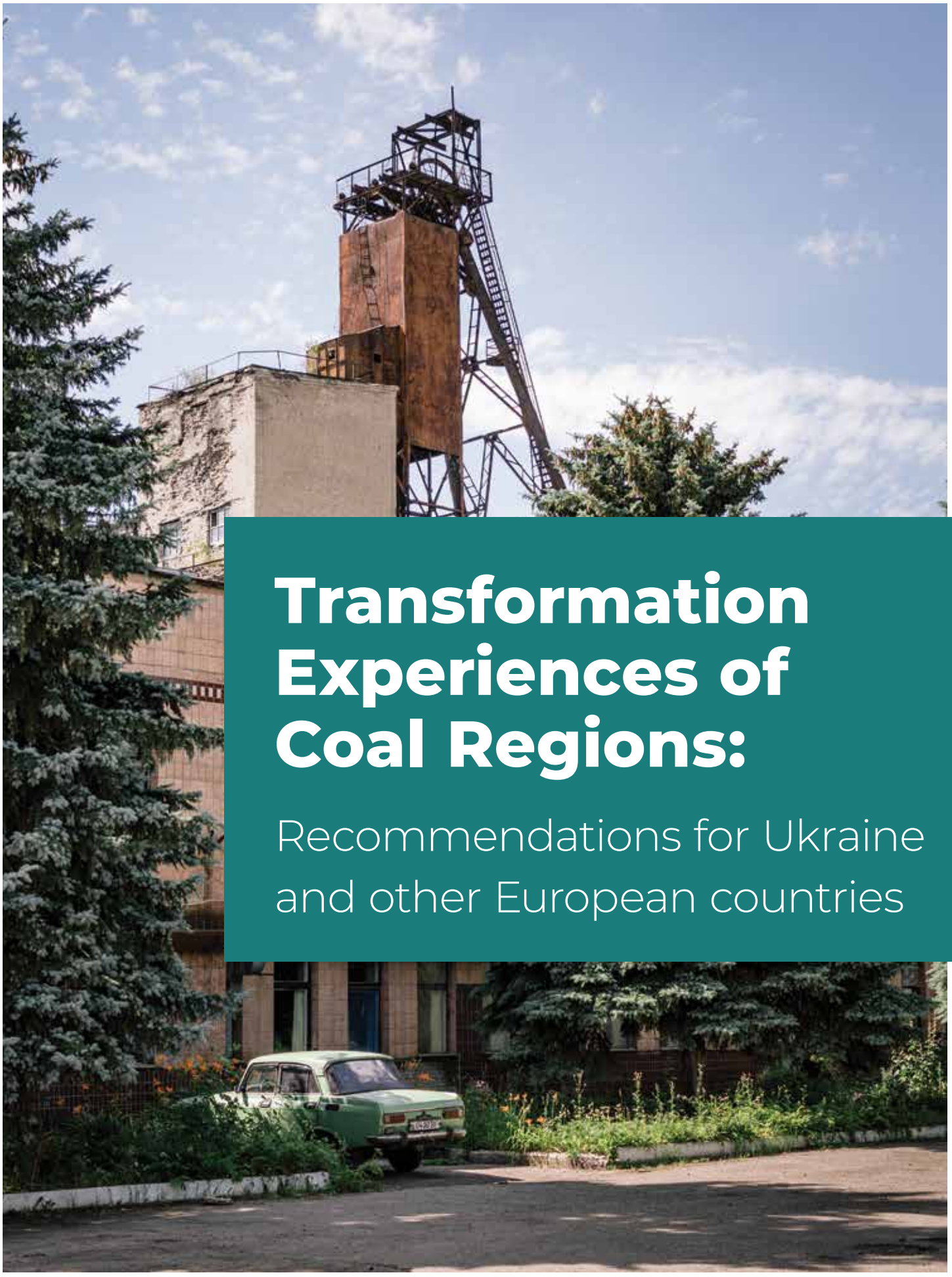

Transformation Experiences of Coal Regions:

Recommendations for Ukraine and other European countries

EXECUTIVE SUMMARY


#JUSTTRANSITION4UA

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MORE AND MORE COUNTRIES ARE CHOOSING TO DECARBONIZE THEIR ECONOMIES AND MOVE AWAY FROM FOSSIL FUELS TOWARD RENEWABLE ENERGY SOURCES. JUST SEVERAL YEARS AGO, ENERGY FROM COAL WAS CONSIDERED MORE ECONOMICALLY FEASIBLE, DEPENDING ON WHAT IS COUNTED IN FULL COST.

Iryna Stavchuk,
Executive Director,
Ecoaction

But with the rapid development of renewable energy technologies and strengthened climate goals, investments in coal have become less attractive all over the world.

Since the collapse of the Soviet Union and its transition to a market economy, the Ukrainian coal sector has been in a state of decline. The only thing that keeps state coal mines from collapsing entirely are enormous subsidies provided by the state every year. Since the 1990s, n closures of coal mining enterprises have negatively impacted local municipalities, as no comprehensive socio-economic strategies to support these regions were developed. Nowadays, despite the need to close the remaining unprofitable state mines, no politician has dared to take on the responsibility of making tough decisions and managing the inevitable social consequences.

Even though our organization is an environmental one, with its main focus on climate change and other ecological issues, we are deeply concerned about social problems that can arise after the closure of coal mines. First and foremost, there is a concern that miners will be laid off in the affected territories. Without proper planning, reskilling programs, diversification of the economy and creation of new job opportunities, such actions will create great social and economic instability in these regions. The task of the national and local authorities, together with representatives of other stakeholders (civil society, business, and science), is to do everything in their power to mitigate such risks.

The main objective of this study is to provide Ukrainian authorities with concrete recommendations for the impending coal phase-out. Both the positive and negative experiences of other countries are invaluable in its preparation. We hope that in the end, it will be helpful for the creation of a just and comprehensive transition strategy. The sooner our country and affected regions start preparing for the coming changes, the less negative social and economic consequences there will be.

NOWADAYS, THE BROADER PUBLIC IN EUROPEAN COUNTRIES BECOMES INCREASINGLY AWARE OF THE GLOBAL CLIMATE CRISIS. THE WEATHER CATACLYSMS IN UKRAINE IN APRIL 2019 AND THE EXTREMELY DRY SUMMER ACROSS WESTERN EUROPE IN 2018 HAVE RAISED AWARENESS.

