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# How to break down the barriers to transformation

The report zooms into particular case studies and particular innovative actions which help to unlock bigger change in the given location. It scans different types of transformation barriers in coal and heavy industry-dependent regions: political, legal, governance, organisational, social, financial, and others. It also provides a variety of innovative answers given by the agents (champions) of change.

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**How to break down the barriers to transformation**

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# Introduction

## How can we break down the barriers to transformation?

### Welcome on board!

The climate crisis requires a rapid energy transition which entails complex challenges across society, economy, policy, governance, and others. The concept of a Just Transition – transition towards a climate-neutral economy in a fair way, leaving no one behind – was approved in the European Union as part of its social and economic development programme (the Green Deal) and is supported by the Just Transition Mechanism. The approach is also gaining increasing attention across the globe, which was visible at COP27 as well as other high-profile global events.

The report **"How to break down the barriers to transformation"** is part of the Community Lab initiative, a knowledge and innovation reservoir of the Post Coal Future Lab, financed by EIT Climate-KIC. Both initiatives aim to support the Just Transition of coal-dependent regions.

eit Climate-KIC
Co-funded by the European Union

### What is the intention of this report?

This report aims to support the communities facing transition challenges. **It provides knowledge and inspiration, encouraging the testing of new approaches** with breakthrough potential in the fields of governance, stakeholder cooperation, mobilizing resources, and others. It also helps to address complex challenges, allowing blockages to be identified on the way to addressing those challenges.

### Who is it for?

The report shall serve **the communities**, especially their **leaders, innovators and innovators-to-be** interested in Just Transition in various social roles: members of national, regional and local governments, other officials, representatives of academia, non-governmental organizations, activists, creators, trade unions representatives, business and others. The report puts a special emphasis on analysing case studies from the perspective of Central, Eastern and Southern European countries (the so-called RIS scheme), but the logic of analysing the case studies (especially through the diagnosis of the enabling conditions for innovation to happen) can be found useful across the globe.

## What can be found in it?

The deliberate reconnaissance results of collecting and analysing 30 case studies of innovation – understood as new, breakthrough solutions in a given context. These involve mainly solutions which have proved successful over time, but also several promising approaches, which create the opportunity for a breakthrough. Thus, they are worth observing and learning from.

## How can it be used?

The transitions such as phasing out coal or decarbonizing heavy industry are complex in nature (e.g., creation of new jobs, depopulation, need to transform identity, and many others).

Therefore, there are no "silver bullets" to address transition challenges. This means that:

- **There are no single-point solutions** which can allow for the removal of all transformational barriers and enable the change to happen smoothly.
- **There are no "one-size-fits-all" solutions**; each of them has to be tailored to the local conditions, such as political and legal systems, governance models, culture, social engagement, assets, current capabilities, resources available, and others.

Therefore, this report aims to inspire the communities **to build their own paths**, learn from others and learn from a deepened understanding of their own challenges, barriers, and enabling conditions. In other words, to make the intelligence actionable.

Thanks to the **clear structure of the case studies**, the report is easy to navigate according to the reader's needs. The case studies contain:

- a concise description of the **transition challenge faced**,
- specific **barrier(s) to the transformation**,
- **innovative solution(s) applied**,
- the **change** observed and
- the **diagnosis of how and why this particular new solution allowed for the breakthrough**.

Therefore, the reader can easily search for inspirations not only among similar transition challenges, but also among similar barriers on the way to addressing the challenge or among other similar features.

# Case Studies

## How are the cases constructed? Here is the logic

### In the report we describe the case studies as follows

### Challange faced

Transformation from coal to new types of economic activity or transformation of the heavy, polluting industry. In this part, we describe which one it was, and we provide the context (e.g., number of people living in the city/region; number of people affected by the transition, dates of mines / industry closure), as well as consequences (e.g., unemployment caused by the transformation, depopulation, etc.).

### Barrier

Is understood as a blockage / gap on the way to addressing the challenge, affecting the possibilities for transformation. The barriers may refer especially to a lack of appropriate policies, laws, finance, organization, structures (e.g. siloes in administration, existing practices, inadequate collaboration of stakeholders), technology, society, and culture (e.g. mindsets, paradigms, customs, identity).

### Innovative solution applied

Describes a new breakthrough in the context of the city / region / country under analysis. While it does not have to be the first one of its kind in the world, it is the first time the solution has been applied in the particular context and it is tailored to it. Similarly, as with the barriers encountered, the innovations can be different in nature – e.g., political, legal, financial, in governance / organization, technological, social. We do not have an ambition to map out and analyse all the activities of all the organizations and actors engaged in the transformation processes, as this would require a separate publication for each of the case studies. Instead, we focus on a particular meaningful, breakthrough innovation, which can serve as a pathway inspiration to others.

### Change observed

Talks about the tangible effects of the innovative solution applied. To what extent has it addressed the identified barrier(s)? To what extent has it contributed to addressing the challenge?

### Diagnosis
### of how and why this particular new solution allowed for a breakthrough

Focuses on deepened understanding of how the applied solution worked, especially on enabling conditions, supporting the new solution's impact (what were the critical factors that made the solution work?). What is worth noting is that the enabling conditions refer to the same categories as do the barriers – e.g., to proper policies, laws, finance, organization, structures, technology, society, and culture. What is a barrier when malfunctioning can also be an enabling condition to resolving barriers (fixing malfunctions of other types) and contribute to addressing the main challenge, e.g., finance can enable social innovation and social innovation is critical for transitioning to the new decarbonized economy.

### Sources & further reading

This section provides a reference to the information used for the needs of the report. It also encourages readers to dive into the details of each of the case studies described.

## How can we break down the barriers to transformation?

In order to show how the above translates into practice, let us consider the following stylized example. Let us imagine our **challenge** is getting to the 10th floor of a building as soon as possible. On the 2nd floor we face **a barrier**: there is a piece of furniture blocking the passage. The solution can be to find another staircase / elevator, but if there's none, we can, for example, knock on somebody's door and ask for their help to move it. The **observable change** is that after removing the barrier we're not stuck on that floor anymore – we're able to move on with our run to the top. When diagnosing **how and why this particular new solution allowed for a breakthrough**, we can look at the eagerness to help of the person who helped us. This eagerness to help might have different sources, such as compassion, willingness to do some exercise, or maybe monetary compensation (fortunately, we had some money in our pocket). Those are the enabling conditions.

The barriers encountered in the run could be of a very different nature – maybe there was something or someone stopping us, maybe we got injured or our shoelace came untied. In such a run many things can happen and different barriers can occur on the way to the top for different runners, in different buildings. Also, the solutions to them will differ depending on what's available to help resolve the issue. Similarly, the barriers and enabling factors to the Just Transition **differ** across regions and countries.

In this report we study 30 case studies from across the world in order to inspire those who engage with a spectrum of innovative solutions and understanding of the basic enabling conditions which may help to achieve success.

# Belgium

# Limburg region Genk

## The Masterplan in Limburg

Timeframe: 1985-2014

## Challenge faced

For over a century, the main industrial activity in the Genk area has been coal mining, shaping the image and culture of the local society. The production reached its peak in the 1950s with 44,000 employees. However, in 1958, a European wide coal crisis erupted, and production restrictions were imposed. Although the oil crisis of 1973 brought some relief, losses in the mining sector became alarming. In the 1980s, the Belgian government decided to discontinue the financing of the remaining mines on the territory of the Limburg region. To prevent a meltdown of the region, the government's mining council allocated 2.5 million euros to the region and offered the region new development prospects. The miners were offered high severance pay and favourable pension schemes, which made the closure of the Limburg mines smoother. However, the council's allocation did not cover all the financial needs of the transformation. There remained the challenge of attracting new businesses, and there persisted divergent visions of the transformation. The reconversion and repurposing of the mining fields following their rapid closure was to follow in the 1990s.

### Types of barriers encountered and addressed

- **Financial:** insufficient funds
- **Strategic:** reluctance of the companies to locate in the region due to insufficient urbanization
- **Strategic/Governance:** different visions of transformation (pioneer city)

## Innovative solution applied

In 1994, a specialized body called **the Regional Platform** was established, which created opportunities for municipal authorities and project promoters to adopt a pragmatic approach to a **"multi-site masterplan": one central theme per mining area**. Former mining sites redevelopment was financed by the Flemish government, which made it easier to implement the plan. Furthermore, the government provided tax incentives and subsidies for companies and academic institutions to work in the area. To finance the subsidies, the so-called Integrated Territorial Instrument (ITI) has been created. The **Instrument** made it possible **to integrate multiple EU Funds** (ESF, ERDF, and the Cohesion Fund). Each of the seven mining sites identified its own way of development that would drive a change in the area: clean technology, cultural and leisure space, energy- related activities, and others.

> "Multi-site masterplan": one central theme per mining area.

## Change observed

Following the development and implementation of the diverse visons of transformation for the specific mine sites, Limburg has not only revitalized former mine buildings but also contributed to the re-activation of workers in the area. Competitive investment conditions in post-industrial projects are attracting numerous companies that are placing their capital there and contribute to the development through innovation.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

This innovative approach promoted **the targeted use of resources and diversification**, while **minimizing duplication, mutual conflicts and competition** (e.g. in attracting investment). What is also important, the new approach to regional development created a **narrative** which could be communicated to higher authorities. It helped with the coordinated, effective lobbying for national and EU funds, lending support to the multi-funding scheme.

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# China

# Henan Jiaozuo

## Leveraging on nature's beauty – the case of Jiaozuo

Timeframe: 1996-2020

## Challenge faced

Jiaozuo is a city of approx. 3.5 million inhabitants located in the Hanan province in central China. Following the start of anthracite exploitation by the British towards the end of the 19th century, the city went on to become China's third largest coal exploitation center in 1924. After the People's Republic of China saw the light of day in 1949, Jiaozuo became a major site of state-driven industrial development. By the second half of the 1980s, the city accounted for as much as 30% of the country's coal output, with the other industries in its economic mix, in particular steel and machinery, heavily reliant on coal production. The so-called Dutch disease appeared in the city, with the coal-based sectors crowding out capital and labour from other sectors of the economy, thwarting their growth. In the 1990s, however, the coal reserves began to deplete. The coal and coal-dependent industries stalled, and with them, the entire city entered a period of stagnation. By the end of the decade, one in every six employees in the city had lost their job. With the GDP and tax money shrinking, the city also accrued a debt of 1.15 billion yuan (139 million dollars).

### Types of barriers encountered and addressed

- **Environmental:** land degradation, ground, air and water pollution
- **Financial:** municipal debt

## Innovative solution applied

Taking advantage of numerous natural attractions in the area (including the picturesque Taihang Mountains and the Yellow River) and its central location, Jiaozuo has reorganized its economic structure – in particular around tourism. The construction of high-speed railways has shortened the distance between Jiaozuo and the country's important urban centres (including the provincial capital Zhengzhou, reachable within half an hour, as well as Beijing and Wuhan), making it accessible to large numbers of visitors. Investments in municipal services, such as sewage, as well as in other types of infrastructure, like sport centres, have made the city more attractive to live in and to visit. In line with the Communist policy, Jiaozuo's transformation has largely been centrally planned. The city benefitted from **financial compensations, regulatory preferences, and substantial capital inflow**, and it was included in **a major urban development plan** called *Central Plains Urban Agglomeration Plan*.

Taking advantage of numerous natural attractions in the area and its central location, Jiaozuo has reorganized its economic structure – in particular around tourism.

## Change observed

Jiaozuo's many environmental and infrastructural ailments were mitigated as investments flowed in, although there is still much room for infrastructural improvement. With the rise of tourism, redundant employees were redeployed to the new sector, and the image of the city has changed from that of an industrial hub to that of a holiday destination. However, while the machinery and mineral processing sectors continue to contribute substantially to the city's GDP, the services sector is still in an incipient phase of development.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Jiaozuo has **leveraged its geographical endowments, including natural attractions and a convenient, central location**, to reorient its economic structure away from heavy industry and towards tourism. **Targeted investments such as high-speed railways and municipal services improved the accessibility of the city and the quality of life in it**. As a caveat, it must be remembered that many of the policies involved in Jiaozuo's transformation (such as compensations and preferences) have only been possible due to China's highly centralized political system, while their full opportunity cost remains unknown. It should also be noted that the transformation began only after the coal reserves had depleted, which is a different type of scenario than that faced by many other coal regions today.

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# Czech Republic

## Moravian-Silesian region Horní Suchá

### František Industrial Zone – municipally organized a transformation targeting SMEs

Timeframe: 1999-2009

## Challenge faced

Horní Suchá is a small municipality with 4,400 citizens. After the 1989 political revolution the mining industry had suffered in Czechia. While a majority of the Horní Suchá population (2,603 people) were employed in the František Mine, the municipality faced a serious problem of unemployment. In addition to lack of jobs, there was the problem of a devastated industrial area. Moreover, the country was undergoing privatization after the fall of communism, which meant that new roles, ownerships and responsibilities were being defined.

### Types of barriers encountered and addressed

- **Environmental:** the area had leftovers from industrial production, hazardous waste etc.
- **Technical:** presence of mining pits limited use of the whole industrial complex
- **Legal:** lack of law allowing for land takeover by the municipality free of charge

## Innovative solution applied

The municipality took a proactive role. In order to curb unemployment, authorities started to negotiate with the mine owner in 1997, two years before the mine was finally shut in 1999.

