

# ROMANIA'S JUST TRANSITION: COMPARATIVE INSIGHTS AND BEST PRACTICES FROM EU MEMBER STATES

ALINA LIGIA DUMITRESCU  
Institute for World Economy  
Calea 13 Septembrie No. 13, Bucharest, ROMANIA  
alinaligia@gmail.com, <https://orcid.org/0009-0000-3983-2582>

*Abstract: This article analyses recent European Commission regulations, and working documents as well as a selective literature on just transition. Our research also presents examples of best practices from various Member States. This research focuses on the just and green transition impact on the labour market development in Romania. Withal, the outlook of the circular economy is analysed, as an essential component of the green economy, in the context of the just transition in Romania. In Romania, the just transition is accompanied by opportunities, but it should not neglect the challenges. The acceleration of the process of phasing out the consumption of fossil fuels and the development of zero-emission technologies generate significant pressures on the labour market and the regional and county economies. The main objectives of this article are to analysis the consequences of a just transition in the EU and to identify solutions and formulate recommendations for Romania. The main findings of our research show that the just transition process depends on restructuring and building new competitive advantages by diversifying the local economy and startup sector development. The public policies should stimulate good governance and partnerships between municipalities, universities, and private firms, as well as cooperation between trade unions and local authorities.*

*Keywords: just transition, best practices, circular economy, European Union, Romania*

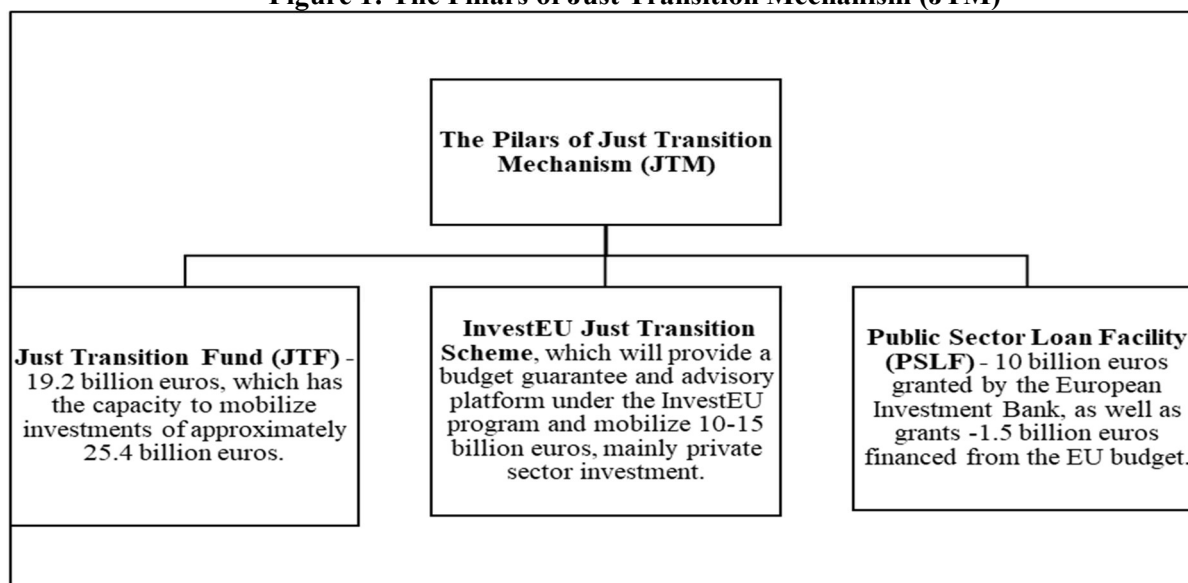
*JEL Classification: J2, J24, J48, Q2, Q52*

## 1. Introduction

The just transition is a component of the EU's cohesion policy, within the framework of the European Green Deal. In December 2019, the European Commission (2019) adopted a communication on the European Green Deal, which sets out a roadmap for a new EU growth policy. As part of the European Green Deal, the European Commission proposed the creation of a Just Transition Mechanism, which includes a Just Transition Fund. The Just Transition Mechanism has to focus on the regions and sectors most affected by the transition due to their dependence on fossil fuels, including coal, peat, and oil shale, and on industrial processes with very high greenhouse gas emissions (European Parliament, 2022).