Christoph Bals,
Policy Director,
Germanwatch

Meanwhile, especially poor people in the Global South are hit even harder: crops are devastated and housing is destroyed. The climate crisis is increasingly a risk amplifier for uprisings and wars, and the subsequent migration processes might also affect Europe.

These trends have led to a shift in international politics with the signing of the Paris Agreement in 2015 as a milestone. But even more quickly, these trends are being identified by international business actors First, big investors, such as AXA or Allianz, are shifting out of fossil fuels. Second, industrial companies are investing primarily in low-carbon technologies or are trying to reduce their carbon trace to zero, such as Bosch AG or ThyssenKrupp. A well below 2° or 1,5 °C development pathway is a chance for all industrialized countries. It enables innovation, new economic development options, better health, higher quality of life, and fair development opportunities around the world.

The European Union has now generally understood this chance, as observed in the Clean Energy for All Europeans package. The package lays out more ambitious goals for the share of renewables and improving energy efficiency. The EU also made low-carbon energy policies part of its Association Agreements with neighboring countries such as Ukraine.

Decarbonization will speed up. Prosperity in Europe has been built on the back of the people and regions that provide fossil fuels and are home to energy intensive industries. Governments and the EU must now assist them in transforming their society. Non-profit and incorruptible civil society organisations such as Germanwatch can help governments and assist the affected regions directly. This is what Germanwatch, Ecoaction and Alternativa are offering to Ukraine-controlled Donbas, one of the biggest remaining coal and steel regions in Europe.

Today, it is common sense in Germany that power, transport and heating sectors must be carbon-neutral by 2050. Germany recently decided to phase out coal mining and combustion no later than 2035–2038. While the coal phase-out decision is a big success for political dialogue, the phase-out date is not ambitious enough to meet Paris Climate Goals, and a revision will be discussed in 2023.

The European and German coal phase-out experiences send a clear message: an early start and a clear framework are key to ensuring that the affected areas have an opportunity to develop. Delay brings a high risk of economic and social disruptions. Germany experienced this when hard coal mining phase-out was delayed, but it was driven out of the energy sector through pure economic competition. Now, the end of lignite mining was explicitly agreed upon at an early stage, and together with support packages, this prepares the affected regions for the transition.

In this context, the study at hand can provide useful insights for not only Ukrainian, but also other European coal regions by summing up the experience of coal mine closure in four European countries.

Facing this great transition to come, political decision makers need courage. They have to name the social and economic challenges honestly and address them as soon as possible. But they have the unique chance of bringing together different stakeholders for shaping their path to a more sustainable, healthy and resilient society.

1. Introduction:

The Study and the Project «New Energy — New Opportunities for Sustainable Development of Donbas»

THIS EXECUTIVE SUMMARY PROVIDES AN OVERVIEW OF THE MAIN TAKEAWAYS FROM THE ANALYSIS OF FOUR EUROPEAN COUNTRIES AND LAYS OUT A SET OF RECOMMENDATIONS ESSENTIAL FOR A JUST ENERGY TRANSITION FROM COAL COMBUSTION TOWARD SUSTAINABLE ECONOMIC DEVELOPMENT.

The analytical study was commissioned and realized as part of the project "New Energy — New Opportunities for Sustainable Development of Donbas." This project has been developed and implemented by the NGOs Ecoaction (Kyiv, Ukraine), Luhansk Regional Human Rights Centre "Alternativa" (Donbas/Kyiv, Ukraine) and Germanwatch (Berlin/Bonn, Germany).

The project supports regional stakeholders to develop concepts, recommendations and actions for a sustainable energy transition. It is based on the specific needs and strengths of the Donbas region, its stakeholders and inhabitants. At the same time, it takes into account worldwide trends towards low-emission development, technological innovations and the industrial potential of the region. Its overall aim is to establish a dialogue between local and regional representatives to jointly define needs and elaborate solutions for a sustainable energy transformation of Donbas. According to state-of-the-art concepts in regional development, such a transition and its results have to be socially just, economically sound and climate-friendly.

This study was conducted in order to define more precisely what this means for Ukraine and Donbas specifically. The current publication is a summary of a comprehensive analysis focused on positive and negative experiences of the closure of coal mines in Ukraine and selected EU countries (Germany, Romania and the Czech Republic).

This study consists of research on the national policies of the transformation of the energy sector, on the one hand - and research focused on the specific regions that were affected the most. Different authors studied their respective fields in each of the four countries, gathered all the necessary information and made a set of conclusions.

The publishers summed up the country studies in a list of concrete recommendations on how to manage the closure of coal mines with a sound economic perspective and minimal negative social consequences for Ukrainian authorities on the national, regional and local levels.

Structurally, the summary opens with a set of recommendations and visual material, illustrating the main points of successful structural transformations, and is followed by short summaries of the four country studies. The document ends with a list of references and information about the researchers.