A new vision of transforming the mine into a contemporary industrial zone was accepted. In 2002, massive demolition actions started, led by Diamo, a state-owned company, followed by reconstruction financed by national and EU funds. In 2005, **the ownership was transferred from the state to the municipality free of charge**. Regarding technical limitations (the mining pits), it appeared improbable for one investor to operate across the whole area. Therefore, **the municipality decided to target SMEs**. Several buildings were torn down, two of the facilities were reconstructed (the administration building and a health care center rebuilt in residential units), and a new industrial hall with an area of 2000 sq m was built. Furthermore, the surrounding area was recultivated by a private owner (Ostravsko-karvinské doly), and sludge tanks and new ponds were built.

> In 2005, the ownership was transferred from the state to the municipality free of charge.

## Change observed

The Industrial Zone František opened in 2010. Approximately 300 people were employed, which covered around 30% of the campus capacity. Currently, the capacity is occupied nearly at 100% with an ambition to employ 1000 people. Built on a brownfield, burdened with difficult environmental and technical conditions, the municipality made it a modern industrial park. Not to be left out, SMEs in the František Industrial Zone offer jobs to 25% of citizens.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Regarding the historical context, Horní Suchá can be seen as a pioneer for their **proactive approach**. In the 1990s, the Czech legislative system was transitioning to a new state system and **municipalities were selling properties to private investors, rather than keeping them**. In addition to other circumstances, sustainability was taken in consideration, and the reconstruction of brownfield won over the strategy of starting with a greenfield. Despite the budget, which could be seen as derisory (the investment of Kč 150 million/ EUR 6.16 million), the municipality managed to make the František Industrial Zone an inspirational example. In 2009, the František Industrial Zone was named the Czech Brownfield of the Year by the Ministry of Industry and commerce and the CzechInvest Agency.

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# Czech Republic

## Moravian-Silesian region Ostrava-Vítkovice

Dolní Vítkovice industrial complex – a private owner's vision comes true

Timeframe:
2012-2015 (northern part)

### Challenge faced

Since 1828, the city of Ostrava has been known for its coal mining and steel production. From a mostly rural area grew an agglomeration of nearly 1 million citizens. However, when the mines in Ostrava were shut down in 1998 and heavy industry started to decrease, a huge brownfield of 150 ha called Dolní Vítkovice remained in the centre of the city.

### Types of barriers encountered and addressed

- **Financial:** a big investment needed to revitalise the campus
- **Image:** reputation of the city as dirty and polluted
- **Technical/environmental:** state of the brownfield and safety risks

## Innovative solution applied

In 2002, Dolní Vítkovice became part of the Czech industrial heritage list. In 2009, **a new framework program of transformation into a cultural and educational centre** was accepted and renovation works, according to a design by Josef Pleskot, began. Apart from its architectural value, the campus is also unique for the energy supply solution. The revitalization process was originally **initiated and driven by a private site owner, a local entrepreneur** who signed a deal with the National Heritage Institute and on his own engaged renowned architects to broaden **the vision of the site**, which caused increased stakeholder engagement. A crucial part of the revitalisation's success was an adequately skilled team that was put in place with the capacity to conceptualise, plan, design and manage large projects and find synergies. The case of Vitkovice illustrates how revitalization to further re-use industrial heritage requires leadership, cooperation of various stakeholders (politicians, private sector, universities, and local communities). As years went by, the revitalization involved dozens of projects in various fields, which shared a common vision for the area and gradually assigned new functions to the initial structures.

> A crucial part of the revitalisation's success was an adequately skilled team that was put in place with the capacity to conceptualise, plan, design and manage large projects and find synergies.

## Change observed

The industrial complex of Dolní Vítkovice represents a collection of industrial heritage rebuilt into an educational, cultural and leisure centre. The original gas tank was transformed into the Gong Multifunctional Hall, a concert hall with a capacity of 1500 people. The power station was transformed into an educational technical museum for the youth and a new science learning centre was built, followed by the National Agriculture Museum (2020) and MUSEum+ (2022). The campus was officially opened to the public in 2012. Nowadays, Dolní Vítkovice offers ateliers and co-working craft rooms, a cinema, cabaret theatre, a climbing centre, hotel and spaces for various cultural and sporting events. Since the main transformation was completed in 2015, Vítkovice a.s. continues to transform further facilities in the northern part and renovation of the southern part is about to begin. The revitalisation of the campus has gained momentum from the start, **attracting significant media attention**, which was followed by a large number of visitors. The new campus is now the fourth most visited facility in the Czech Republic (and the first outside the capital). Every year it has more than 1 million visitors.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

When it joined the EU in 2004, the Czech Republic gained access to a wider spectrum of **financial resources**. In addition to EU funding, the extensive project of revitalisation was co-financed by national and regional funds, as well as private investors. Thanks to the **popularity of festivals** such as Colours of Ostrava and Beats for Love, the Dolní Vítkovice area became internationally famous, **bringing further interesting partners**, such as the American Museum of Natural History.

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# Czech Republic

# Ústí nad Labem region Litoměřice

Litoměřice – Geosolar pioneer

Timeframe: 2000-present

## Challenge faced

Litoměřice is a town of 22,950 residents in northern Bohemia on the western edge of the Ústí nad Labem region. The tradition of mining is deeply rooted in the area and mentality. The earliest records of mining date back to 1550, when Ferdinand I granted the right to mine hard coal in the Litoměřice region. Nowadays, the Ústí nad Labem region, similarly to the regions of Karlovy Vary and Moravia-Silesia, are labelled as 'structurally affected regions', characterized by a heavily fossil fuel dependent economy, heavy energy production and industrial processes with high emissions.

### Types of barriers encountered and addressed

- **Governance/organisation:** centralization of energetic system in Czechia, dependent on fossil fuelsmining areas
- **Financial:** big investment in research and new energy technologies needed
- **Social:** strongly rooted mining tradition, lack of public support
- **Legal:** special, long allowance procedures for new technologies

## Innovative solution applied

Instead of supporting individual projects, the city applied a systematic approach and brought up **a strategic plan called GEOSOLAR**, a vision of implementing geothermal and solar solutions. The project covers a **coherent set of activities and sub-projects** that the city has been developing for more than 15 years, supported by funds from EU, Czech state, and Ústí nad Labem region.

Despite an effort to engage citizens in the transition, e.g. via grants on water heating by solar panels, the interest of citizens was minimal at the beginning. Therefore, **the city government decided to lead by example** - innovations were implemented in strategic and developmental documents, a position for the city energetic manager was opened and technical innovations were applied in public areas (e.g. solar panels on schools, heat pump systems for swimming pools, solar energy chargers in benches etc.), all accompanied by **communication** with the public. Step by step, following recommendations of their neighbours, citizens accepted the grant incentives of the city and the community of solar solution users grew.

Since 2000, Litoměřice have been exploring possibilities of geothermal energy. Despite a prolonged allowance procedure, Litoměřice has become **the only city in the Czech Republic that has been allowed special intervention into the earth's crust**. An injection through boreholes up to 5-6 km has been researched, extracting water of 150 - 180°C back to the surface. The energy thus obtained should be used for heating and cogeneration (supplementary) electricity production. A **research centre RINGEN was founded** in Litoměřice by joint Czech academic institutions. Further works on exploring geological and hydrogeological conditions follow under the SYNERGYS project.

> The project covers a coherent set of activities and sub-projects that the city has been developing for more than 15 years, supported by funds from EU, Czech state, and Ústí nad Labem region.

## Change observed

Litoměřice is now **considered as inspiration and an innovation leader** among municipalities. The **attitude of citizens** has developed from „change resistant" to **feeling of pride**, though enthusiasm has been harmed by the delayed return on investment in geothermal research.

Thanks to the scientific centre Ringen, the city became key for geothermal energy research and a **part of the international scientific infrastructure**.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The municipality brought an **ambitious and innovative vision** of the energetic transition of Litoměřice. Instead of supporting partial ideas, **a long-term, consistent strategy has been applied**. The city authorities showed resilience in the long allowance procedure. To accelerate innovation, the city governance took **advantage of the EU, national and regional funding** available. Despite the innovation being led top-down, the authorities constantly communicated with citizens in public debates and seminars, and through a grant call created space for their engagement. As **savings on energy are collected in a fund, the money is distributed back to participants and used for further city development**.

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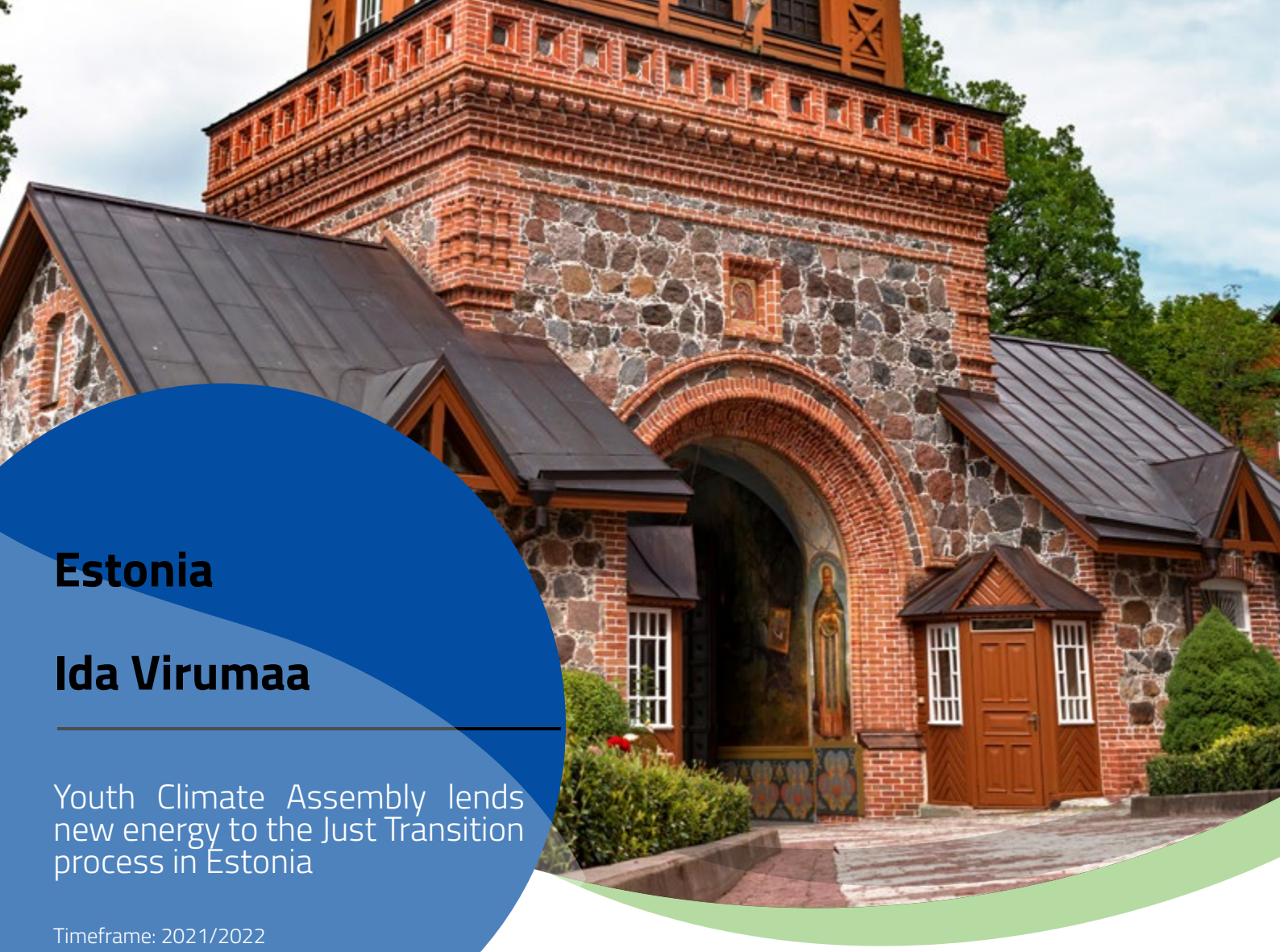

# Estonia

# Ida Virumaa

Youth Climate Assembly lends new energy to the Just Transition process in Estonia

Timeframe: 2021/2022

## Challenge faced

Estonia's biggest pollutor, **the oil shale sector** is highly concentrated in the eastern most region of Estonia, Ida a (or Ida Viru). In 2019, oil shale related companies located in the region accounted for over 50% of Estonia's total GHG emissions. This means that the transition to climate neutrality will have and is already having the largest impact specifically in the Ida Viru region of Estonia. The population of the region as of 2021 was approx. 134 thousand people, rapidly ageing and decreasing. If current trends continue, by 2045 the population of Ida Viru will decrease by 50,000 people. Incomes in Ida Virumaa are among the lowest nationally and the unemployment rate as of beginning of 2021 was almost 14 % (more than twice as high as in Estonia as a whole).

### Types of barriers encountered and addressed

- **Social/identity:** the local community has not yet fully recovered from the identity crisis and emotional trauma, following the collapse of the Soviet industry 30 years ago
- **Language:** majority of the Ida Virumaa inhabitants speaking Russian
- **Social:** difficulties with engaging stakeholders
- **Social:** Transition to climate neutrality is about the future, but the youth (who will need to lead that future) are hard to engage meaningfully in this transformative process.

## Innovative solution applied

Estonia has organized and implemented a comprehensive partnership for preparing its Territorial Just Transition Plan (TJTP). On the national level a **steering committee** was set up by the Ministry of Finance, consisting of **multiple stakeholders**, to both prepare and monitor the implementation of the just transition plan. On the regional level, a **regional Just Transition Platform** was created by the Ida Viru County Association of Local Governments, gathering over 50 organizations. Moreover, a series of public consultation activities in various formats were organized and included a public opinion poll.