According to the European Commission, the Just Transition Mechanism (JTM) is a key instrument for European decarbonization policy, aimed at mobilizing at least 55 billion euros between 2021 and 2027. It aims at a fair transition to a climate-neutral economy, equivalent to mitigating the socio-economic impact of this deep transformation and restructuring process (European Commission, 2021a). JTM provides targeted support based on three pillars (Figure 1).

**Figure 1: The Pillars of Just Transition Mechanism (JTM)**



Source: Author's representation based on European Commission (2021a).

The implementation process is complex and must include, in addition to the technological components and measures of education and professional training, measures of active employment on the labour market, as well as social and regional protection. These tools are essential for helping local economies innovate, overcome potential labour market imbalances, and manage job losses (redundancies, restructuring) and job creation. Labour market policies accompanying the just transition are also essential to help generate decent employees' jobs.

As shown by the European Commission (2021b), the impact of the just transition has four parts, summarized in Table 1.

**Table 1: The impact of just transition**

Parts	ELEMENTS
<b>1. Social Impact</b>	<ul style="list-style-type: none"> <li>• From the energy restructuring in the EU, almost 237,000 people from coal-related activities will be affected, as almost 10,000 people from peat extraction activities and around 6,000 people employed in the oil shale industry.</li> <li>• In some cases, the social impact will not be associated with job losses, but with a significant need for professional retraining or upskilling of workers in industrial sectors, as well as with worker mobility to accompany the necessary technological transformations.</li> </ul>
<b>2. Economic Impact</b>	<ul style="list-style-type: none"> <li>• European Commission estimates show that by 2030, between half and two-thirds of coal-fired power generation capacity will be phased out.</li> <li>• This decline will have an economic impact on the development of the coal regions, most of which already have a regional GDP per capita lower than the national average.</li> <li>• The closure of mines and the decommissioning of fossil fuel power plants generate structural changes in related industries (e.g. mining equipment manufacturing, manufacturing or transport and logistics).</li> </ul>
<b>3. Demographic Impact</b>	<ul style="list-style-type: none"> <li>• Young people may be particularly affected, not only because they face above-average levels of unemployment, but also because they are more inclined to migrate out of the region.</li> </ul>

<b>4. Impact on the environment</b>	<ul style="list-style-type: none"> <li>• In particular, the cessation of extractive activities, the closure of mines, or the decommissioning of certain production facilities may be associated with land abandonment, soil and water contamination, geophysical instability, or other environmental hazards, including <b>health risks</b>.</li> </ul>
-------------------------------------	---

Source: Author's representation based on European Commission documents

## 2. Literature review on just transition impact in the Member States

Krawchenko & Gordon (2021) point out that the term "just transition" was first promoted in the 1970s by the North American trade union movement for inclusion in environmental legislation and regulation. The just transition included measures necessary to respect social rights, ensure the basic means of living for employees, and reduce the social impact of industrial restructuring. Subsequently, the concept of a "just transition" became prominent globally in climate change negotiations through the support of international trade union organizations.

Abram et al. (2022) emphasize that the just transition offers an integrated perspective of the entire energy system (procedural, distributive, restructuring) while finding systemic solutions to address the social and economic environment. Job creation does not guarantee equitable outcomes because the concept of social justice goes beyond employment. However, some authors still support the maintenance of fossil fuels in the energy mix, such as García-García et al. (2020), who states that a review of just transitions must focus only on job creation and profit, without considering the social dimension.