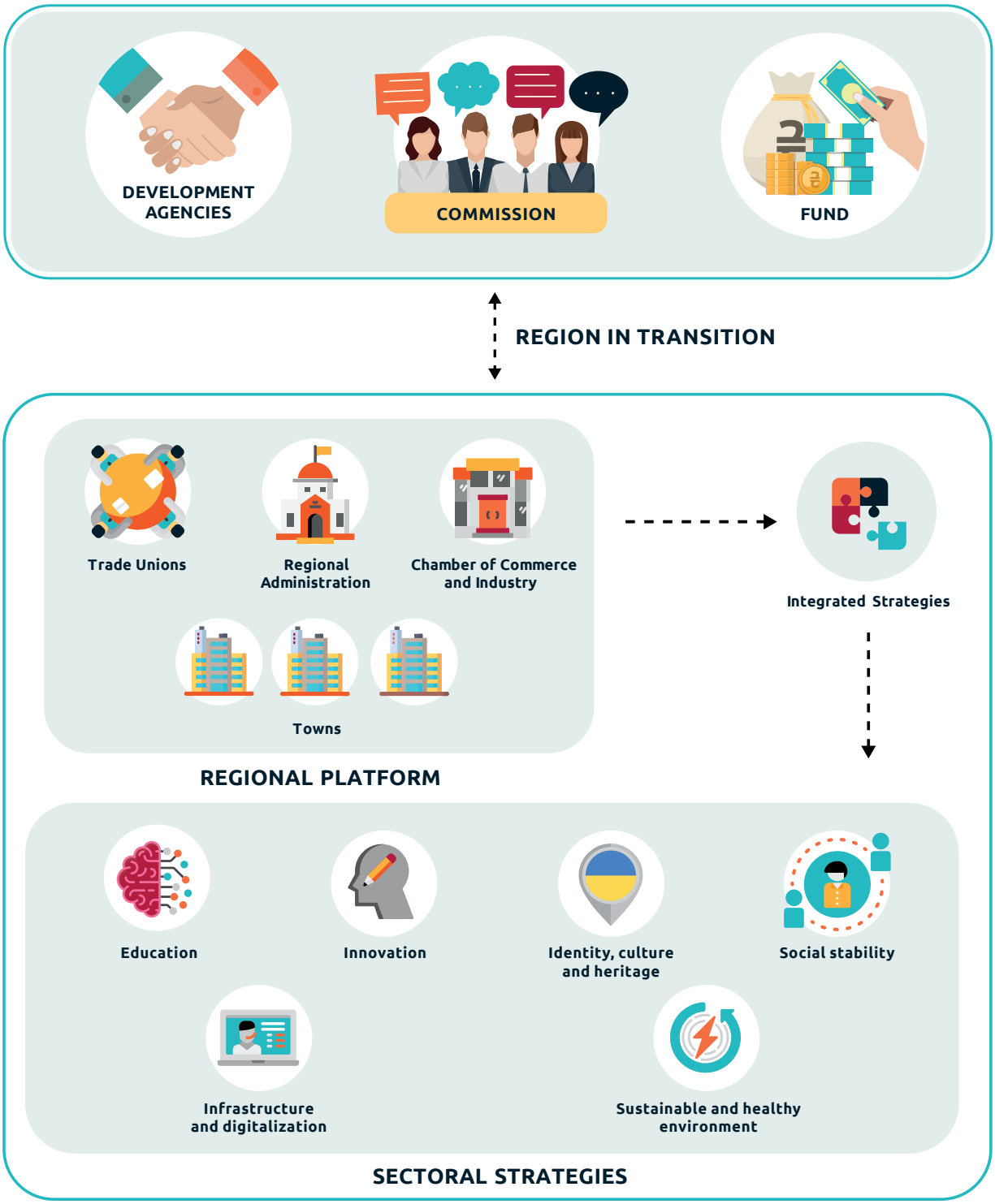
The project and study were supported by the Federal Ministry for Economic Cooperation and Development of Germany (BMZ) through bengo / Engagement Global.

german cooperation
DEUTSCHE ZUSAMMENARBEIT

With funding from the
Federal Ministry for Economic Cooperation and Development

ENGAGEMENT GLOBAL
Service für Entwicklungsinitiativen

SUCCESSFUL STRUCTURAL TRANSFORMATION. OVERVIEW OF THE PROCESS



2. Recommendations for Coal Regions: how to manage a proactive transition process?

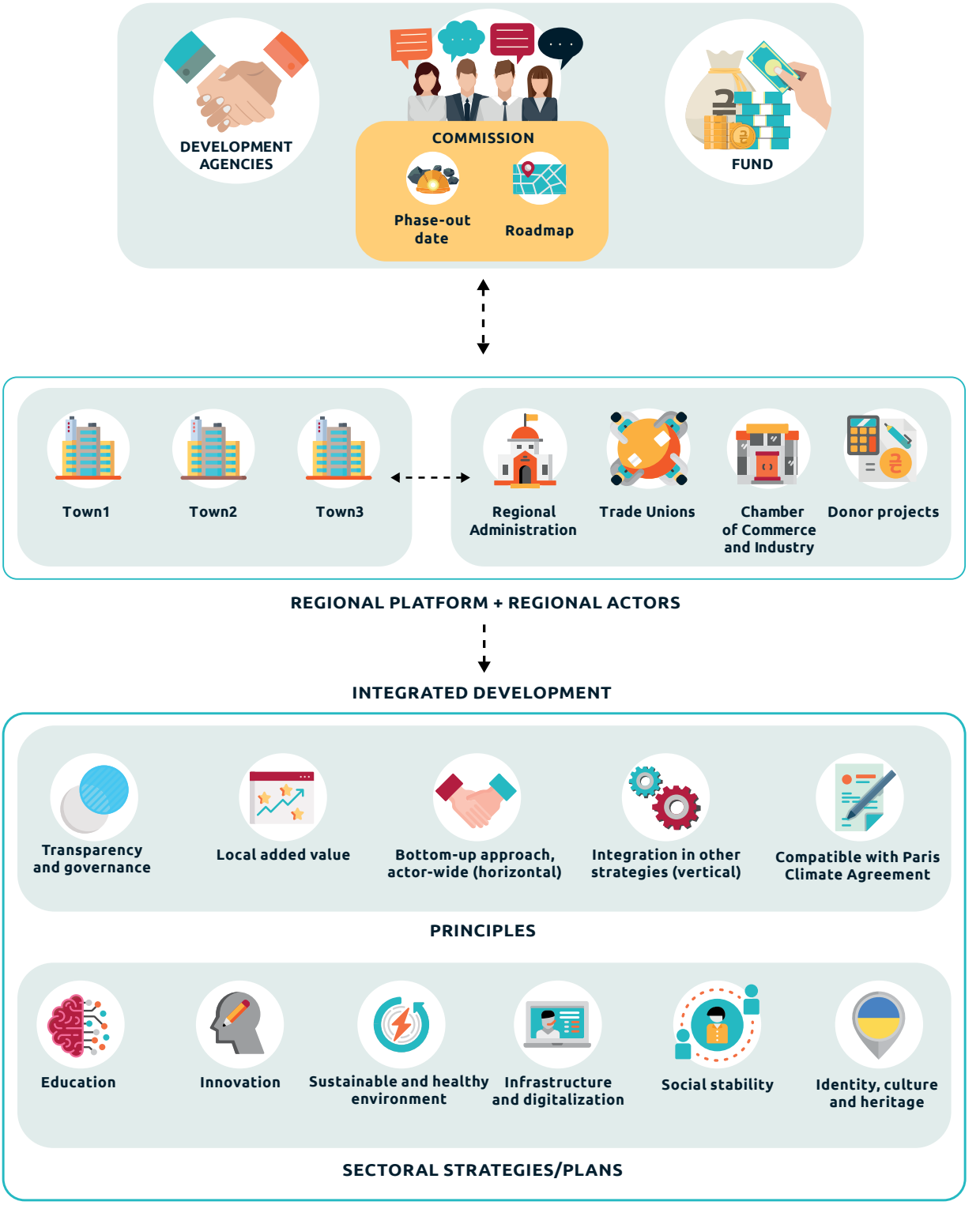
Checklist

NATIONAL LEVEL:

- ☐ **Establishment of a Commission for Structural Changes, consisting of representatives of the main stakeholders (national and local authorities, trade unions, science, NGOs, business), which will provide recommendations to the national government**
- ☐ **Setting a coal phase-out date for the energy sector**
- ☐ **Creation of a Restructuring plan based on the Commission's recommendations**
- ☐ **Early cooperation with the affected regions - put local needs, interests and ownership first**
- ☐ **Creation of a strategic supervision and cooperation body with international institutions and donor organizations for coordinated support and ownership**
- ☐ **Creation of various Restructuring Funds (Economic diversification, Infrastructure development, Pension, Education etc.) aimed at innovative solutions**
- ☐ **Terminating allocation of direct and indirect subsidies to the coal industry, clear plan for reallocation into regional development of coal regions**
- ☐ **Check possibility of merger of all coal mines into one company and early planning for the phase-out**
- ☐ **Creation of national employment and requalification programs, employment agencies, public programs for job creation in other economic sectors**
- ☐ **Overhaul of the existing pension system, finance early retirement of coal miners**
- ☐ **Establishment of one entity/foundation covering environmental damage issues and perpetual mine management obligations**
- ☐ **Creation of new research and innovative centers, adapting (upper) secondary and higher education to new business, innovation and job opportunities.**

Novovolynsk, Ukraine

FOCUS ON THE REGIONAL AND LOCAL LEVEL



Novovolynsk, Ukraine

REGIONAL AND LOCAL IN COOPERATION WITH THE NATIONAL LEVEL:

- **Creation of local and regional programs for economic and social development**
- **Diversification of economic activities (creation of industrial and technological parks etc.)**
- **Shifting to sustainable energy generation (installation of RES capacities, energy efficiency etc.)**
- **Creation of new local and regional educational institutions, research and innovative centers**
- **Improvement of local infrastructure (transport, digital etc.)**
- **Creation of a regional planning agency, which has a mandate for the specific mining area**
- **Establishment of regional participation events (workshops, conferences) for municipal actors**
- **Development of a unique marketing campaign for the area, relying on the potential for innovation, economic development and cultural heritage/tourism**
- **Early recultivation and revitalization of the lands located in the areas that have been affected by mining activities, management of waste, water etc.**
- **Creation of business-friendly economic environment (through local legislation etc.), promotion of the region as such.**

COAL REGIONS RESTRUCTURING FUNDS FOR EACH COAL REGION

ADVISORY BOARD

Regional Development Agency, Civil society, labour unions, business associations etc.

BOARD OF DIRECTORS

Coal Regions Restructuring Funds

SUPERVISORY BOARD

Ukrainian Government and donor community

PENSION FUND

1. TOP-UP EXISTING PENSIONS SO PEOPLE AT AGE OF RETIREMENT DO NOT NEED TO WORK ANYMORE
2. ATTRACT WORKERS 55+ TO START EARLY-RETIREMENT

EDUCATION FUND

3. INVEST IN UNIVERSITIES AND VOCATIONAL SCHOOLS
4. SET UP EFFICIENT EMPLOYMENT AGENCIES TO PROMOTE TRAINING AND RE-EMPLOYMENT

STRUCTURAL DEVELOPMENT FUND

5. INCENTIVIZE BUSINESS INVESTMENTS AND SUPPORT COMPETETIVENESS OF EXISTING ENTERPRISES
6. INVEST IN INFRASTRUCTURE (TRANSPORT, DIGITAL INFRASTRUCTURE, RELIABLE ELECTRICITY SUPPLY, RESEARCH)
7. FINANCE THE CLOSURE OF MINES AND ENSURE A SAFE DECOMMISSIONING
8. REGIONAL FUTURE FOUNDATION

* The fund should be funded mainly by re-purposing the extensive coal-mining subsidies
* Additional funds should be requested from the Donor Community in exchange for a role in the governance process

On behalf of
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
Low Carbon Ukraine

Country Summaries

3. Germany

ALTHOUGH EVERY STRUCTURAL CHANGE PROCESS AND COAL REGION IN TRANSITION IS DIFFERENT, GERMANY CAN PROVIDE USEFUL INSIGHTS INTO CORE CHALLENGES AND STRATEGIC OPTIONS FOR A STRUCTURAL CHANGE OF COAL REGIONS. ON THE ONE HAND, THE COUNTRY EMBARKED ON THE FIRST PHASE-OUT OF (HARD) COAL MINING WORLDWIDE.

Throughout 60 years, in the Ruhr Area, **Germany has made tremendous experience with different approaches to structural change.** On the other hand, in February 2019 Germany finally reached a broad stakeholder compromise on the final phase-out for hard and lignite combustion: after intense debates, the commission in charge reached a compromise and proposed a phase-out between 2035 and 2038.

Socially speaking, the structural change has already happened, with core developments in the 1960s, 1980s and 1990s. Today, the coal mining sector employs just over 20,000 people, down from 750,000 in 1957[1]. Meanwhile, coal still accounts for about 37% of gross power production.

Coal mining has been a fundamental element of the regional identity in mining regions like the Ruhr area or Lusatia. People identified with the hard labour ethic, and they enjoyed high social standards based on strong Labour Union positions. Historically, since industrialization, coal had become the main energy carrier in Germany. After World War II, both German states heavily relied on coal for industrial processes, heating and power generation. Moreover, cross-border cooperation in the coal and steel industry became a main driver for West European integration through the foundation of the European Coal and Steel Community, which later evolved into the European Union.

In Germany, the phase-out of hard coal mining was different from the ongoing lignite phase-out for several reasons. First, the phase-out of hard coal in West Germany was driven mainly by economic factors of international competition and technical factors of modernization. The structural change process started already between 1957 and 1967, when about 320,000 miners lost their jobs.[2] A similar economic restructuring struck the East German lignite sector only after the reunification. About 100,000 workers lost their jobs between 1989 and 1994. As a result, lignite mining and combustion became more efficient. From the point of view of direct financial costs, lignite is a relatively cheap energy resource in Germany today. Germany remains the biggest producer of lignite in the world.