Public consultations delivered **important findings on the on the youth's perception of the transition to a climate neutral economy, which diverged from the mainstream population**. This knowledge helped to decide on the organization of the first **youth climate assembly** in November - December 2021. The Assembly was organized by the Estonian Nature Foundation and NGO Rohetiiger ("Green Tiger" in Estonian – a cross-sectoral cooperation platform aimed at creating a sustainable economic model for Estonia). Some 40 Ida-Viru youth representatives were selected for participation in the Assembly using an algorithm based on national register's data (who were a reflection of the population in terms of male / female ratio, place of residence, employment and mother tongue, to ensure accurate representation). Through meeting the stakeholders and learning about climate policy, a climate friendly vision for Ida-Virumaa was developed by the participants and necessary actions communicated to the JTF managing authority.

Public consultations delivered important findings on the on the youth's perception of the transition to a climate neutral economy, which diverged from the mainstream population. This knowledge helped to decide on the organization of the first youth climate assembly in November - December 2021.

## Change observed

The youth climate assembly resulted in **26 suggestions for inclusion into the TJTP**. Part of the suggestions were used to revise and improve the TJTP, others had to do with actions that were already being undertaken or were in planning stages. The Assembly also resulted in a new **youth NGO – People with Purpose (PWP) Liit MTÜ** – which was set up by some of the participants of the Assembly with the mission of following the JTF process in Ida-Virumaa in the future. **This NGO was later included into the national JTF steering Committee**. The youth assembly has also served as a **pilot for other citizen assemblies in Estonia**.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Even though involvement of the stakeholders in the transition planning might be difficult and time consuming, the Estonian **government has recognized that securing the local community's empowerment and ownership of the transition is a prerequisite for the success of the transition**. Therefore, the path of understanding the values and perceptions of different groups, engaging stakeholders on multiple levels and including very new formats such as the youth climate assembly is paramount. Close collaboration with local partners, capacity building and support to the stakeholders were **recognized as key enablers of the participation**, along with **"meeting the stakeholders where they are"** and speaking their language. All this wouldn't be possible if not the **personal engagement** of the governmental representatives.

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# France

# Hauts-de-France
# Loos-en-Gohelle

A bright future for a small town without resources

Timeframe: 90s-present

## Challenge faced

Loos-en-Gohelle is a small town of 7,000 inhabitants located in the north of France, where mining shaped the town – its housing, its inhabitants, its social and economic structures and even its landscape. In 1966, 5,000 of Loos' 8,000 inhabitants were coal workers. In 1986, after 113 years, coal mining eventually came to an end with the closure of pit 19. The end of coal mining was not only an economic trauma but also a social and cultural one. Along with massive unemployment, there was a feeling of abandonment and a question of how to account for the mining heritage over a century old.

Types of barriers encountered and addressed

- **Economic:** lack of economic alternatives
- **Environmental:** devastated post-mining areas
- **Financial:** lack of funding to finance change
- **Social:** strong mining identity
- **Strategic:** lack of know-how (pioneer city)

## Innovative solution applied

The transformation of Loos-en-Gohelle was initiated and coordinated by local authorities working hand in hand with the citizens. To address insufficient know how at a time when transformations like these were still a novelty, the city decided to **scale up the council team and involve private companies for project management assistance. A new multifunctional development unit was created in the town hall, called the Social and Citizen Development Unit**. The smooth functioning of the unit has contributed to **building and maintaining public involvement as a central tenet of the city's reconstruction project. Loos-en-Gohelle inhabitants have been closely involved in the process**: around 200 public meetings and local forums were organized by the municipality between 2008 and 2014, and an online citizen collaboration space has been in operation since 2010. After more than a century of coal dependence, the inhabitants **regained their capacity for action and personal initiative in order to reinvent themselves** and embraced a new path of green transition.

> After more than a century of coal dependence, local authorities have been working hand in hand to reinvent themselves and embraced a new path of green transition.

## Change observed

Initial "ad hoc" activities involving economic, social, and environmental dimensions gradually evolved into more developed and integrated ones as **a cross-cutting approach to municipal management was applied.** These activities covered renewable energy generation, energy efficiency, green buildings, improved recycling technologies, the so called "green belts"(land-use zone designated to retain agricultural land surrounding urban areas), ecological renovation, and tourism, among others. The renovated roof of the city's church delivers a salient symbol: the municipality had a photovoltaic system installed there, which generates an annual income of 5,000 euros.

Loos-en-Gohelle's transformation was based on a deep conviction of the **need to give a new development perspective to the territory and its inhabitants**. The so-called Twin Heaps serve a testimony to this, listed as a UNESCO World Heritage Site and transformed into a **centre for culture and sustainable development**. The city is also home to **more than 600 eco-friendly companies**, 150 of which operate in the renewable energy sector. The town is also planning to construct **an eco district** on a section of a former mining wasteland. Thanks to all these activities Loos-en-Gohelle has a **renewed identity with renewed ambitions**. It has transformed itself into a sustainable pilot city and aims to rely in 100% on renewable energy by 2050.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Loos demonstrates that even in an impoverished city sustainable development principles can be implemented. Since there were relatively few projects in the area and at that time, and Loos had many ideas, the municipality was able to **take advantage of European and national financial support**. The example of Loos illustrates that the energy transition is not merely about implementing procedures and good ideas. It is primarily about creating **a strong political vision** that takes into account the town's history as well as the social and economic situation of its inhabitants. **Innovative governance**, including a new administrative unit working across the sectors, as well as strong collaboration with citizens, business and academia were the cornerstone for that change.

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# Germany

# Saxony-Anhalt Bitterfeld

## Bitterfeld-Wolfen: chemical polluting giant transformed into a modern technology park

Timeframe: 1989-ongoing

## Challenge faced

Bitterfield, in South-Eastern Germany, became a site of lignite mining in 1839. It was in the era of East Germany that the first centre for chlorine chemistry and electrolysis (AEG and Griesheim Elektron) was established there. It grew up and became Europe's biggest chemical plant. Due to the open-coasted mine and severe chemical pollution, the town gained a reputation as the dirtiest one in Europe. The terrain drained by years of mining looked like a desert. When it was windy, there were sandstorms. In 1989 the regime fell, and the town faced serious economic and ecological problems. The chemical plants collapsed and a mass number of citizens went west to find a job.

### Types of barriers encountered and addressed

- **Legal:** long process of getting environmental permits, legal responsibility for revegetation
- **Financial:** big costs of revegetation
- **Enviromental:** land contamination and devastation

## Innovative solution applied

After 1989, Bitterfield was classified as one of the Major Ecological Projects (MEP) by the German government. In 1990, the Treuhandanstalt (in short: Treuhand) was created in order to restructure state´s holdings and privatise enterprises. Since the original intention to sell Chemie AG as a single entity failed, the Treuhand decided to **modernize individual units to sell them separately**, allowing for a variety of uses. Between 1990 and 1998 the government invested 15 billion euros to reconstruct the chemical park. Most of the old industrial buildings have been demolished in order to build new extensive industrial infrastructure (incl. new pipes, waste water technologies). To attract private investors, generous subsidies were paid, and beneficial policies were adopted. For example, private investors in MEP locations were free from financial responsibility for **cleaning-up of the sites**, which were contaminated before 1990 (financed in 75% by the government). The procedure of getting **environmental permits** was shortened. Apart from industrial revival, the natural landscape was decontaminated to fulfil **the vision of a town both for work and living**. Gigantic holes and slag heaps left after lignite mining were flooded – the area of the artificial lake (Goitzsche) is 2,350 hectares.

> Environmental permitting procedure was shortened. Beside industrial revival, the natural landscape was decontaminated to fulfil the vision of a city both for work and living.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Bitterfeld was accepted as a **priority project** not only on regional, but on national or even European level. Thanks to an active engagement of the state government, who provided fundings and developmental programs, a structural change was initiated, supported by investment banks and foreign consulting firms. Selling units **separately**, in a form **prepared for investment** (freeing them from administrative and financial burdens, ensuring basic infrastructure) **allowed for flexibility and attraction of a number of investors**.

## Change observed

When the Chemical Park was successfully privatized in 2001, it became an onset for new high-tech industry developed under the "**Technology Park Central Germany**". Nowadays, **360 firms** settle here, both large chemical corporations (e.g. Bayer) and mid-sized businesses. Together they create **11 000 jobs**. For its extensive infrastructure, modern office spaces, sufficient warehouses and skilled workers, the location offers convenient conditions and cost savings for entrepreneurs. The Goitzlische Lakes became a popular leisure destination with holiday homes and restaurants.

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# Germany

# Saxony Poland border area

TRAILS | TRAILS+ - Traveling Innovations Labs and Services

Timeframe:
08/2016-12/2018 (TRAILS lighthouse)
04/2019–12/2021 (TRAILS+)

## Challenge faced

Lusatia is a region in the Saxony-Poland border area with a long history of lignite mining since 1844. Over the years, neighbouring villages were destroyed to make room for mines and 25,000 residents were resettled. In 1970s, Eastern Germany became a world leader in lignite production. Expansion of the mining industry contributed to environmental destruction with massive pollution of air, soil and water. After the reunification of the country, most of the mines in Germany were closed in 1990, leaving behind damaged land and communities. Both cities and towns in the region face the challenge of transforming their local economies, while struggling with the emigration of young talents and the rise in the average age of the population.

### Types of barriers encountered and addressed

- **Social and Environmental**: area traumatized by neighbourhood destruction and resettling of citizens
- **Organisation:** Weak innovation ecosystem
- **Knowledge and capabilities:** lack of know-how and sufficiently trained personnel in innovation methodologies
- **Finance:** consequences of economic structure based on many SME (low R&D budgets and financial resources)
- **Infrastructure and equipment:** lack of specially equipped spaces for workshops and prototypinghow (pioneer city)

## Innovative solution applied

The lighthouse project Trails, followed by Trails+ (Travelling Innovation Labs and Services), was run cooperatively by Dresden University of Technics (Technische Universitat Dresden), Lower Silesia (Dolny Śląsk) Region and Wroclaw's Polytechnique (Politechnika Wrocławska). It was founded by the European Funds for Regional Development under the INTERREG Poland-Saxony project. The idea was to develop a **mobile innovative lab which will travel across the border region** of eastern Saxony (Germany) as well as south-western Poland (e.g. Goerlitz, Zittau, Löbau, Radeberg, Kamienna Góra, Kowary, Luban, Jelenia Gora). By offering **tailored made educational programs**, it aimed to build up **innovation capabilities and entrepreneurial skills**. The containers stayed in every place for one to two weeks. During their stay in each location the TRAILS-Team ran workshops, trainings, and match-making events with students of vocational schools, SME employees and multipliers. Moreover, participants could explore entrepreneurial formats like maker-spaces, start-up weekends, or hackathons. Visitors got **access to the newest technologies and could learn how to transform a project idea into a business mode**l.

> By offering tailored made educational programs, it aimed to build up innovation capabilities and entrepreneurial skills.

## Change observed

The TRAILS project helped rural regions cross-connect students with SMEs to retain young talents and equip both groups with innovation methods and entrepreneurial knowledge. Between August 2016 and December 2018, TRAILS trained 2,088 participants in 127 workshops in nearly 30 municipalities in Eastern Saxony and Lower Silesia. The follow-up project TRAILS+ (launched in April 2019) has reached 1,645 participants in 104 workshops to build and deepen innovation skills at 19 locations in the border region.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Education in new technologies was taken as a strategy to **build capacities and improve knowledge** in areas affected by long term mining. TRAILS/TRAILS+ helped to **develop a space for student - entrepreneur cooperation**. Attractive for its innovative methods of education, the Trails/ Trails+ projects gained interest of both schools and companies. Using mobile containers helped to overcome the barrier of financial resources needed to build a stationary research center and to enable the transfer of knowledge within the Lusatia region. It made **innovations accessible to a wider audience**, even in rural areas. Moreover, the project strengthened Polish-German cross border collaboration. Being a part of the European INTERREG program, the project benefited both from EU funding and regional knowledge shared across borders.

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# Germany

# RAG Foundation

Investing profits from coal to finance the transition: RAG Foundation

Timeframe: 2007-2018

## Challenge faced

After the Second World War, hard coal was of historic significance for Germany. The number of jobs within the hard coal mining industry reached around 600 000 in 1957. By the end of hard coal mining in 2018 the number of workers in the German mining sector was around 4000. Throughout the entire phase-out process, coal regions in Germany tried to diversify their economies. Nevertheless, hard coal production played a key role for the German economy until 2007. It was only in 2007 that the growing influence of the EU forced Germany to end subsidies for hard coal production, which had reached – along with other privileges – between EUR 289 and EUR 331 billion between 1950 and 2008. It became obvious that coal mines would shut down in the years to come. In order to face the challenge, a coherent mechanism that could coordinate the phase-out was needed.

### Types of barriers encountered and addressed

- **Governance:** lack of proper mechanisms and allocation of responsibilities in the process
- **Financial:** long-term liabilities stemming from the mining

## Innovative solution applied

In the case of hard coal mining, the RAG Foundation became a key institution which helped to govern the phase-out. The idea of RAG was to merge all separate coal mining companies into one (private) corporation. By doing so, it was easier to manage the transformation especially from a financial perspective. Shareholders, including German energy companies, agreed to transfer their shares for a nominal sum to a private foundation. The transfer was part of a long-term agreement according to which private industry would finance long-run liabilities after the end of active mining. If the RAG income was insufficient to cover tasks, the federal government and the governments of former coal-mining states would step in. What is particularly interesting, the foundation's assets were made up not only of the old mines. During the times when RAG AG was still gaining profits from the coal industry, the conglomerate **invested in other industrial sectors, such as chemicals and real estate**. This set-up allowed to **reduce the burden on the public budget**.