The complexity of the just transition challenges prompts the promotion of new strategies and a rapid response, both from political decision-makers and economic actors. Against this background, a well-designed transition to a climate-neutral economy can make labour market more resilient to the potential negative effects generated by the amplification of the process of globalization, to the consequences produced by the adoption of new technologies, to the persistent deficits of labour force and, not least, to demographic changes (Czako, 2020)

The recent literature offers various examples of just transition. JTM is the target of concern for countries such as *Poland*, whose economy remains heavily dependent on fossil fuels. Śniegocki (2021) appreciates that the just transition process in the Silesian area is based on regional development and the restructuring of the mining sector (gradual closure of coal mines). In January 2021, the Polish government presented the draft Partnership Agreement, which specifies how it intends to spend the funds available under the EU's multiannual financial framework for 2021-2027. According to the project, the Silesia region will receive 2.8 billion euros to be spent through the Regional Operational Program financed by the European Regional Development Fund (ERDF) and the European Social Fund Plus (EFS+), as well as an additional 2 billion euros through the JTF. In the last two decades, in Poland, the economy of the Silesian region has become more diversified. There has been a permanent decrease in the volume of coal extracted and a decrease in the number of people employed in the mining sector, following which other sectors of the economy have developed such as IT, health, and innovative technologies such as artificial intelligence.

Heyen et al. (2021) highlight that to counter the risk of rising unemployment, measures were taken in *Germany* that were partly financed by the EU, and included early retirement packages, compensatory payments, wage subsidies, worker retraining, and economic development programs. Also, considering the new skills requirements and the future challenges, retraining strategies were developed and implemented with the help of centres and agencies such as the Ruhr Coal Vocational Training Society. These initiatives are not new but have been in force since the mid-1980s. For the economic restructuring, the local authorities have supported existing firms to diversify their activities and have promoted proactive industrial policies.

According to Galgóczi (2018), social dialogue, partnerships between municipalities, universities, and private firms, as well as cooperation between trade unions and regional governments have enabled the achievement of several goals in *Germany*. In 1993, a comprehensive agreement guaranteeing social responsibility during the restructuring process was signed by the relevant parties. In 2007, a social consensus agreement was launched between the federal and regional governments, and the German government together with the coal industry association and the mining union laid the groundwork for the coal mining subsidies elimination. Following the restructuring and streamlining of mining, in the first half of 2021 coal made the largest contribution to Germany's energy production, while wind power reached its lowest level since 2018 due to unfavourable weather conditions (Apostoiu, 2021).

In *Hungary*, more than 250 million euros from the JTF will support the regions most affected by the phase-out of coal and the closure of the lignite-fired Mátra power plant. Funding will be directed towards investments

in low-carbon technologies. In 2007, an industrial park was created in the Mátra area, which now hosts more than 20 enterprises. While lignite still dominates Hungary's energy mix, the Mátra region has laid the groundwork for its phase-out by 2029 while securing thousands of jobs through alternative economic activities (World Resources Institute, 2022). In *Hungary*, the Just Transition Fund will also help workers acquire new skills, support transitions to new jobs, and promote the creation of new firms (Rosch & Epifanio, 2022). Supplementary, approximately 5.3 billion euros from the European Social Fund Plus (ESF+) will support access to the labour market and a quality education system. Special attention will be paid to the skills development necessary for the green and digital transition in Hungary (European Commission, 2022a).

The *Czech Republic* allocated an amount of almost 1.5 billion euros from the Just Transition Fund. Three regions were identified as "the most affected": Moravia-Silesia Region (MSR); Ústecký (UR) and Karlovarský (KVR). The available funds have already been allocated between regions: 46% is allocated to MSR, 39% is allocated to UR and 15% is allocated to KVR (CEE Bankwatch Network, 2021, Rosch & Epifanio, 2022). According to the same sources, the biggest threat is that significant support is provided for big projects and big companies, and only limited support for projects of small companies. In addition, the lack of public commitment and low support for retraining programs for coal mine workers is also a vulnerability of the restructuring plan (CEE Bankwatch Network, 2021, Rosch & Epifanio, 2022). In 2015, the Czech government decided to implement the RE: START program, aimed at supporting the economic restructuring of three coal-bearing regions in the *Czech Republic*. The first action plan within the program was developed for the period 2017-2030. A regional strategy for the period 2019-2027, published in 2019, emphasized the need for a socio-economic transition, as well as the negative impact of the coal industry on the environment and climate change.