Nevertheless, today's phase-out of lignite is driven by strong arguments about indirect (externalized) costs: first, coal mining and combustion account for about 80% of Germany's greenhouse gas emissions in the electricity sector. Second, other emitted pollutants (such as mercury, NOx, and SO2) cause serious diseases, lead to premature deaths (an estimated 4,350 per year) and subsequent health costs.[3] Third, coal mining entails long-term costs for water and soil treatment and pit water pumping (the latter in the case of hard coal).

Structural policies for the affected Ruhr area began in the 1950s. They were based on two strategies: a restoration and modernization of the coal industry, including social support for workers; and the development of other economic sectors to replace the dominant coal and steel industry. By the time the inevitable downturn of hard coal mining became obvious, structural policies had shifted more to the second track accordingly.

Germany will phase-out coal by 2035-2038.

A stronger and sooner shift towards a more future-oriented support could have fostered more innovation and strengthened the regional economy - at lower costs for German taxpayers and energy consumers.

Zollverein coal mine, Essen

For several decades, West Germany heavily subsidized its hard coal sector. This slowed down economic and social pressure, on the one hand. On the other hand, it costed huge amounts of money and also slowed down processes of technical innovation and economic development. An impressive 390 bln. euro in subsidies were used, more than 3/4 of them being direct subsidies (tax cuts and others).[4]

By the 1980s, policy makers realized that diversification should be a core strategic paradigm, as there was likely no single other industry to replace the steel and coal industries.

Core elements of the policies for structural change in the German hard coal region were: the concentration of mining assets in one big company (RAG); the creation of a public foundation solving social, ecological and culture challenges of the regions affected (RAG foundation); government programs for economic development and diversification (e.g. Action Program Ruhr); a state-owned development organization for the restoration and economic re-usage of land heavily affected by the old industries ("State Development Society"); long-term programs for recultivation and re-branding of the region (e.g. program "Building exhibition Emscher Park").

For the ongoing structural change in the German lignite mining regions, two examples of best practice are especially worth naming. First, the **development agency in the Renish region** plays a key role for economic development and diversification. Second, in the Lusatian and Central German lignite mining regions, the **company implementing a project for the restoration and reclamation** of lignite mining facilities has achieved visible successes in improving quality of life and new perspectives for the sites and the regions affected.

Priorities in proactive structural change policies included education and research, economic innovation, infrastructure development and improving living conditions through environmental and cultural identity projects (e.g. the development of public museums on former coal and steel mining sites).

A core factor in the success of German structural policies was stakeholder participation. Local self-government and federalism provided favorable conditions for the bottom-up development of development solutions for the affected regions. Important stakeholders are administrations, politicians, large companies, SMB, research institutions, civil society and average citizens. This approach makes development strategies far more sustainable and focused on local needs, strengths and challenges.

4. Czech Republic

THE CZECH REPUBLIC IS CURRENTLY AT THE BEGINNING OF A TRANSITION PROCESS AWAY FROM COAL MINING AND COMBUSTION. DECISIVE STEPS HAVE BEEN TAKEN TO SUPPORT THE AFFECTED REGIONS IN DEVELOPING AND IMPLEMENTING STRATEGIES FOR ECONOMIC DIVERSIFICATION.

These can provide useful experiences for other coal regions. As lignite reserves will become less available, new environmental requirements are set in place and hard coal mining will face economic difficulties. The overall role of coal in the national energy mix is already declining, with more severe downsizing of coal production and consumption planned. The latest National Energy Strategy adopted in 2015 envisages gradual replacement of coal by nuclear and renewable energy sources in the electricity sector by 2040.

There are deposits of both hard coal and lignite in the country. The largest lignite mining area is the Northern Bohemian basin, located along the border with Germany. Hard coal mines are located in Northern Moravia, bordering with the Silesia region in Poland. The mining industry is concentrated primarily in Ústecký, Karlovarský and Moravskoslezský regions.

In 2017, 49,2% of electricity was generated from coal-powered capacities.[5] The heating sector is also very dependent on coal (with a share roughly 75%, a situation virtually unchanged since 1990). In the last 10 to 15 years, a continued decrease in coal production has been observed, while the decline of the workforce has been very significant. **The number of jobs in the mining and quarrying sector decreased from almost 160,000 in 1990 to 16,400 in 2016.**[6]

In addition, current annual external costs of the Czech mining industry amount to 2.4 billion euro.[7] In large part it is due to air pollution, caused by coal combustion, which is annually responsible for at least 18,000 years of life lost in the Czech Republic.[8]

As of now, the Czech Republic does not have a coal phase-out plan. However, as a result of a 1991 governmental resolution on territorial environmental limits, significant amounts of economically extractable coal reserves are non-accessible. The limits were established as a guarantee for 34 towns and villages situated on coal deposits that they would not be demolished and relocated to make way for further mining activity and in order to improve the environment in these regions.

This was in part a result of strengthening environmental protection policies and the fight against air pollution caused by mining and industry, which has been a traditionally strong factor in politics. Environmental protection issues where one of the drivers of the Velvet Revolution which led to end of the communist regime in 1989.

Although there is no political decision to move away from coal, the Czech Republic is the only Central and Eastern European country that has a governmental strategy for transformation of coal regions, the so-called Re:Start program. The main goals of the Re:Start program are: faster growth of the economy, better quality of the environment and improvement of infrastructure and social stability.

The implementation of this program fell under the responsibility of the government plenipotentiary for the three affected regions. Regional Economic, Social and Restructuring Councils consisting of representatives of the main stakeholders (i.e. local governments, businesses, universities) were established. The main idea is to create a responsible social

Most, Usti region

The Czech Republic is the only Central and Eastern European country that has a governmental strategy for transformation of coal regions, the so-called Re:Start program.

dialogue where all the major decision makers are represented and can take ownership of their joint agreements.

According to the Ministry of Regional Development of the Czech Republic, Re:Start defines principles of transformation in seven pillars: business and innovation, direct investments, research and development, human resources, social stabilization, environment, infrastructure and public authorities, implementation.

The coal regions themselves are already implementing various projects in their communities. For example, several Innovation Centres were opened to stimulate local businesses, education programs for the local population and city management were created (Místa zblízka), and mobilization platforms aimed at developing regional transformation models were set up (Re:Vize Ústí).