“

The RAG Foundation became a key institution which helped to govern the phase-out. The idea of RAG was to merge all separate coal mining companies into one (private) corporation.)

## Change observed

The RAG Foundation reports that its income exceeds by far what was expected. In 2015, the foundation generated **a profit of EUR 334 million**. So far, **RAG has built a EUR 4.4 billion reserve against its perpetual obligations**. Thanks to RAG, the German government was able to get involved much more efficiently in helping the affected workers, while RAG could focus on helping adapt coal mining sites for alternative users, as well as support local scholarships.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

**High level of involvement of the government and RAG foundation** in hard coal phase-out, a clear division of responsibilities and new ways of long-term financing created a noteworthy synergy. By investing assets into various businesses, RAG paved a new path for a coal phase-out transition.

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# Germany

# Rhenish region

## Rhenish Lignite Mining Area – a regional development agency in Germany's largest lignite mining region

Timeframe: 2014-present

## Challenge faced

The Rheinisches Revier mining region in western Germany is a rural area, but close to many urban centres. About 8,000 employees are directly affected by the lignite phase-out as workers of the mining and power plant sectors; another 15,000 people are affected indirectly as employees of supplier companies. In addition, about 50,000 people are employed in the energy-intensive industry. Until recently, the energy and energy-intensive industry provided 10% of total employment in the region. The federal government decided on the closure of the lignite-based mines and power plants to be carried through by 2038 at the latest, and ideally by 2030.

### Types of barriers encountered and addressed

- **Financial:** inadequate funding initially
- **Strategic/Organisation:** different visions of development and individual interests, lack of collaboration between the stakeholders
- **Governance:** lack of leadership

## Innovative solution applied

Since 2014, the regional development agency Zukunftsagentur Rheinisches Revier (ZRR) has become the central instrument of steering the structural change processes it the region, **providing in-depth expertise on the region's strengths and weaknesses, as well as animating the ecosystem**. Drawing on funds from the European Regional Development Fund and the state government of North Rhine-Westphalia, the ZRR was able to carry out the following activities:

- develop a shared vision and a development strategy for the region;
- conduct studies on the prospects of specific industry branches;
- organize idea contests and networking events, bringing together different stakeholders.

In order to incorporate as much technical knowledge as possible, **seven regional nodes were created** by the ZRR, called "Revierknoten", whose task was to support the ZRR in developing an economic and structural program. The nodes were divided by themes into: 1) energy, 2) industry, 3) resources and agriculture, 4) innovation and education, 5) space, 6) infrastructure and mobility and 7) construction and technology. Each node was staffed with **experts**, who worked to develop the appropriate funding programs. The ZRR also connected with **external experts from science, politics, and regional associations, as well as with citizens**.

> The regional development agency (ZRR) has become the central instrument of steering the structural change processes it the region.

## Change observed

Rheinisches Revier serves as the main coordinating body in managing the structural change process. The agency is an example of how an intermediary agency can become an animator of the process of transforming the region towards sustainable development. It has **built a network** that has successfully **reduced biases among many stakeholders** and helped to reach a consensus on the overall path to the gradual coal phase out. As a **dialogue platform, it also helped to reduce competition among actors and build synergies instead**. This was especially relevant for the counties and municipalities who used to compete against each other to attract businesses. The region's respective stakeholders were brought together, enabling mediation between the visions of the industry, politics, and civil society.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Thanks to the Agency's work, a **consensual network on general pathways** was developed. Moreover, the agency not only brings together and raises opportunities for cooperation with external experts from science, industry, politics and associations, but also promotes and makes people think about the change **proactively**. Obtaining financial resources from the state and European funds was a crucial enabling factor. All the efforts above were able thanks to financing from the EU structural funds (EFRE) and the government of North Rhine-Westphalia, in the medium to long term period enabling the ZRR to take a strong lead on a number of streams of work. This was crucial to establishing the structures and scope for deep structural transformation.

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# Ghana, Kenya

## Voices of African women being heard thanks to UN's climate initiative

Timeframe: 2021

## Challenge faced

As in many (not only) developing countries, natural resources (such as coal, gold, minerals) play an important role in the economics of Ghana and Kenya. At the same time, mining activities, both official and illegal, affect the daily life of citizens, as they harm forests, and surface and groundwater. Just Transition aims to build inclusion of all stakeholders, including the most vulnerable. In Africa, which struggles with unequal opportunities, whole social groups and communities can be easily overlooked for their social status, gender, or language barrier. The voices of women in Kenya and Ghana serve as an example as the United Nations and a number of governments recognize that considering a diversity of voices and talents, in particular women, who are significantly under-represented in decision making processes, is the key to sustainable development.

Types of barriers encountered and addressed

- **Communication**
- **Gender**

## Innovative solution applied

A pilot project for social inclusion of women in Ghana and Kenya was initiated by the UN´s National Adaptation Plan (NAP). To overcome the communication barrier, a **creative methodology** was applied. Fourteen women from diverse backgrounds in Ghana and Kenya undertook **training in digital photography and storytelling, while being mentored by experts who helped them to understand their observations from a climate science perspective**. Over nine months, the project team helped trainees to build their personal story of how climate change impacted them and what adaptation was needed by their community. Finally, a photo exhibition was organized by the NAP Global Network and Lensational.

> During 9 months, the project team helped trainees to build their personal story of how climate change impacted them and what adoption is needed by their community.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The project was made possible by the United Nations´ initiative called the National Adaptation Plan. Lensational, a global non-profit social enterprise, facilitated workshops in close collaboration with the Environmental Protection Agency in Ghana and the Climate Change Directorate in Kenya. The financial support was provided by Global Affairs Canada, the diplomatic department of the Government of Canada.

## Change observed

The NAP successfully upskilled trainees with communication skills. Moreover, equipped by their pictures and stories, the women got a chance to meet with **policy makers and other stakeholders** to discuss how climate change affects their livelihood (e.g. quality of water and grass). Furthermore, the visual storytelling aroused the curiosity of decision makers. Discussion between policy makers and the women, whose voices would otherwise remain unheard, helped to share their understanding and build a broader picture of climate change in Ghana and Kenya. The decision makers gained diverse knowledge which supports the design of key adoptive policies, strategies, and actions. Moreover, empowering women to speak supported their readiness and resilience in ever-changing climate conditions.

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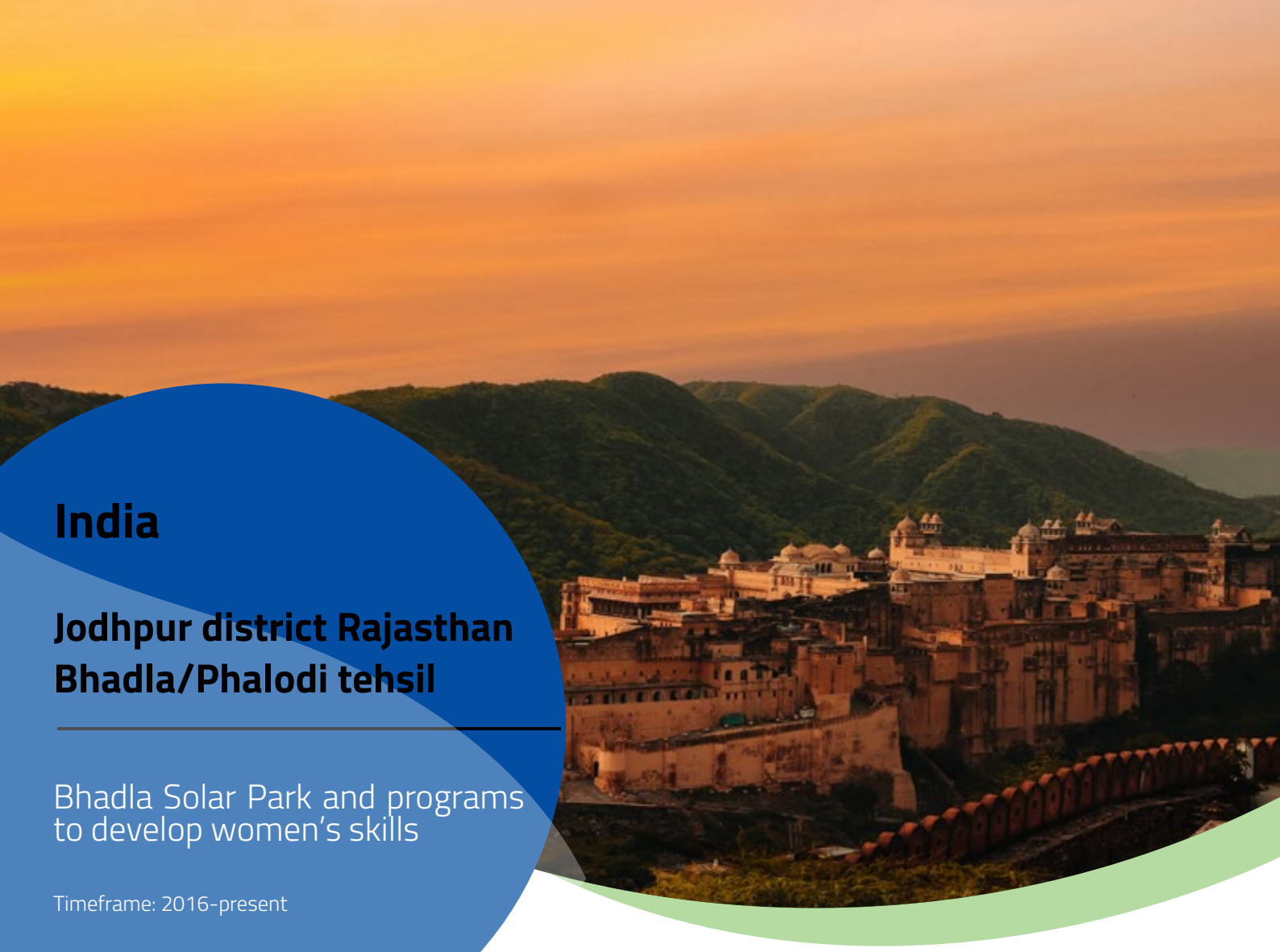

# India

## Jodhpur district Rajasthan Bhadla/Phalodi tehsil

Bhadla Solar Park and programs to develop women's skills

Timeframe: 2016-present

## Challenge faced

India is one of the fastest-growing economies in the world but it is also the third largest emitter of $CO_2$ in the world (2022). India is the second largest producer and consumer of coal after China. Most of the coal is burned to generate electricity. Coal-fired power plants have been criticized for breaking environmental laws. The transition away from coal and towards renewable energy will heavily impact its coal sector that currently provides 45 percent of India's total primary energy demand. This is why coal lies at the center of discussions about a just energy transition in India.

### Types of barriers encountered and addressed

- **Spatial conflict:** repurposing land from agricultural use to the powerplant taking away workplaces from cattle breeders and farmers
- **Social/cultural:** gender inequality blocking sustainable development

## Innovative solution applied

The national government has set ambitious renewable energy goals that include the development of 175 gigawatts (GW) of renewable energy by 2022. The decision has led to the need to start building large areas for collecting solar energy. In Bhadla, part of the Thar desert, temperatures can reach 50 °C and frequent sandstorms add to the inhospitable conditions. **But what makes it an unforgiving place to live also makes it an ideal place to generate solar power**. Thanks to abundant sunshine, the **Bhadla solar power farm** was built in years 2016-2018. The breakthrough in this case is the fact that **the plant contributed to creating income-generating activities and alternate livelihoods, especially for women. The company's investor**, Saurya Urja was involved in organizing vocational training on embroidery work and handicrafts for 150 women. 75 women were trained in basic accounting, finance management, and negotiation skills, while 415 women benefited from the Micro Enterprise Development Training on Animal Husbandry (Goat Rearing).

Thanks to abundant sunshine, the Bhadla solar power farm was built in years 2016-2018. The breakthrough in this case is the fact that the plant contributed to creating income-generating activities and alternate livelihoods, especially for women.

## Change observed

Electricity from new solar farms in India is cheaper than that generated by the country's existing coal plants. As of 2021, Bhadla Solar Park is the largest solar park in the world (10 million solar panels with a capacity of 2,245 MW, enough to power 4.5 million households) and is spread over a total area of 5,700 hectares (14,000 acres). The plant contributed to improved employment opportunities. About 40 percent of the local workforce of 1,000 come from nearby villages. "Most of the boys in my village did not study much. They were not ambitious, as our life was limited to the village, and our parents are farmers or into breeding cattle. But since the construction of the park, I realized the world is much bigger than my village," says 18-year-old Mukhtiyar Ali. New industry in the region **accelerated economic growth, created job opportunities and motivated citizen to upskill**. The actions taken by the investor increased **social acceptance and empowered and created new opportunities, including those for women** in the region.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

What needs to be stressed is that the current rate of compensation to the local communities in a number of solar power plants in India, including the one in Bhadla, is perceived as not enough. Also, there is a lack of proper consultations regarding new developments. Nevertheless, the programme of upskilling, creating workplaces and especially the support program for woman can be seen as an important step forward. **Local protests**, as well as national and **international attention** thanks to digital tools are significant contributors to increasing the social responsibility of renewable energy investors.

