundamental determinants of success or failure and the consequences for Cost Benefit ratios and Return on Investment, a rigorous approach to business case planning and management should be adopted. The costs of developing a full business case (e.g., design, professional, legal fees) should not be under-estimated and can represent 10% of the overall project cost.

Comprehending role and level of public investment: What is evident from the cases examined is that the role of the public sector as the funder of the revitalisation process varied and could change over time (e.g., František, Limburg, Ravenscraig). In some of the cases, private sector investment was viable e.g., in relation to residential or industrial investment. In other instances, returns on investment were too marginal to initiate private sector involvement and the public sector stimulated private investment in the short term through financial support via differing funding instruments, legal structures (e.g., joint ventures) and the provision of enabling infrastructure and public goods. However, in a range of instances, especially regarding rehabilitation, private sector-led investment was absent, therefore public investment was the principal funding modality. In these cases, the public sector was the lead investor and carried the costs and risks of initiating the project, to attract private sector investment in the longer term.

Communications and Profile

Targeted communication is vital: All the cases examined illustrated the importance of structured communications regarding site development. Such communication was focused on several groups, including local stakeholders, policy makers and funders outside the locality, and potential private investors and end-users. For each group, messages and propositions were tailored around a central and consistent narrative. For example, for potential private sector investors core marketing messages and propositions were developed and disseminated, relating to issues such as a site's proximity to market, unique infrastructure, regulatory clarity and responsiveness, local labour etc.

Narrative and profile are vital: Development of a credible, coherent and engaging narrative for the future of each site was a key element of the success of the cases examined. Such a narrative promotes the profile of the site to stakeholders outside the locality. It will also encourage wider political and policy support for the redevelopment. Also, such a narrative should fit the wider development of the region. The site's revalorisation should be a game changer for the locality and the wider economy; thereby, the site's redevelopment becomes part of the region's wider development ambitions and plans.

Risk assessment and mitigation for brownfield regeneration

In addition to typical risks shared by most development projects, brownfield redevelopment projects are associated with specific risks, especially those arising from the legacy of the former use(s) of the site.²² This sub-section highlights some of the risks and mitigation measures associated specifically to brownfield redevelopment projects.

Liability and remediation cost issues. Legacy-related issues are most evident in relation to site contamination that could pose a risk to human health or the environment and could expose site owners and

²² This section draws on World Bank (2010), 'The management of brownfield redevelopment: a guidance note'. The Guidance Note is primarily addressed to local or regional public authorities responsible for the management of brownfields in the transition economies of Central and Eastern Europe. It provided inter alia guidance for each project stage (pre-feasibility, feasibility, implementation) along with multiple case studies. The Guidance Note is available at: <https://documents1.worldbank.org/curated/en/754171468295822120/pdf/550090WP0P118011PUBLIC10brownfields.pdf>

developers to legal actions and costs. Uncertainty over the extent and nature of contamination, or over appropriate remediation techniques, introduces additional risks for site owners and developers in relation to remediation costs but also through delays to project implementation. In turn, this may expose lenders to higher risks of default and, consequently, of acquiring sites with little market value. Consequently, potential liability and remediation cost issues can make it more difficult for the public sector to attract private partners to redevelopment projects. In this context, specialist environmental and legal expertise is required both for initial assessment of risks and appropriate rehabilitation approaches. Close consultation among project partners and with other stakeholders is necessary to establish understanding and apportion risks, including in contracts with service providers and, where available, to ensure adequate insurance.

Ownership and related issues. Uncertainty over ownership of a site, particularly where owners have gone into liquidation, is often raised as a significant problem for brownfield development projects. In addition, legal covenants that place restrictions on use of land can be a further source of problems and may make some projects unfeasible. As already noted, commitment of the site owner is a vital component for successful redevelopment projects. However, where the site has multiple owners, including possible mixed private and public ownership, there is an additional risk of owners reducing their commitment or changing their minds during the redevelopment process, which may halt the project or result in delays. Again, legal expertise is required and strong contractual agreements that bind all vested partners to the project.

Regulatory and planning issues. As noted earlier, regulatory powers affecting redevelopment projects may be held at local levels (e.g., spatial planning, building control, environmental consents, transport infrastructure permissions etc.) while others are determined at higher government levels (e.g., state aids). Uncertainty over the regulatory framework, or changes to rules affecting land use plans and/or development schemes may adversely affect project feasibility. Where this is the case, mechanisms should be found to ensure that conditions at the time of signing contracts are maintained through the project implementation period (unless new rules prove to be more favourable).

Industrial heritage. As noted earlier, legacy infrastructure can be a positive asset for brownfield redevelopment, and often we see an effort to preserving industrial buildings – with historical, architectural, and cultural significance – rather than demolishing them for redevelopment. Preservation orders on such infrastructure may limit reuse site options, impose

additional costs for redevelopment, and introduce uncertainty on the approval of redevelopment plans. On the one hand, this may require developers to formulate projects that are sympathetic to the significance of legacy assets. On the other, for example as illustrated by the Dolní Vítkovice case, an agreement of strategic partnership with a relevant heritage organisation may be used to develop positive solutions and reduce potential risks arising from the industrial heritage status of the site.

Social resistance. There may be a variety of factors that drive opposition to redevelopment projects, such as a desire to preserve and/or find adaptive uses for buildings or infrastructure significant to the community, opposition to proposed reuse proposals, or concerns about impacts on health and the environment. This may imply risks in terms of formal and informal opposition actions before or during project implementation, while negative publicity may discourage potential investors and users of the site once redevelopment is completed. As already highlighted, stakeholder and community engagement, together with communication actions, are an essential element for reducing risks of social resistance.

Market risk. Understanding market supply and demand for redeveloped sites and properties – including cases where specific functions/services are foreseen for the site – is essential for evaluating the expected return on investment, and for instigating projects that correspond to current and expected future market requirements. Clearly there are macroeconomic risks, such as a slowdown in the economy, that cannot be influenced at a local level. Nonetheless, economic and real estate expertise may be required to assess market requirements, at appropriate local, regional and even national / international levels. While, as mentioned earlier, targeted communication and a strong narrative can be used to promote the site and positively stimulate demand. Where multiple brownfield sites are being developed, there is a risk of duplication and displacement of investment that reduces the overall contribution to the economy and, hence, return on investment. In this situation, as illustrated by the Limburg case, a coordinated approach across multiple sites can reduce risk for each redevelopment project.