In addition, there are strong indications that the Czech authorities are planning to follow Germany's lead and set up their own Coal Commission as early as 2019.

5. Romania

THE SIGNIFICANCE OF COAL AS AN IMPORTANT FUEL RESOURCE IN THE ROMANIAN ECONOMY HAS BEEN CONTINUOUSLY DECLINING OVER THE PAST TWO DECADES. SINCE ROMANIA JOINED THE EU IN 2007 WITH ITS DEMANDING STATE AID POLICIES AND INCREASINGLY AMBITIOUS CLIMATE GOALS, THE COAL INDUSTRY HAS STEADILY LOST MARKET SHARE AND EMPLOYEES, AND IT HAS REDUCED THE NUMBER OF MINES IN OPERATION.

The two sorts of coal used in Romania are mined in the country's two main coal basins: hard coal in the Jiului Valley (Hunedoara county) and lignite in the Oltenia region (Gorj, Mehedinți and Vâlcea counties). According to Eurostat, out of a total electricity generation of 59.8 TWh in 2017, coal-fueled capacities covered 25%, behind hydropower (28%) and followed by nuclear (17%), natural gas (15%), wind (11%), solar (3%), and biomass (1%).

An essential part of the Romanian industrial revolution in the 19th century, coal retained its significant role well into the 20th century. During the 1980s, the Ceaușescu regime failed with its policies of economic autarchy, heavy industrialization, state control and centralized planning. Access to new technologies and know-how was cut to the effect that coal mining became increasingly inefficient. After the political change of 1989, the difficulties were compounded by plummeting energy demand on account of closing old industrial capacities and economic restructuring.

Since the early 1990s, production has ceased in 344 of the most unprofitable coal mines. Those that are still operating remain dependent on budget subsidies and debt write-offs. The workforce dropped from 171,000 in 1997 to 50,000 in 2004 with layoffs still continuing since then, with 5,000-10,000 workers leaving the industry annually.[9]

In addition to this, the coal sector is heavily subsidized by the state. The most stark example is the Hard Coal National Company (CNH), which was founded in 1998. In its first three years of activity CNH registered $350 million in losses and in 2012 it was liquidated, leaving behind a nearly €1 billion debt to the national budget. In 2004, the Romanian state approved a strategy for the mining sector, which addressed its cost inefficiency and unsustainable debt. The strategy also took into account the EU pre-accession requirements of eliminating subsidies to all minerals other than coal by 2007 and to coal by 2010. Even so, as it joined the EU in 2007, Romania was granted an exemption until 2011 for the hard coal sector to subsidize production costs – a term that was thereafter extended up to 2018.

Currently, the Romanian government does not have a substantive coal phase-out strategy and wants to keep the existing status quo of maintaining and extending the coal mining activities. As such, Energy Strategy 2019-2030, with an Outlook to 2050 emphasized the role of lignite in ensuring the grid stability and energy security in 2030 and beyond. One of the strategy's main investment objectives is a new 600 MW lignite-fueled plant in Rovinari.

Nevertheless, it must be noted that over the last couple of years, a model for a responsible transition from coal has been taking shape. The main reasons for that being economic unprofitability of coal production, a continuous decrease in the costs of renewable energy sources and decarbonization commitments due to the Paris Climate Agreement and strict EU climate policies.

For example, Jiu Valley has been selected as a pilot region for the Coal Regions in Transition Platform,

Petrila coal mine, Jiu Valley

Continuing the current policy-making approach, fixated on continuing coal mining and coal-fired power generation for the long-term (well into the 2040s) bluntly disregards both the economics of the moribund coal industry, and the long-term welfare of coal miners and their families.

established by the European Commission in December 2017. According to the European Commission, its aim is to facilitate the development of long-term strategies to boost clean energy transition by bringing more focus on social fairness, new skills and financing for the real economy. As a result, five non-governmental organizations from the Jiu Valley have already responded to the request of the Ministry of European Funds and submitted proposals for the social and economic transformation of the area. These proposals included the conversion of closed mining sites into new economic, social and cultural centers; setting up a tourist promotion office; establishment of an investor attraction office; setting up a technical assistance unit to support local governments, the private sector and citizens in attracting European funds).

All in all, the economics of the clean energy transition are making the long-term survival of the coal industry virtually impossible. By 2025, new wind and solar capacities will be much cheaper than new coal-fueled units from the viewpoint of capital and operational costs on each and every market of the world, and by 2030 new renewable capacities will be cheaper than the operational costs of the already existing coal-fueled plants.[10] Some studies[11] indicate that Romania's coal regions have a significant solar potential of 2,000 to 5,000 GWh/year, and also a sizeable wind energy potential of 5,000 to 10,000 GWh/year.

6. Ukraine

TAKING INTO ACCOUNT THE WORLD'S LEADING COUNTRIES' PRACTICE OF TRANSITIONING TO A LOW-CARBON ECONOMY, UKRAINE WILL FACE THE NEED TO RADICALLY TRANSFORM ITS ENERGY SECTOR IN THE NEAR FUTURE. INTERNATIONAL COMMITMENTS TO REDUCE GREENHOUSE GAS EMISSIONS UNDER THE PARIS CLIMATE AGREEMENT, THE ENERGY COMMUNITY AND THE EU-UKRAINE ASSOCIATION AGREEMENT, THE LATEST SOCIO-ECONOMIC TRENDS AND EXISTING ENVIRONMENTAL RISKS ALL INDICATE THAT THIS PROCESS WILL BE ACCOMPANIED BY THE CLOSING OF COAL MINING ENTERPRISES.

At the same time, the process of transforming the coal industry in one way or another has been slowly taking place over the past decades.

According to the Ministry of Energy, 68 state mining enterprises have closed in Ukraine since 2004 and 19 state enterprises are being liquidated or under preparation for liquidation. Total coal production decreased from 164 million tons in 1990 to 33 million tons in 2018. The number of employees involved in the industry decreased by 88% between 1991-2013 and amounted to approximately 120,000 in 2013. The trend of job cuts persists today, which was significantly influenced by the beginning of the war in the Donetsk and Luhansk regions. As of 2018, approximately 42,000 people are employed at state mines.

Since the mid-1990s, Ukrainian authorities and international partners have tried to develop complex programs for restructuring the coal sector and supporting the miners' regions that suffer the greatest economic losses. As a result of the implementation of individual projects by the World Bank, the European Union and the UK Government, relevant ministries were given specific step-by-step recommendations for the energy transformation that were not implemented due to lack of political will.