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# Netherlands

# South Limburg

From mines to universities: story of Limburg's transformation

Timeframe: 1965-2010

## Challenge faced

In December 1965, the closure of Dutch coal mines in the Limburg area was announced due to prolonged unprofitability. It was estimated that approximately 45,000 miners would lose their jobs as a result of the closure, with the additional loss of 30,000 jobs of employees working for suppliers to the mines. As the regional economy was largely dependent on the coal mine industry, it was necessary to prevent the risk of long-term unemployment of miners. Beyond being solely an employer, however, the coal mines formulated the social structure. Therefore, the social cohesion provided by the mining companies was also endangered. Both economic and social reconstruction was needed.

### Types of barriers encountered and addressed

- **Organisation:** weak innovation ecosystem
- **Social:** undiversified human capital, impeded access to higher education

## Innovative solution applied

A **long-term strategy** was presented by the Dutch government, describing **a collaborative process** of state, mine management and unions working on the structural change. Due to the fact that the state owned a significant part of the mining operations, central coordination was chosen as the most efficient strategy. The plan entailed **three pillars**: to create a new sustainable and stable economic infrastructure with long-term benefits for the whole region, to secure the social and personal well-being of the region's inhabitants, and to improve the physical infrastructure (e.g. motorways, railways, bridges, conference and exhibition facilities). Both **short-term mitigation** (such as workers' compensation and retraining of affected miners) and **long-term diversification** strategies (such as infrastructure development, wealth creation by developing the industrial base or investing in education for future generations) were provided by the government. What was significant in this case was that the LIOF **Regional Development Agency** was funded in Limburg to support entrepreneurship and innovation. Moreover, **human capital was fostered by newly established universities. The State University of Limburg was established in Maastricht** in 1976, followed by the **Open University of the Netherlands founded in Heerlen** in 1984.

> What is particular for this case, the LIOF regional development agency was funded in Limburg to support entrepreneurship and innovation

## Change observed

**Limburg was the first region in Europe that successfully phased out the mining industry**. The industry of the region moved from being mono-industrial towards **economic diversification**. Nowadays the key industries of the region include agri-food, life sciences & health, chemicals & materials, smart services, European logistics, and high-tech systems. The **LIOF** developed a **network of partners in the Euroregion** and facilitates transitions in energy, circularity, health and digitalization within the Limburg province and Europe. Not to be left out, Maastricht University attracted talents and contributed to the development of a multicultural demographic, as its importance went **beyond regional reach**, with 50% of students and 40% of staff from more than 100 countries.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The **government** took an active role in managing the region's redevelopment. Not only did it assist with providing financial support, it also provided pre-retirement security and helped workers from the coal energy sector with retraining and finding new jobs. Funding the development agency came along with tertiary education ensured by Maastricht University and later also University in Heerlen. All these actions together – both oriented on the short and long-term perspective – have changed opportunities in the region, its image and the identity of the communities. Funding was provided by programmes and through various ministries, and later also by the **European Union**.

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# New Zealand

# Taranaki region

Taranaki road map

Time frame: 2019-now

## Challenge faced

Taranaki is an area in the western part of New Zealand's North Island. The regional economy contributes to the GDP with 2.9%, the highest GDP per capita, but at the same time generates the highest emissions per capita. Industries in the Taranaki region include dairy farming and processing, as well as oil and gas. New Zealand was among the first countries to commit to reducing the net emissions of all greenhouse gases to zero by 2050, which meant that Taranaki had to ensure it can contribute to this goal.

Types of barriers encountered and addressed

- **Knowledge and capabilities of the citzens**

## Innovative solution applied

The Taranaki 2050 Road map aimed to define a **medium-term strategy and short-term actions**. The vision for the future of the Taranaki region was **co-designed by various groups**, including government, businesses, community organisations, Mauri groups, students and individuals from across the region. A transparent, fair and inclusive co-design process was launched. To facilitate the process, **27 volunteers from local businesses, unions, and local and central government created a lead group**. First, 12 topics relevant to the region were chosen (e.g. tourism, innovation, research and development, arts, environmental sciences, the Mauri economy and energy), followed by 23 topic-specific workshops between February and April 2019. Over 700 people participated. Moreover, additional engagements were organised, such as youth workshops and creative competition for youth and children. Through online and offline surveys information was collected on what citizens think the region should be like in 2050, and how to reach the vision for a low-emissions future. The draft of the road map was introduced in 2019 and opened to feedback from the public, including consultations with 1000 people in 40 locations.

> The vision for the future of the Taranaki region was co-designed by various groups, including government, businesses, community organisations, Mauri groups, students and individuals from across the region.

## Change observed

**Since the publication of 164 action plans, 103 projects are now underway or completed**. To name some, Ara Ake, the national new energy centre, was founded in Taranaki in July 2020, to accelerate the development and commercialisation of low-emissions energy innovation and technology in New Zealand. Furthermore, a range of hydrogen-related activities have progressed and a variety of events have been held to support behaviour change, energy efficiency and lower transport emissions. As an example, the Electricana event is held every year in February to promote electric vehicles.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The local community took the future of the region in their own hands, thanks to the personal engagement of volunteers, support from authorities and choosing the co-design methodology. Various workshops and public consultations across the entire Taranaki region resulted in significant public engagement, along with a **sense of ownership of further action plans**. The design process and action plans were funded by the national government and private sector.

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# Norway

## Norway´s ambition in fossil-free mobility

Timeframe: 1990-now

## Challenge faced

As the free flow of goods and persons has become a global trend and prerequisite of economic prosperity, innovation in the transport sector gains greater importance for its impact on greenhouse gas production. When it comes to fossil-free mobility, Norway is considered as one of the leading countries in the application of green solutions. For 2025, Norway accepted another ambitious target: all new cars, city buses and light vans must be zero-emission vehicles.

### Types of barriers encountered and addressed

- **Technology**
- **Lack of infrastructure**

## Innovative solution applied

The invention of electric vehicles (EV) was accelerated by the oil crisis in the 1970s. The demand increased in 1990, when **the Norwegian government launched a successful campaign to boost the local market**. A growing market was spotted by international carmakers, who responded with increased investment in the EV industry. Nevertheless, despite the growing popularity of EVs, in 2019, emissions from the transport sector still represented 29% of total emission in Norway. Therefore, emission reduction formed part of an action plan, supported by tax and behavioural incentives. To name a few, EV owners were freed from the annual road tax, EVs pay half price for ferries and toll roads (since 2018) and enjoy free municipal parking since 1999, though these incentives are meant to last only for a limited period. At the same time, transport infrastructure development was funded by government investments. New charging stations were built both in large cities and rural areas, and high traffic roads were equipped with an electric road system to overcome low battery anxiety. Moreover, the government agency ENOVA was established to run research on EV technologies.

New charging stations were built both in large cities and rural areas, high traffic roads were equipped with an electric road system to overcome low battery anxiety.

## Change observed

In 2020, electric vehicles represented 54% of new car sales in comparison with 3% in 2012. Norway's average $CO_2$ emissions from new cars went from 177 g/km in 2006 to 71 g/km in 2018, while the EU's average was 122.3g $CO_2$/km in 2019. Further electrification of high traffic roads has the potential to significantly mitigate $CO_2$ emissions.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

While being one of the richest countries thanks to generous sources of oil, Norway also pursues strong welfare policies. **The Norwegian government introduced a stable and coherent policy framework, including tax and behavioural incentives**. This was further aided by **large state investment** into infrastructure which together with research and technology innovations made electromobility more accessible from the user perspective.

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# Poland

# Eastern Wielkopolska

Eastern Greater Poland: great ambitions and joint advocacy for provision of support

Timeframe: 2017-2022

## Challenge faced

Eastern Wielkopolska is one of the poorest regions in the voivodeship of Wielkopolska in Poland. This area has been the hardest hit in the Greater Poland Voivodeship by the changes that have occurred in Poland over the last 30 years, and is in the midst of a second crisis linked to the ongoing energy transformation. The region was very strongly dependent on the lignite industry as the area began developing in the 1960s and 1970s as a mining region with a number of coal-fired energy plants in the vicinity. In the last three decades, it has experienced issues such as a declining and ageing population, high unemployment rates, environmental degradation, and low social and economic development indicators. With the push towards phasing out coal, the greatest challenge was how to ensure the situation in the region improved, instead of spiralling into further negative trends.

### Types of barriers encountered and addressed

- **Organisational and political:** lack of support for implementing the coal phase out
- **Strategic:** lack of an alternative idea for the region

## Innovative solution applied

**A number of stakeholders** joined forces to bring the region to the **attention** of the European Commission (primarily within the scope of the EU Coal Regions in Transition Initiative), the national government, and the media. It is a great example of intense cooperation and mutual support between **NGOs and public authorities**. Between 2017 and 2020, local (Akcja Konin, Zmieniamy Konin, Miasto Prowincjonalne) and national NGOs (PGN, Bankwatch, RT-ON), as well as public authorities from the Marshall's Office for Wielkopolska, **advocated jointly in Brussels** for the inclusion of Eastern Wielkopolska in any planned financial support for coal regions in transition by participating in numerous meetings there, writing briefings, papers and letters, and pushing the topic in the media. Since 2020, the Employees Council of ZE PAK (the mining and energy company) have joined these efforts and later also the trade unions of ZE PAK and ZE PAK itself.

> It is a great example of intense cooperation and mutual support between NGOs and public authorities.

## Change observed

The region moved from being an obscure and peripheral area not many had heard about to becoming a **well-recognized region of Poland, fighting to introduce change**. Eastern Wielkopolska was one of the first three regions from Poland that were suggested as Just Transition regions acknowledged by the European Commission as eligible for support from the Just Transition Fund (already in 2020). On 05 December 2022, Eastern Wielkopolska's Territorial Just Transition Plan was approved and it is considered to be **the most ambitious in Poland**: with a 2030 coal phase out date, 2040 climate neutrality date, and boasting a **highly inclusive, transparent and participatory process of preparing the plans**. The region will receive ca. **415m EUR** from the Just Transition Fund over the next few years and is also eligible for other funding related to supporting the region in its transition.

## Diagnosis

### of how and why this particular new solution allowed for a breakthrough

The region had been declining in all aspects over 30 years and it was high time for an alternative solution to appear. Thus, the idea of a fund to support coal regions was seen as the answer to decades-long problems in the region. However, this was also a result of a "right people at the right time" situation, as the national-level NGO search for local NGO leaders of climate action yielded a few local activists to push matters on the local level and share information. They finally came into contact with the voivodeship-level public authorities representative, currently heading the Regional Development Agency, who recognized that the region needed a new vision for its future. While not always 100% in agreement on all topics, the process in Eastern Wielkopolska has been based on the mutual exchange of information and expertise, joint advocacy on the most relevant matters, broad inclusion of all stakeholders and relatively high levels of transparency. For the European Commission, it was important to see that many of the relevant stakeholders were on board with the planned phase out and that they could see the high commitment and involvement in the process of various groups. In later years, this also included the privately-owned mining and energy ompany ZE PAK, which declared its coal phase out and readiness to switch to renewable energy sources, as well as employees' representation (trade unions, employees' council).

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# Poland

# Silesia Gliwice

## New Gliwice – how to educate, incubate and help to invest?

Timeframe: 2005-2009

## Challenge faced

Gliwice is a city located in Upper Silesia, in Southern Poland. In 1910, the construction of a mine began in Gliwice and coking coal mining began in 1913. The maximum output was about 1 million tons of coal. As years went by, a coking plant and a sulfuric acid factory were also established. Finally, in 1999, the last ton of coal was mined. Since 1990, the Silesian province has begun the process of restructuring heavy industry. The mining activity had left a heavy degradation of the sites. The restructuring process made them look like abandoned post-industrial facilities. A problem of social exclusion arose due to the threat of structural unemployment. The city of Gliwice had to face not only the problems of reclaiming post-mining areas, but also adapting to changes in the regional economy, involving reduction of entities in traditional industry in favour of a knowledge-based economy, which often involved small and medium-sized enterprises.

### Types of barriers encountered and addressed

- **Environmental:** devastation and low functionality of post-mining areas

## Innovative solution applied

The creation of the "New Gliwice" Business and Education Center (including 4 buildings and 16 ha of land) on the site of former mines demonstrates that with the right enabling conditions, comprehensive revitalization, which involves a combination of activities related to the redevelopment of post-industrial facilities, with simultaneous support for higher education and small and medium-sized enterprises, is possible. The "New Gliwice" project was created between 2005-2009 and implemented according to the **educate-incubate-help to invest** strategy. The task was divided into two groups. The first included the creation of post-industrial facilities for office functions (an entrepreneurship incubator, along with storage space), while the second included the creation of a university complex, preparing students to play the role of entrepreneurs and implement their own economic initiatives. The project was implemented by the Upper Silesian Agency for Entrepreneurship and Development in cooperation with the Upper Silesian Market Entrepreneurship Accelerator. The total cost of the project was EUR 24 million, of which EUR 9.5 million was secured from European structural funds. The site's attractiveness was also greatly influenced by a tax incentive, introduced by a resolution of the City Council exempting investors from property tax for 20 years.

> The creation of the "New Gliwice" Business and Education Center on the site of former mines demonstrates that with the right enabling conditions, comprehensive revitalization (...) is possible.