As of January 2023, *Bulgaria* was the only Member State that did not submit its Territorial Plans for Just Transition. These focus on the three coal regions in the country - Stara Zagora, Pernik, and Kyustendil and were sent to the European Commission for analysis in autumn 2022. Kojouharova (2023) pointed out that the PTTJs have not been approved, therefore Bulgaria has lost just transition funding for 2022, and that investment strategies and measures for alternative employment and retraining should be included in Bulgaria's Just Transition Plan.

With a budget of 1.5 million euros, the *Estonian* Ministry of Social Affairs has created a fund for laid-off workers in the shale oil industry. The fund comes in addition to regular unemployment benefits and is only available to workers employed in the shale oil industry for at least two years. The total amount eligible for each worker corresponds to 30% of the salary they received previously, with a ceiling of 1,000 euros/month. Payments are available for different time frames depending on the worker's time in the industry. Those who have worked for less than five years can receive payments for up to 6 months, those who have worked between 5 to 10 years can receive payments for 9 months, and those who have worked for more than 10 years are eligible for up to one year (Just Transition, 2021). Ida-Virumaa is the only region in *Estonia* applying for funding under the Just Transition Mechanism. One of the measures proposed in the Ida-Virumaa PTTJ aims to combat job losses in the oil shale sector and ensure the security of laid-off workers as the economy becomes more diversified.

Voicu-Dorobanțu et al (2021) reveal that according to Eurostat data, in *Romania* the cumulative job losses in the coal sector, by 2030, will be between 3,000 and 6,000 in the Vest region and between 6,000 and 15,000 jobs in the Sud-Vest region. Their opinions are that "Romania is facing a decline in human capital and reduced flexibility to reconversion and transition by a narrow horizon of regional specialization, an exodus of workers, a lack of allocated resources to entrepreneurs and start-ups, a deterioration of primary education and VET (Vocational Education and Training), and an overall precarity of entrepreneurial culture."

La Belle et al (2021) underline that in *Romania* the context of the Jiu Valley there are three main types of energy justice associated with the Green Deal and Just Transition, such as:

1. *Distributive justice*: in case of equally sharing of benefits distributed among social groups or workers, such as miners;
2. *Procedural justice*: that means medical care and re-employment or viable re-training schemes organized by state institutions for a long-term quality of life of the workers;
3. *Recognition of justice*: with the involvement and attention given by the political and financial system to social groups, such as miners experiencing hardship from the devaluation of jobs and shifts in economic activity.

Volintiru & Nicola (2024) conclude that in the just transition process in *Romania* there are weaknesses in institutional capacity linked with poor stakeholder consensus that impedes the strategic planning and implementation of new EU investment tools at the level of targeted beneficiaries. In the same sense, Nicola &

Schmitz (2022) stress shortcomings in implementing the just transition, including several issues of good governance, poor cooperation between local and national authorities, and lack of information and delays of the mine closures.

### 3. Methodology

The research methodology is multidisciplinary, which involves a systemic analysis of economic processes in the context of the Just Transition Mechanism as well as qualitative research of the official documents of the European Union’s institutions and quantitative research of the Eurostat data. Selective specialized literature, studies, and articles in just transition published by established authors from abroad and Romania are presented comparatively, in consensual-inductive research.

Based on the methodology of systemic analysis, which is applied in the research of just transition’s multidimensional impact (economic, social, demographic, and environmental), a SWOT matrix has been developed as an instrument of strategic objectives planning and risk management of just transition (Figure1, Figure 2 from subsection 4.5).