Today, the domestic coal sector is entirely dependent on annual multibillion state subsidies. Out of the 33 state mines only four are profitable. According to the state budget, the total sum for the restructuring of the coal industry and covering of the production cost of coal amounted to almost 14 billion UAH in 2013. Since the beginning of the war in Eastern Ukraine, about 2/3 of the functioning state coal mines remain in the non-government controlled territory, which led to a reduction of costs. However, an analysis of the state budget throughout recent years indicates a renewal in the annual growth of subsidies, and in 2019 they already constitute almost 3 billion UAH.

But such powerful state support for the coal sector has not been effective. This is confirmed by the decision of the Accounting Chamber of Ukraine from 16 May 2017, according to which, from 2014-2016 the Ministry of Energy did not ensure the "lawful, effective and efficient" use of state budget funds for the restructuring of the coal industry.

At the same time, the government plans to continue to close non-profitable coal mining enterprises. According to the Energy Strategy 2035, measures for the closure or conservation of unprofitable state mines should be completed by 2025, and a plan for mitigation of social and environmental impacts should be adopted for each mine. However, the actions envisaged by the Action Plan for the "Energy Sector Reform (up to 2020)" stage of the Energy Strategy has not been completed.

First of all, programs for the conversion of the regions where the coal enterprises are to be closed were not developed and adopted, which is one of the key components of a successful transformation. Delaying their adoption inevitably leads to a delay in solving already existing socio-economic

Pryvillia, Luhansk region

The current situation regarding the closure of coal mines in Ukraine shows that it was conducted without adequate plans for social and economic support of the territories, which and led to complex negative consequences.

problems and impedes the further development of coal regions. Also, there were no lists of prospective and non-prospective mines that are subject to liquidation. A clear understanding of the fate of the local mine will allow local authorities and populations to begin the process of responsible planning for the closure of enterprises and diversification of the economy.

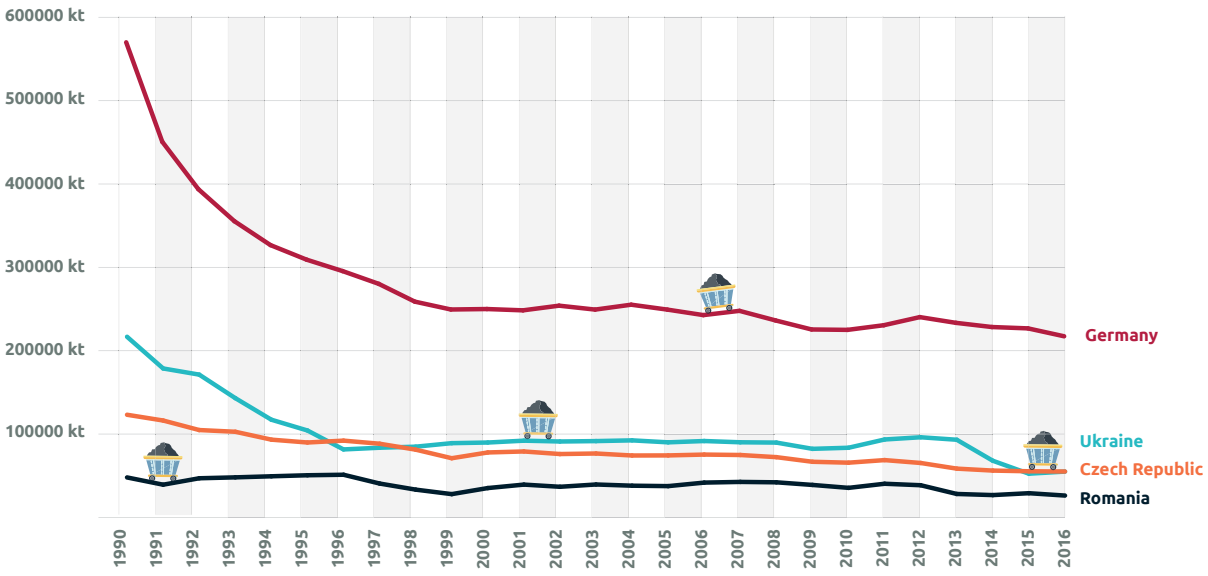
The current situation regarding the closure of coal mines in Ukraine shows that it was conducted without adequate plans for social and economic support of the territories, which led to complex negative consequences. The liquidation process has been started without consulting local authorities and the region's population. In most cases, in the former monotowns the processes of economic decline and migration to other settlements and regions has already started. In some closed mines operating in the mode of continuous drainage, (average cost - UAH 3-5 million per month per one mine), emergency shutdowns of pumps are systematically occurring. In such cases, dirty water from the mine enters underground water reservoirs and floods nearby private houses.

Establishing a constructive dialogue between state authorities, local governments and local communities is a prerequisite for solving the challenges faced by mining regions. This includes the issues of employment and retraining dismissed workers, revitalization of coal territories and attraction of investments to support new types of economic activity that will replace the fossil fuel based industry.

It must be noted, that there are already some positive developments happening on the regional level. In May 2019 six coal mining towns of the Donetsk region established a Platform for Sustainable Development. According to the Memorandum of Partnership, signed by the representatives of local authorities and civil society organizations, such cooperation must help to strengthen partnership through social and economic development of the communities, reduce greenhouse gas emissions and transform the image of these territories. It must also raise the level of well-being of the population through: stimulation of the development of innovative enterprises, diversification of the economy, deployment of advanced energy efficient technologies, further development of social programs to support those who find themselves in dire straights due to structural changes and introduction of social innovations.