## Change observed

The revitalization of the post-mining site translated into **second-order effects as the neighbourhood was upgraded from a shunned post-industrial area to a popular district with a rich technological base** of 45 companies, which made *New Gliwice* their home, including Flytronic (military unmanned aerial vehicles), Infinite Dreams (applications for Apple, Google, Nintendo, and Sony), and Kamsoft (information systems for the medical and pharmaceutical sectors).

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

In the transformation of the postmining sites into *New Gliwice*, **the existing advantages have been leveraged**. The sites are **located** near Gliwice's city center, and the city itself – in the densely populated, highly urbanized area known as the Silesian conurbation. Gliwice lies conveniently on the intersection of the country's two main highways, A1 in the north-south axis and A4 in the east-west axis. Moreover, the Silesian University of Technology, which is located in Gliwice, is a source of skilled workers. Finally, the revitalized coal mine buildings, made from red brick and over 100 hundred years old, offer a **unique aesthetic** that can compete with conventional office space offerings. All these factors have provided a **strong business case** to companies that seek to build a strong team, project a compelling image, develop research capacities, reach out to customers, and stay reachable to suppliers Importantly, *New Gliwice* has been designed to be **versatile**, so it can offer customers both long-term office deals as well as short-erm rentals for conferences and trainings.

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# Poland

# Silesia region

## Silesia's Open Data to enable investments and sites repurposing

Timeframe: 2018-2022

## Challenge faced

Silesia is the most coal-dependent region in Poland. Mining and industry have played an important role in the regional economy and society over the past few decades. The challenge of transitioning to a new, diversified economy is accompanied by a large number of abandoned and unused post-industrial areas in Silesia. Despite being seen as a relic of the past, post-industrial sites for a growing number of decision-makers and stakeholders represent an untapped potential for future economic growth in the region.

### Types of barriers encountered and addressed

- **Knowledge:** lack of universal access to environmental information blocking repurposing of the post-mining and post-industrial sites
- **Financial:** private investments supporting transformation of the region not leveraged

## Innovative solution applied

To make the Silesian region more attractive to investors, the Marshal's Office of the Silesia Voivodeship in collaboration with the Central Mining Institute in Katowice, created an online database. The website gathers information about **residential buildings, agricultural activity, and environmental conditions**, including **contamination, water sources availability or possible waste in the area**. The geoportal OPI TPP 2.0 not only **supports public institutions and municipalities** responsible, among others, for city development and urban planning, but most importantly targets **investors and experts**. The tool allows for a quick access to key information and enables stakeholders to create complex, advanced reports. The project is still currently under development. Although the database already covers several social and environmental aspects, it will be expanded by further sections, such as estimated costs of the revitalization process or the area's value.

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To make the Silesian region more attractive to investors, the Marshal's Office of the Silesia Voivodeship in collaboration with the Central Mining Institute in Katowice, created an online database.

## Change observed

Thanks to the web-based tool, over 1000 degraded areas have been collected and made available to the public in an easy to access database. According to the creators, the tool has already been used for urban recovery plans and by investors. There is no doubt that such a tool increases awareness in the region, especially in the context of necessity of post-industrial site conversion.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The key enabling conditions were **recognizing the role of the open data** to activate private investments in regional development, as well as **partnering** up of the Marshall's office with the local research institute (Central Mining Institute). Moreover, creation of such a vast database would not be possible without appropriate **financing**. In this case, the project is 85% financed from EU Regional Development Funds (ERDF) and the remaining share is provided by the Marshal's Office of the Silesia Voivodeship (total cost: EUR 1.4 million - 1.16 million from the ERDF found, and EUR 240 000 from the Marshal's Office).

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# Poland

# Silesia region Dąbrowa Górnicza

## Dąbrowa Górnicza - a Factory Full of Life

Timeframe: 2016-2019

## Challenge faced

Dąbrowa Górnicza is a city located in the Silesia region. Since the 18th century mining has been a defining feature of Silesia. The region became an important mining and industrial hub and consequently an important urban center. The rapid growth of the city of Dabrowa Gornicza occurred in the 1970s and 1980s with the construction of the Katowice Steel Plant, at which time numerous villages were incorporated into the city. This is why nowadays Dąbrowa Górnicza is inhabited by 120,000 residents and is the 10th largest city in Poland. The process of re-structurization of mining in Poland had its consequences for the "Defum" factory producing equipment for the mining industry and located in the city center of Dąbrowa. Due to unprofitability, the factory was liquidated in 2015. As a result, many residents outside the downtown do not regard the downtown area as the center of urban life. Therefore, the challenge for the city became the lack of a distinct separate center and former factory buildings falling into disrepair, which by virtue of their location spoiled the image of the city.

### Types of barriers encountered and addressed

- **Social:** identity: low attachment of the inhabitants to the city, low participation

## Innovative solution applied

A project for the new city center of Dąbrowa Górnicza was created on the site of the former machine tool factory "Defum" and surrounding spaces. The entire process involved public consultations, which included a series of informational and educational activities. As a result, a concept for the development of the former factory buildings and a public open space tailored to the needs of residents and local entrepreneurs evolved. What is particularly worth observing is that it was pointed out that there are many residents who will never come to a meeting, especially one that is far from their place of residence. Therefore, it was decided that **"consultations will come to the people"**. Thanks to this approach, **the discussion panels and workshops were held not only on the site of the former factory, but in all Dąbrowa districts**. Consultation tools included: mobile consultation points, research walks and backyard debates.

> A concept for the development of the former factory buildings and a public open space tailored to the needs of residents and local entrepreneurs evolved.

## Change observed

The **increased sense of local identity** of the inhabitants has made them more willing to share their ideas, as they could see that their voice counts. As a result, the city and its residents have planned more projects together. Over the next 10 years, the city is expected to create a brand new public space, but also a commercial one, where three thousand people are about to find work. "The Factory Full of Life", as it is now referred to, shall also become a natural place for Dabrowa Gornicza residents to spend their free time. As the organizers of the city center transformation have invited well-known experts and innovators to collaborate, the city managed to create **an image of an innovative, vibrant place**, attracting attention and events related to placemaking, urbanism, and citizen engagement.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

By creating a mechanism for the local government to communicate with its residents, the authorities not only overcame the inhabitants' lack of attachment to the place, but were also able to create a much better project for the redevelopment of the downtown area. Thanks to that, the construction companies that worked on the project knew very well what the goals were and what the city and its residents want to achieve. Collaboration between the city authorities, NGOs, experts, citizens and other stakeholders became the cornerstone for building a new future.

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# Poland

# Silesia Rybnik

## IT sector in Rybnik and new patterns for the future

Timeframe: 2022-ongoing

## Challenge faced

The city of Rybnik consists of approx. 138,000 inhabitants and is located in Silesia – the biggest coal region in Europe. In Rybnik, approx. 7000 citizens are employed in mines, 400 in the power plant and similar numbers in directly associated businesses. According to official plans ("social contact" between the mining trade unions, mine owners, government, and local government representation) the mines in Rybnik are about to be the last ones to close – only in 2049. The city struggles with depopulation, which is also triggered by the air pollution.

### Types of barriers encountered and addressed

- **Social:** low levels of entrepreneurship; pressure from citizens that the authorities need to attract investors
- **Social/identity:** strong attachment to mining
- **Governance:** weak collaboration between the municipal officials and business

## Innovative solution applied

Therefore, the authorities have realized that if strong action is not taken, the city could become a backwater of Europe – with no youth and no modern activities. Similarly, some of the companies operating in Rybnik have noted both that they are starting to lose clients and it's hard for them to attract the best talent. **Representatives of IT companies from the city took a step forward**. In February 2022 Alan Systems, together with Software Development Academy, organized a **course aiming at the development of the local IT sector through supporting the reskilling of inhabitants** of the city and its surroundings. Soon four more locally-based companies joined the initiative. **The companies started to meet, eventually creating a community**. Soon, they had **invited the city authorities to join their meetings**. The Deputy Mayor accepted the invitation and this is how the collaboration started.

> Representatives of the IT companies from the city took a step forward. In February 2022 Alan Systems, together with Software Development Academy have organized a course aiming at development of local IT sector through supporting reskilling of inhabitants of the city and its surroundings.

## Change observed

Apart from the Academy, **a platform called Rybnickie IT has been created, where nine IT businesses collaborate, together with municipal officials and two universities** (Silesian University of Technology and the Economic University in Katowice). In September 2022 the group launched its **portal** Rybnickie.it, where information on events or job offers is posted. Supporting the reskilling and upskilling together with creation of the group is helping to transform the image of the city into a dynamic, vibrant one and retain talents. Similarly, it is beneficial for the companies which gain better visibility and attract and help to develop talent, but also have a chance to resolve challenges together.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The initiative of the IT companies **came along with the city officials embracing necessities of transformation**: radical fight with the air pollution (biggest investments per capita in Poland in 2021) and understanding that times when 1 big company (the mine) was the sole engine of the city's long-term prosperity are over. Understanding, that small and medium sized companies, especially active in the spheres of growing businesses, can become important factors for city's growth. **The economic diversification, together with focusing on synergies rather that competition** can lead to a win-win situation. The collaboration of the IT sector has a chance to become an important **pattern** and be repated by other sectors and other cities. The other municipal efforts to **rebuild the image of the city as an attractive leader of the sub-region** through innovation come as important enabling factors, similarily as personal engagement of business and administration representatives.

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# Poland

# Voivodship Łódzkie Bełchatów region

Extinction of the biggest lignite powerplant in Europe and the quality of life of the inhabitants

Timeframe: 2022-2030

## Challenge faced

Bełchatów region is home to the biggest lignite power plant in Europe, producing 20% of electricity in Poland and at the same time is the biggest single emitter of CO2 among all the power plants in the world. The region is also the home of mining open pits serving the power plant, but at the same time causing extreme environmental damage (including a hydrological imbalance).

In view of the planned phasing out of the lignite-based energy industry, the Bełchatów region faces the need for a profound transformation. The aim of a successful Just Transformation process is a quality of life (standard of living) for the region's inhabitants that remains at least at the same level as before the transformation. However, it is clear that the loss of a major employer and an important source of income for the municipalities (in some cases half or even more of the budget), such as the Polish Energy Group, poses a threat to the quality of life of the inhabitants in various ways. These entail a lack of acceptance and understanding of the process by the community, as well as on the part of the officials.

### Types of barriers encountered and addressed

- **Social:** weakness of social capital
- **Organisational:** lack of cooperation at local level between municipalities, authorities and residents
- **Political:** lack of cooperation with governmental authorities and with the mine owner PGE

## Innovative solution applied

The communication activities, workshops and seminars have created space for discussion on the post-coal future of the region. Those include in particular the Bełchatów 2050 project. This activity has led to the appointment of its expert as **an official representative of the Łódź Voivodeship Board for the transformation of the Bełchatów** region and the creation of the **Department of Just Transition Advisory** in the **Agency of Development of Łódź Voivodeship**. This unit and its leader became the engines of change for the region, encouraging support from other organizations and raising broader public attention. The experts undertook **innovative activities** in the local context, encompassing: communication and social capital studies, a holistic, multidimensional plan for the Bełchatów region, and analysis of the impact of mines closure on municipal budgets. They have also organized a set of workshops, conferences and meetings, as well as undertaking intensive media activity. Their approach pays special attention to the participation and co-creation of solutions by various stakeholder groups, as well as cooperation between neighbouring municipalities, combining and complementing their resources, creating and developing a common strategy of action.

> Their approach pays special attention to participation and co-creation of solutions by various stakeholder groups, as well as cooperation between neighboring municipalities, combining and complementing their resources, creating and developing a common strategy of action

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

## Change observed

A gradual change in narratives over Bełchatów is observable. Moreover, the Łódzkie Voivoideship has prepared a Territorial Just Transition Plan (in collaboration with an expert group), including dates of powerplants and mines closure. This document enabled authorities to apply for being a region eligible for the Just Transition Fund. After long negotiations, in December 2022 the **funding in the amount of 369,5 bn EUR** was approved for Łódzkie Voivodeship under the first JTF.

Without the EU policy on decarbonization, including phasing out coal-based energy, supplemented by financial instruments for a Just Transition, concrete steps towards closing the mines wouldn't have happened still for many years. Nevertheless, the **hard work of the official representative** for the Transformation of Bełchatów, his team in the Development Agency, as well as a **group of collaborators** (especially NGOs and universities) have created the momentum to significantly speed up the needed energy, economic and social transformation.

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# South Africa

## Public-private collaboration building solar capacity in South Africa

Timeframe: 2010-2023

## Challenge faced

South Africa is globally known as an energy and coal intensive country. Nearly 90 percent is fossil-based, supplied by a large domestic production of coal. However, around 50% of South African households still live in energy poverty. The South African government aimed to increase electricity generation through private sector investment in grid-connected renewable energy (wind, hydro, and solar) and by diversifying the country's energy mix by moving away from fossil-fired power.

### Types of barriers encountered and addressed

- **Financial:** High transaction costs for building renewable energy infrastructure
- **Financial:** Market conditions not ready for renewables

## Innovative solution applied

In 2009, the government began exploring feed-in tariffs (FITs) for renewable energy, but these were later replaced by competitive tenders. In 2011, **The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)** was introduced at the COP17 in Durban. The programme was designed primarily to facilitate private sector investment in renewable energy, reduce the country's reliance on fossil fuels, **stimulate an indigenous renewable energy industry**, and contribute to socio-economic development and environmentally sustainable growth. The office co-founded by The Department of Mineral Resources and Energy (DMRE), National Treasury (NT) and the Development Bank of Southern Africa (DBSA) provides professional advisory services, procurement management services and monitoring, evaluation and contract management services.