**Figure 1: A SWOT matrix on the just transition impact in the European Union**

<p style="text-align: center;"><b>STRENGTHS:</b></p> <ul style="list-style-type: none"> <li>- <i>Financial resources:</i> the Just Transition Mechanism (JTM): Just Transition Fund, InvestEU "Just Transition" scheme, A new Public Sector Loan Facility;</li> <li>- <i>Human resources:</i> Just Transition Fund will also help workers acquire new skills, support transitions to new jobs, and promote the creation of new firms.</li> </ul>	<p style="text-align: center;"><b>WEAKNESSES:</b></p> <ul style="list-style-type: none"> <li>- <i>Job destruction</i> occurs when lost jobs are not replaced by other activities when some technologies are banned as polluting, companies are closed and their production is stopped;</li> <li>- <i>Undistributed justice</i> occurs when social groups such as young people or workers such as miners are most affected by unemployment in case of mines shut down.</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES:</b></p> <ul style="list-style-type: none"> <li>- Reducing the Member States and regions high dependence on fossil fuel and carbon-intensive industries;</li> <li>- Facilitating access to clean, affordable, and secure energy;</li> <li>- <i>Economic diversification</i> based on climate-resilient investments and <i>green jobs</i>;</li> <li>- Creating attractive conditions for public and private investors;</li> <li>- <i>Providing easier access to loans and financial support</i>;</li> <li>- <i>Investing in the creation of new firms, SMEs, and start-ups</i>;</li> <li>- Improving energy infrastructure, district heating, and transportation networks;</li> <li>- Investing in research and <i>innovation activities</i>.</li> </ul>	<p style="text-align: center;"><b>THREATS:</b></p> <ul style="list-style-type: none"> <li>- The closure of mines or the decommissioning of certain production facilities could cause <i>land abandonment, soil and water contamination, geophysical instability</i>, or other environmental hazards, including health risks;</li> <li>- The war in Ukraine, Member States may have to increase coal consumption before switching to renewable energy sources.</li> </ul>

Source: Author’s representation based on literature review and European Union legislation

## 4. Just Transition in Romania

### 4.1 The Just Transition Program priorities

According to the Ministry of European Investments and Projects (2023a), Romania's Recovery and Resilience Plan stipulates the need for the gradual elimination of coal-based electricity production from the energy mix by 2030. The Plan also enables the greening of mines by 2030 and supports the adoption of a legislative and regulatory framework for private investment in electricity production from renewable sources.

The Just Transition Program amounts to 114,118,160 euros, of which 85,588,621 euros represent the contribution from the Just Transition Fund and 28,529,539 euros national contribution (Ministry of Investments and European Projects, 2023b). The Just Transition Program is structured on 6 priorities dedicated to mitigating the socio-economic impact of the transition to climate neutrality in each of the six affected counties and a technical assistance priority, with a distinct financial allocation (Table 2).

**Table 2: The Just Transition Program priorities**

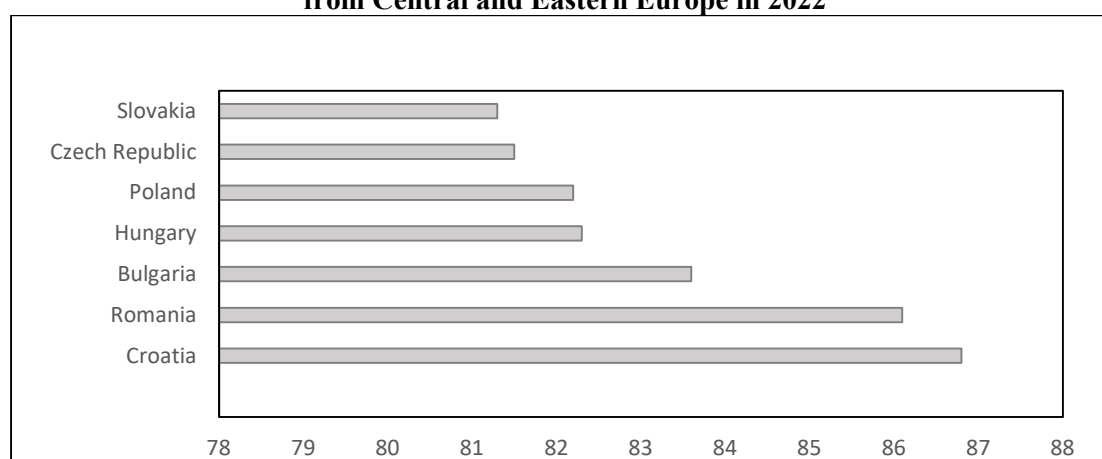
PRIORITY	COUNTY	TOTAL BUDGET Euros	JUST TRANSITION FUND Euros	NATIONAL CONTRIBUTION Euros
Priority 1	Gorj	537,205,843	456,624,966	80,580,877
Priority 2	Hunedoara	525,733,831	446,873,756	78,860,075
Priority 3	Dolj	412,029,766	350,225,301	61,804,465
Priority 4	Galati	387,585,139	329,447,368	58,137,771
Priority 5	Prahova	277,032,659	235,477,760	41,554,899
Priority 6	Mureş	277,032,659	235,477,760	41,554,899