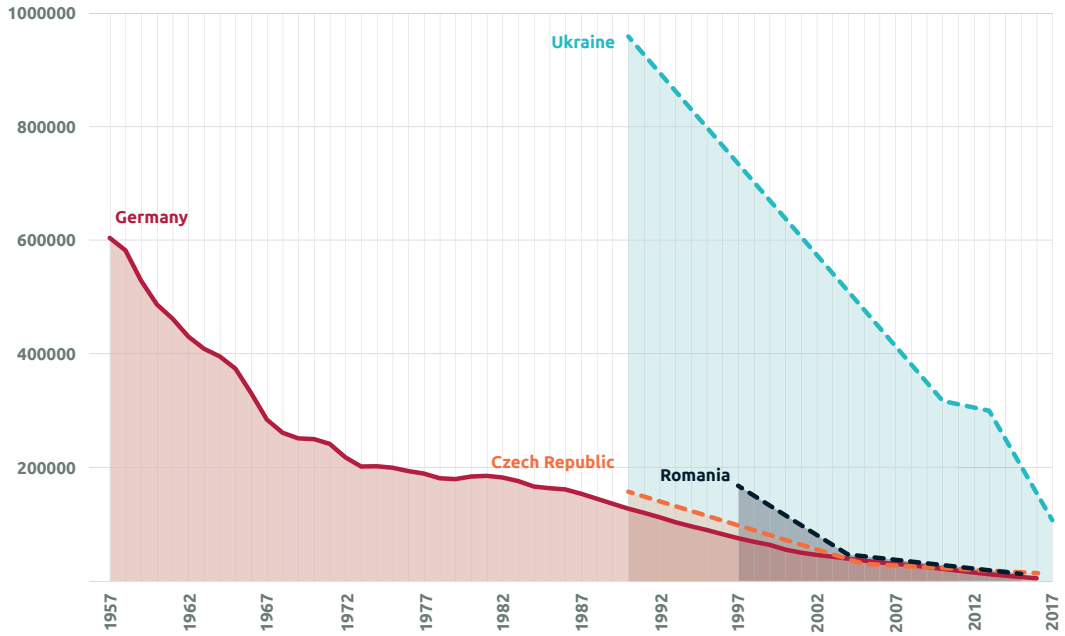
7. Annex

COAL PRODUCTION



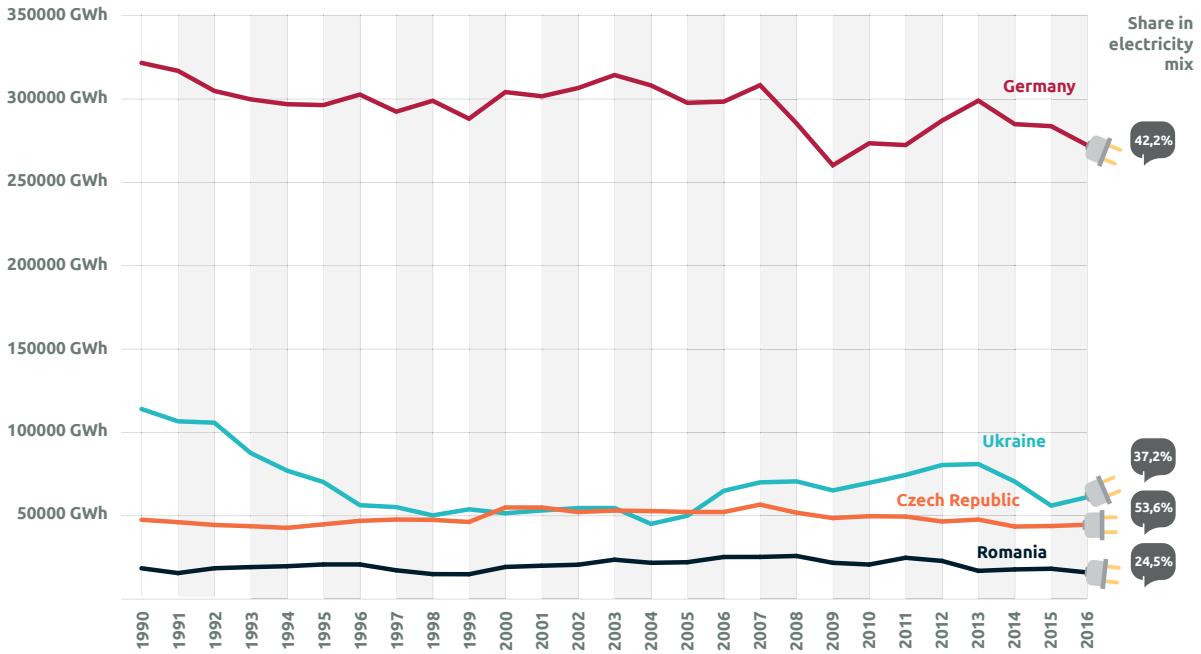
*Source: IEA

EMPLOYMENT



*Sources:
Statistik der Kohlenwirtschaft, 2017
Statistika&My, 2017
Euracoal, 2015
State Statistics Service of Ukraine, 2018

ELECTRICITY GENERATION FROM COAL



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Radu Dudău is co-founder and director of the Energy Policy Group (EPG), a Bucharest-based think-tank on energy policy, market analytics and energy strategy. He is also Associate Professor of International Relations at Bucharest University. From 2006 to 2010 he was Deputy Director at the Romanian Diplomatic Institute (Ministry of Foreign Affairs). He graduated in Physics and Philosophy from the University of Iași. He holds a Dr.Phil. degree in Philosophy from Konstanz University (Germany) and a PhD in Political Science (International Relations) from the National School of Political and Administrative Studies (SNSPA, Bucharest). He was a Fulbright Fellow with the National Security Program at Harvard Kennedy School of Government (2011), a New Europe College Fellow at the Danish Institute of International Relations (Copenhagen, 2006) and an OSI/FCO-Chevening scholar at Oxford University (1999-2000).

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Before joining the Czech Forum for Development Cooperation (FoRS) in 2019 Klára Sutlovičová had more than 15-years' experience of working as climate and energy policy expert. At her previous position she managed climate and energy programme of analytical centre Glopolis, an independent think-tank dedicated to creating a more responsible economy, smarter energy policies and stable food markets. She also worked as policy officer and director of Centre for Transport and Energy, a non-governmental organisation based in the Czech Republic, and as climate campaigner in Greenpeace. Klára Sutlovičová graduated in social and cultural ecology at Charles University in Prague.

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Transformation Experiences of Coal Regions:

Recommendations for Ukraine and other European countries

(executive summary)

The purpose of this research is to provide recommendations for the Ukrainian authorities, both national and regional, on how to manage the closure of coal mines with a sound economic perspective and minimal negative social consequences on the basis of the analysis of positive and negative experiences of coal mines' closure in Ukraine and select EU countries (Germany, Romania and the Czech Republic).

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What do European coal regions need today?

The people and different stakeholders need a clear message and roadmap for development, instruments for support to embark on a journey for change, sustainability and prosperity

Decision makers need support in assessing the local potential, exchange with other regions, dialogue to develop ideas and pathways for a sustainable development.