> In 2011, The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) was introduced at the COP17 in Durban.

## Change observed

In the initial two-and-a-half year period, a total of 64 projects were awarded to the private sector. The private sector (international project developers, sponsors and equity shareholders) invested USD 14 billion in projects that will generate 3922 megawatt (MW) of renewable power. Average **prices** of photovoltaic power have **decreased** by 68 percent, while the cost of wind power has dropped by 42 percent over the three bidding phases. To achieve transparency, a list of bidders is available online at the REIPPPP website. Also, the REIPPPP program has created multiple **opportunities for SMEs** in the form of advisory services, economic and social development consultants and construction contractors.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The REIPPPP benefited from **high-level political support**, including President Zumma´s commitment at the COP17 in Durban. At the same time, South African **banks** were able to offer long-term loans (up to 17 years) for REIPPPP projects. By engaging the private sector, South Africa achieved renewable energy at competitive prices. In a very short time, the REIPPPP was able to roll out a significant amount of energy using transparent procurement. The management team and the team leader of REIPPPP had an excellent **working knowledge of public-private-partnership contracts**. Moreover, external, private sector expert advisors were used to facilitate the **dialogue with stakeholders**. While using funding from the DBSA, donors and the National Treasury jobs fund, and establishing a mechanism to capture fees from closed projects, **the program was able to operate independently of the formal government budget**.

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# Spain

# Asturias
# Lada Palencia
# Velilla del Río Carrión

## Open Innovation Platform in Lada and Velilla del Río Carrión

Timeframe:
September 2020-ongoing

## Challenge faced

Lada is a parish in Langreo, a municipality within the province and autonomous community of Asturias in northern Spain, with 3,500 inhabitants. Velilla del Río Carrión is a municipality located in the province of Palencia, Castile and León, Spain with approx. 1,600 inhabitants. For both Lada and Velilla del Rio Carrion, coal-fired power stations are among the main employers: the plant in Lada at the time of the decision to close it provided work to 150 people, while the plant in Velilla del Río Carrión provided work to 154 employees. Therefore, the governmental decision to close the power plants in order to meet the objectives of the European Green Deal and mitigate climate change has triggered complex challenges for the communities.

### Types of barriers encountered and addressed

- **Social/governance:** lack of proactivity and leadership of local agents in the territory
- **Social:** perception that "sustainability" or "energy transition" takes away jobs and is not worth it.
- **Organisational:** administrative barriers, lack of proper institutional support – especially for more innovative or experimental initiatives
- **Social/cultural:** In the case of Lada, a shared underlying narrative was identified that "institutions and companies are indebted to the territory".

## Innovative solution applied

The Open Innovation Platform is an initiative of Iberdrola, the Centre for Innovation in Technology for Human Development of the Polytechnic University of Madrid (itdUPM) and the Agirre Lehendakaria Center (ALC). Using the **approach of the Social Innovation Platforms**, it promotes collaboration between citizens, public entities and companies to support a just transition in the territories that must deal with the closures of Iberdrola's coal-fired power plants.

The underlying assumption is that without **understanding the barriers** and other **deep insights**, it is not possible to have an impact on the system as a whole. To systemically address the challenge of just transition the Platform has focused on the following elements: 1. **Mapping of agents** and initiatives and **community listening**; 2. **Co-creation and collective interpretation**; 3. **Portfolio of interconnected actions** that avoids the logic of individual and isolated projects; 4. **Distributed governance** and **integral communication** system. In the case of Lada, a portfolio including areas of opportunity that respond to community perceptions in real time was identified.

> Using the approach of the Social Innovation Platforms, it promotes collaboration between citizens, public entities and companies to support a just transition in the territories that must deal with the closures of Iberdrola's coal-fired power plants

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

## Change observed

The facilitation of collective interpretation spaces has in many cases managed to **break traditional dynamics that often hindered development or kept the work areas of the different territorial agents isolated**. These spaces have made it possible for citizens and territorial agents belonging to different companies or institutions to get to know each other and talk about collaboration possibilities, seeking new ways to collaborate in their initiatives.

The work of the Platform **is the acupuncture of the community's own actions**. The Platform generates the context to stimulate projects in order to **promote a portfolio of interconnected initiatives that respond to the needs and values of the community and the territory**. This approach provides an opportunity for transformation that takes into account the aspirations and needs of a diverse range of groups - stakeholders from the informal economy, migrants, the elderly, women and youth, as well as different political and ideological arcs.

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# Spain

# Basque Country
# Bilbao

What was the real Bilbao effect?

Timeframe: late 1980s-2017

## Challenge faced

When Spain democratized and entered the European single market, Bilbao suffered on almost every front. Local industrial companies were unable to compete economically in the global market. Unemployment soared, reaching 50% among the youth in the 1980s. By 1995, Bilbao lost 60,000 manufacturing jobs. The city also struggled with numerous abandoned and destroyed buildings, as well as with environmental degradation. To make things worse, terrorism, crime and vandalism cropped up. Transforming such a place could have seemed impossible. "It was a dark city," admitted a former mayor of Bilbao Aburto Areso. He described the situation as "do or die… It was so desperate that leaders at all levels of government agreed that they had to do something about it." Indeed, present day Bilbao stands as a flagship example of a city that has successfully managed the transformation.

Types of barriers encountered and addressed

- **Environmental:** degraded areas, polluted river
- **Social-economic:** a crisis bordering on a collapse
- **Strategic:** a bad image of the city

## Innovative solution applied

The transformation of Bilbao is closely tied with a **strong positive vision and narratives, as well as management and funding mechanisms** that complemented each other. The public entities that owned land along Nervión, Bilbao's main river, became shareholders in a limited liability corporation Bilbao Ria 2000. These shareholders included both central and local government entities and were represented by various political fractions. The company carried out a clean-up and infrastructure work on the land plots before selling them to private developers and using the proceeds to finance additional development projects, **transforming the waterfront bit by bit**. Such a solution not only made it possible to finance the transformation of the waterfront on its own, but also helped **avoid its fragmentation**, as Bilbao Ria 2000 saw to the preservation of the original **coherent vision** for the riverbanks as **part** of the vision for the whole Bilbao.

Such a solution not only made it possible to finance the transformation of the waterfront on its own, but also helped **avoid its fragmentation**.

## Change observed

*Bilbao Ria 2000* has gradually transformed the industrial brownfields located on the riverbanks into walkable and thriving public spaces for tourists and residents to enjoy. This has helped to set the local economy in motion again. **Between 1996 and 2015, Bilbao's GDP per capita more than doubled**, despite the Great Recession. The most visible and most recognized new development became the Abandoibarra area in the reclaimed docks, where the Guggenheim Museum is located, attracting nearly a million visitors every year since it opened in 1997.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

The city's success, often associated with the establishment of the Guggenheim Museum, can in fact be tracked back to the **concerted efforts of the authorities and the community and the imagining of a positive future**. The transformation was possible due to a **comprehensive strategy and a portfolio of actions** based on **public-private relations** (especially **the corporative movement**), an inner **transformation of the economy and society**. These made the steps towards the reconstruction possible, including crucially the creation of the organizational vehicle, *Bilbao Ria 2000*. Therefore, the Guggenheim Museum should not be seen as the trigger behind Bilbao's transformation, but rather a symbol of the transformation that was already taking place.

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# Turkey

# Aydin Province

Abandoned mine reused for agriculture in Turkey

Timeframe: 2000-now

## Challenge faced

Lignite has been mined in Aydin province, Turkey since 1910. The Aydin Linyt Şahnalı Coal Enterprise is a big player operating on land of 3300 acres, covering 1400 acres of land owned by the company, 894 acres of private land and the remainder licensed forest land. When mining in Aydin stopped being profitable, the owners were faced with a big challenge: how to deal with environmental consequences, such as water pollution, land erosion, and acid rains. The devastated terrain of an open lignite mine in Aydin waited 10 years for its opportunity to come.

### Types of barriers encountered and addressed

- **Organisational:** diverse ownership of the land
- **Environmental:** damage due to the mining activities

## Innovative solution applied

In 2000, a project of an **experimental garden** began. The Aydın Linyit Madencilik company and Zetai Tarim, an olive oil producer, invested 8 million dollars to recultivate the area. First, an agreement with the other land owners was concluded. Then, the terrain needed to be restored, and 894 acres of land was planted with olive trees and fig trees. 30,000 acacia trees were planted on the slopes to prevent erosion. A system of ponds and water channels was built to gather rainwater and distribute it further into the garden. No artificial fertilizers or pesticides were used – instead, sheep and lambs serve as a **natural pest control** and their faeces act as **fertilizers**.

> Then, the terrain needed to be restored, further a land of 894 acres was planted by olive trees and fig trees.

## Change observed

Today, circa 85,000 trees are harvested on 1750 acres of former mining land. Besides olive and fig trees, there are also mulberry, jujube fruit and almonds growing in the garden. The first harvest was in 2007. In 2020, around 36 tons of olives were produced. To process the olives, an olive oil manufactory was built in 2014. The olive oil produced in Aydin province is recognized internationally for its superior quality and exported to many countries, including Japan, the United States, Canada, Germany, France, and Norway.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Despite the mining operations still run in the area, the Aydın Linyit Şahnalı Coal Enterprise tries to reduce their climate impact by nature restoration, contributing their own ideas and investments. By planting abandoned lignite mines with an olive garden, they aim to reduce their climate footprint by 20%, more ambitiously by 30%. Furthermore, bringing agriculture to the area contributes to industry **diversification** of the region.

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# USA

# Appalachian Region West Virginia

Rebuilding the Appalachian region through a holistic approach to personal development, education and employment

Timeframe: 2010-ongoing

## Challenge faced

The share of coal in American electricity production fell from about 50% in 2006 to just over a third in 2015. This has translated into mining employment in the Appalachian region (a stretch composed of West Virginia, eastern Kentucky, and western Pennsylvania) falling from 140,000 workers in the 1940s to about 16,000 people today. For this reason, mining regions have the highest unemployment rates, between 10%-14%. The regions have been **struggling with poverty for decades**, high rates of drug addictions and incarceration. Due to the fact that coal companies have abandoned mines and much of the infrastructure, some communities are deprived of basic needs. Roads and housing are often dilapidated, and functioning water and sewer systems are in short supply. For the Appalachian coal-mining region, the main challenge is not only to diversify the economy, but to invest in resilient economic structures that can serve as a long-term development perspective.

### Types of barriers encountered and addressed

- **Social:** Distrust and lack of mobilization and involvement of the community
- **Social:** strong mining identity

## Innovative solution applied

Facing the generational challenge in the Appalachian mining region, the Coalfield Development Corporation, a community-based non-profit organization keen on partnerships and financed by external funds and federal grants, aims to create jobs for chronically unemployed locals. The main goal is to use a **relationship-based holistic approach to personal development, education and employment**.

The company created an innovative model called "33-6-3" which stands as the core of Coalfield Development's Quality Jobs Initiative, a 2.5-year personal academic development approach designed for formerly unemployed (especially laid-off coal miners) and underemployed people. It consists of **33 hours of paid work** (the work crews supporting a variety of projects with a view of creating useful assets for local residents, communities, and businesses.); **6 hours in the community college** (most locals do not have a higher education diploma, most of them entered the workforce after graduating high school; therefore, the Coalfield Development has made academic upskilling a central requirement for every crew member); **3 hours of personal development mentorship** (crew members meet monthly in groups of 3-5 individuals to work on additional skills that provide responsibility and opportunities for both personal development and opportunities that are helpful in improving in the modern workplace. After a 2.5-year contract, crew members earn an Associate's degree which enables them to move forward in achieving their life goals and overcome poverty and lack of prospects. However, many people with families and other commitments don't necessarily opt for the 33-6-3 model. For that reason, a supplementary solution is the Workforce Readiness and Professional Success "WRAPS" program, which lasts 6 months and prepares participants to become certified electricians.

> Coalfield Development by creating 33-6-3 model designates the main goal with use of a relationship-based holistic approach to personal development, education and employment.

## Change observed

Thanks to the program, over 20 million in investment funds have been leveraged, more than 50 new businesses have been supported and more than 250 new jobs were created. Moreover, more than 1,200 people have been trained.

For a long time, coal was the only way to earn a living. Creating alternatives from the ground up has been and continues to be one of Coalfield Development's key goals. Apart from diversifying economically, educating, upskilling and helping local residents transform the area into a thriving place to live, Coalfield Development has also helped overcome distrust and lack of involvement in a strong mining community.

## Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Providing paid work as well as education was key to reaching people, often those who were either in a slump in life or socially excluded. Supporting the community in renovating buildings served as a major motivation for local communities. The community began to think creatively about the future.

The example of Coalfield Development presents a completely new and different approach to work for the local community. An important factor lies in the work culture, which is carried out according to the principle "opportunities cannot be wasted — they must be cultivated." This approach also puts great emphasis on positive thinking, focusing on opportunities rather than barriers. Therefore, trust is highly valuable for both the company and employees.

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# Germany

# Saxony-Anhalt Merseburg

From polluted town to national heart of open environmental data

Timeframe: 2014-now

**IN PROGRESS**

## Challenge faced

Merseburg is a city of approx. 36,000 inhabitants, located in the Saxony-Anhalt region and is part of the Central German mining district, the oldest of Germany's lignite mining region. The region contributes between 40 and 50 percent to the total amount of lignite mined in Germany. In 2018, a total of 2,500 persons were employed in the Central German mining district, and nearly 3,900 further jobs depended directly or indirectly on the brown coal sector. The region around Merseburg was once one of the most polluted areas in Europe. Yet the gradual closure of polluting mines and industries, together with environmental measures taken, significantly improves the air and water quality in and around the city.

### Types of barriers encountered and addressed

- **Knowledge:** lack of universal access to environmental information
- **Organisation:** Inefficient collection of environmental information (many entities collecting data that are not shared or are only for their own use); Inefficient flow of environmental information between the federal government and the regions

## Innovative solution applied

As part of the structural transformation of mining regions, the federal government and the state of Saxony-Anhalt decided in June 2021 to establish a **National Environmental and Nature Information Center** in Merseburg. To create the center, the Federal Environment Agency (UBA) established cooperation with the University of Applied Sciences in Merseburg.

Over the next few years, 85 million euros are to be invested in a project that will bring together in one place all available data in Germany on environmental topics.

The creation of **an information processing center to collect and process huge amount of data using artificial intelligence** enable not only government bodies to understand better and more quickly the environmental needs that exist in the region, thanks to the efficient transfer of data, but also scientific and research institutions, business and industry, administration and, most importantly, it **will be available to all citizens**.

An important fact is the decision to locate the center in a relatively small city in a mining region. This creates a whole new opportunity for the city and can significantly affect its image, as well as further development structure. In addition, the presence of such an institution in a former lignite mining area **promotes local residents' awareness of environmental and conservation issues**.

> The creation of **an information processing centre to collect and process huge amount of data using artificial intelligence enable** government bodies, scientific and research institutions, business and industry, administration and, most importantly, **all citizens**, to understand better and more quickly the environmental needs that exist in the region.

## Change observed

The data shall provide the basis for using digital technologies and innovative applications to protect the environment, climate and resources. Relevant data sets and information on key issues of the future will benefit not only scientists, but also environmental associations and other NGOs. Companies will be able to more easily develop new businesses, including those requiring environmental information and promoting environmental protection. They should also more easily integrate environmental and sustainability aspects into their offers, in order to comply with environmental regulations. Though the center is not yet complete, it is expected that such an innovation would create new possibilities for the local community and definitely change the shape of the post-coal region.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

An important factor contributing to creating the centre was the **European Commission's proposal**. A national center with access to a coherent database was meant to become a response to data fragmentation. Following that, the Federal Environment Ministry decided to create The National Centre of Environmental Information in Merseburg. Another important condition is that according to the researchers, the Central German lignite district has a **high innovation and growth potential**. This is helped by the fact that Merseburg is located close to the big cities of Leipzig and Halle, and is home to the University of Applied Sciences.

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# Ireland

# Tipperary Silvermines

Silvermines - from mine to renewable energy and energy storage

Timeframe: 2023-2029

**IN PROGRESS**

## Challenge faced

Silvermines is a small village in the Tipperary region of Ireland. For years, the region benefitted economically from mining activity. The mining site of Silvermines is unique among Irish mines, as it contains argentiferous lead, copper, zinc and open-pit mining of baryte and has remained derelict since mining operations ceased in the early 1990s. The long-lasting exploitation had serious environmental site implications, including surface subsidence, large deep open pits, and extensive waste dumps. The "heritage" also includes derelict surface structures and a tailings dam. The local community has decided to speak out about the environmental damage and rally for the mining sites to be rehabilitated. Thanks to this, local government institutions have engaged in the revegetation.

In 2005, the government provided funding for the rehabilitation of the old mining sites. Due to budgetary constraints at the time, the full remediation works were put on hold, though, and remain uncompleted.

### Types of barriers encountered and addressed

- **Environmental/infrastructural:** unused, damaged post-mine spaces
- **Financial:** big cost of repurposing of the site

## Innovative solution applied

In 2010, after a three-year campaign by locals to prohibit the site from becoming Ireland's largest waste disposal site, the Courts ruled against developers' plans to ship waste to the location.
Moreover, an alternative plan was created by privately-owned company Siga-Hydro Limited: The Hydro Electric Power Station Project plan to **generate hydroelectric power with use of storage-based technology** on the area of a disused mine. Water from a higher elevation reservoir will be released to a lower reservoir, flowing through large turbines and generating electricity at peak demand in the process. At night, the water from a lower reservoir will be pumped to the higher reservoir to provide sustainable energy flow.

> The Hydro Electric Power Station Project plan to generate hydroelectric power with use of the storage-based technology on the area of a disused mine.

## Change observed

The so-called "pumped storage facility" will deliver significant benefits to the region, **supporting energy security and employment**. The programme is to be turned into a 360 MW **hydroelectric power** plant which will provide daily storage capacity of 1.8 GWh. Operating in full generation mode the plant has the ability to generate renewable electricity of approximately 650GWh per annum, equivalent to the amount of **electricity consumed annually by 200,000+ homes**. The project investment and operation will also stimulate local job creation. It is estimated to make **50 permanent jobs and 400 construction jobs and to leverage private investment of 650 million EUR**. Over the life of the project the benefits flowing into the national economy will exceed 2,5 bn. EUR.
The project is expected to significantly reduce the cost of electricity at wholesale level and the retail price of electricity, thus increasing Ireland's competitiveness.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Thanks to the creation of a **well-defined project, national policy** as well as **local community engagement**, the project will contribute to the transition to a low carbon economy based on renewable sources of energy. The project also has the opportunity to repurpose the unused land, leveraging on the shape of the surface and other local conditions. The bankable idea was able to attract private capital. Even though the power and storage plant has not been built yet, it has the potential to scale up, especially in times when not only energy production, but also energy storage is highly debated. Learnings from the repurposing of the mine of Silvermines can inspire other mining regions and how they can move towards resilient leveraging on their assets.

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# Poland

# Małopolska Libiąż

Repurposing of the post-mining sites: learnings from LURA application in the city of Libiąż

Timeframe: 2019-ongoing

**IN PROGRESS**

## Challenge faced

In the city of Libiąż a large coal mine "Janina" is located, one of two coal mines in the Małopolskie Voivodeship. In the early 1970s, it employed approx. 4000 people, yet since political changes in 1989 a reduction of workplaces has begun. The number of employees decreased in a few years by more than a thousand people and mining output declined. The number of people involved in coal extraction in the Libiąż area is still high due to Janina's deposits estimated at 20% of Poland's hard coal reserves which is the largest operable reserve of hard coal in Poland (estimated at 841 009 thousand tons). According to calculations the mine could have functioned still for more than 180 years. This caused authorities to think about how to effectively repurpose the area (especially the slag heap) in a more sustainable and productive way, considering: the nexus of environmental, low carbon economy and climate change with respect to social and cultural aspects.

### Types of barriers encountered and addressed

- **Environmental:** pollution, geotechnical instability, hydrological risks
- **Legal:** long permitting process for the new use of the mine
- **Financial:** taking over repurposing of the site by one investor is hard to achieve

## Innovative solution applied

The new mechanism of recultivation of the waste slag heap in Libiąż is based on a land use repurposing application called "LURA" which was created by World Bank Energy & Extractives. This advanced tool is currently in the pilot phase and aims to support optimal land utilization. With the use of special algorithms, the application helps to classify and divide land into zones of different purpose. According to World Bank calculations with the use of "LURA", the Janina Mine's waste heap is divided into 6 zones:

- Zone 1: higher-value investments, e.g. business parks, warehousing, non-polluting light industry;
- Zone 2: operative sedimentation pond, currently classified as unusable land;
- Zone 3 and 4: well suited for PV installations;
- Zone 5 and 7: restricted use options, such as revegetation with grass, bushes and trees, due to the poorest geotechnical conditions;
- Zone 6: the plateau could be suitable for renewable energy placement, such as PV or wind power due to a flat morphology.

Having the zones defined, the municipality is recommended to take over the local zoning plans and pre-permitting when needed for special land use.

> With use of special algorithms, the application helps to classify and divide land into zones of different purpose.

## Change observed

Though the solution is in the pilot phase in Libiąż (not yet fully implemented) it is already helping officials to plan for the future – preparing the zones of the mining heap. The solution should encourage investors, as having the land prepared for investment from an administrative perspective will ease and speed up investments, as well as reduce part of the risks. Unlocking private investments means that local authorities will not need to become the investors for the repurposing to occur.

Moreover, the processes of repurposing land, including recultivation of former coal sites, can be burdened by stakeholders' emotion. Through an evidence-based approach, "LURA" supports cooling the emotion down and creates a space for fact-based conversation about the place's future. In addition, the tool supports multifunctionality, which can support local resilience.

# Diagnosis

**of how and why this particular new solution allowed for a breakthrough**

Previous analysis of World Bank experts of the legal and operational blockages to the repurposing of the post-mining sites has led to identification of space for a breakthrough solution. Moreover, positive collaboration of city officials and the World Bank experts is another important prerequisite. By offering communities a tool that analyses facts on the ground and is able to offer a path towards cleaner use of energy, economic, environmental, and public spaces, as well as by increasing investment ease in the most challenging places, LURA has the opportunity to significantly help regions transition from coal dependence to a post-coal future.

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# Conclusions

## Content

The report zooms into particular case studies and particular innovative actions which help to unlock bigger change in the given location. It scans different types of transformation barriers in coal and heavy industry-dependent regions: political, legal, governance, organizational, social, financial, and others. It also provides a variety of innovative answers given by the agents (champions) of change.

It is crucial though to remember that the complex transformations require a portfolio of actions and engagement of multiple agents of change. Therefore, the described solutions are only pieces in a bigger puzzle. A puzzle which it is not possible to assemble overnight, but which takes years.

The described breakthroughs are seen from a local point of view. This means that what may be obvious in one place (e.g., a big city or a certain country) is something completely new in another (e.g., a smaller city).

The variety of local contexts means that it is not possible to successfully copy-paste the solutions and achieve exactly the same results. For this reason, the goal of the report is not to give ready-made answers, but rather inspire testing, as well as consciously observing where new patterns emerge – patterns which can help to phase out the harmful, undesired form of activities – and what the enabling factors are for this to happen.

### Particular support for RIS countries

According to the European Innovation Scoreboard four types of countries were distinguished:

- **Innovation leader** (Belgium, Netherlands, Denmark, Finland, Sweden),
- **Strong innovator** (Estonia, France, Cyprus, Germany, Austria, Luxembourg, Ireland),
- **Moderate innovator** (Greece, Lithuania, Malta, Portugal, Spain, Italy, Czechia, Slovenia),
- **Emerging innovator** (Romania, Bulgaria, Latvia, Poland, Slovakia, Croatia, Hungary).

In order to support the emerging and moderate innovators, the **Regional Innovation Scheme (RIS)** was organized by the European Institute of Innovation and Technology (EIT), where those countries are eligible for additional support. Third countries Montenegro, North Macedonia, Serbia, Turkey, and Ukraine are also included.

As countries and regions facing transformation challenges are differently equipped with assets to support the transformation, as well as facing different barriers, this report is aimed especially at supporting those who need help the most.

The publication includes a number of case studies from the RIS countries, showcasing that barriers can be successfully addressed through new answers – also in those countries and regions which are not seen as leaders of innovation.

## Assessment of application in the RIS countries context

As the report provides a variety of solutions, **patterns** from most of them can be applied in the RIS countries. This means that even if not exactly the same organizational structures, legal, or financial solutions etc. could be applied or make the most sense, they can inspire similar mechanisms, adjusted to the local context.

What is particularly important to observe is that most of the solutions refer to **new collaborations**, which are either part of the innovation itself or an important enabling factor for the innovation to happen.

## Learnings on the meta-level

What is worth observing is that the report aimed at scanning for innovative solutions to overcome transformation barriers from all over the world. While for some countries it is easy to find multiple examples, for others (or even for some parts of the globe) it is difficult. Therefore, the team has managed only to identify single case studies from Asia, North America and Africa. This could be due to several reasons, such as:

1. For some countries, transformation of coal and heavy industry-dependent regions is highly politically and socially important. For this reason, multiple initiatives have already taken place – including research and promotion. The European Union aims to become a global leader of sustainability, therefore the ease of finding innovative initiatives there. In particular, descriptions of innovations and other good practices from Germany are easily accessible.
2. In certain parts of the world, country and region innovation is strongly promoted, while in others the innovation ecosystems are weaker and innovative actions, even when they occur, aren't necessarily framed as such.
3. The team engaged in preparation of this report, as well as their organizations (WiseEuropa and ImpactHub Ostrava), are based in Poland and Czechia and their network is mainly built in the EU. Therefore, it was easier to access information from the European Union and more difficult to access that from more distant parts of the globe.

## Recommended further actions

As many stakeholders stress the importance of inspiration and know-how from good practices, the creation of an online **platform** containing innovative solutions and other good practices from all over the world could be an important tool enabling transformation towards a sustainable future. The knowledge stemming from reports, articles, and stakeholder insights should be contained in a unified, interactive database.
The description of the case studies should follow a pre-defined structure, allowing them to be filtered through different dimensions and the basis of the solutions to be understood. Additional sources of knowledge should be linked, together with contacts to people who could provide deeper answers on the case studies. Moreover, the creation of a **community** of innovators would be desirable.

WiseEuropa

## WiseEuropa Foundation

**WiseEuropa is an independent think-tank and research organization based in Warsaw that undertakes a strategic reflection on European politics, foreign policy and economy.**

**The mission of WiseEuropa is to improve the quality of Polish and European policy-making as well as the overall business environment by promoting the use of sound economic and institutional analysis, independent research and evidence-based approach to impact assessment.**

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