Source: Author's representation based on Ministry of Investments and European Projects data

The coal-bearing regions in Romania have submitted Territorial Just Transition Plans to the Ministry of Investments and European Projects in Romania, plans that will allow them to access the Transition Fund. However, good governance includes the formulation of project proposals to mitigate the social impact of mine and plant closures and requires a clear agenda for the gradual replacement of coal (Dobre & Petcu, 2021).

European Commission (2022b, c) has evaluated Romania as a top performer, ranking 18<sup>th</sup> out of 158 countries in Just Transition Score<sup>1</sup> (score 86.2). By comparison between member states from Central and Eastern Europe, Croatia has a transition score of 86.8, Bulgaria's score is 83.6, Hungary's score is 82.3, Poland's score is 82.2, Czech Republic's score is 81.53 and Slovakia's score is 81.3 (Graph 1).

**Graph 1: The Just Transition Score in Romania and other Member States from Central and Eastern Europe in 2022**



Source: Author's representation based on European Commission data (2022b)

#### 4.2 Case studies: The Just Transition impact in Gorj County and Hunedoara County

According to the audit of the European Court of Auditors (2022), in Valea Jiului, the number of employees in the coal sector decreased following its restructuring, from 70,000 in 1995 to 25,000 in 2019. In 2019, the region counted 100,000 people aged between 15 and 65. Of these, only 1,489 were considered unemployed, as they were actively looking for a job and were registered at the unemployment office.

The experts of the European Court of Auditors (2022) think that:

- The unemployment rate provides an incomplete picture of the difficult employment situation in Valea Jiului;
- The Valea Jiului has a largely undiversified economy, which is still largely dependent on mining activities;

<sup>1</sup> The Just Transition Score measures countries' ratio of carbon emissions per capita to the Social Progress Index, it tells us how carbon-efficient a country is at creating positive social outcomes. The ratio is scaled from 0 (worst performance) to 100 (best performance).

- The region's limited connectivity and damaged transport infrastructure, environmental degradation, and successive mine closures, plus the associated waves of layoffs, have led to a general population decline in the Valea Jiului area;
- Despite a certain degree of economic restructuring, the region presents a limited attractiveness for private investment.

A strategy for 2022-2030 regarding the socio-economic and environmental development of the Valea Jiului was in the process of approval at the time of the audit. Developed with EU funds, the strategy was based on analyses of challenges and opportunities in the micro-region and considered the views of relevant stakeholders. This strategy represented the third restructuring and development attempt for Valea Jiului. The European Court of Auditors points out that the Strategy for the period 2002-2010 did not have a significant impact on the socio-economic situation in the Valea Jiului.

The entire Hunedoara Energy Complex was insolvent and had debts of 6 billion lei (approximately 1.2 billion euros) in 2020. The Mintia thermal power plant exceeds the emission limits for sulphur dioxide and dust (substances that seriously affect human health), and cannot receive an Integrated Environmental Authorization. This is why Romania is in a four-year infringement procedure (Dobre & Petcu, 2021).

In Hunedoara County, the gradual elimination of coal will lead to the dismissal of 4,000 employees from thermal power plants and mining areas. To solve this situation, social protection measures such as compensatory wages and lowering the retirement age have been proposed. These are not viable solutions for younger staff who can more easily reintegrate into the labour market. An example of an initiative aimed at helping this endeavour belongs to the Romanian Wind Energy Association (RWEA), which started a professional retraining program for personnel from mining areas and other areas undergoing energy transition. RWEA and RESS (Renewable Schools of Skills) initiated this training project in 2019, in partnership with the Ministry of Energy and other stakeholders in the mining basins. The RESS centre in Constanța will be replicated in Valea Jiului and, starting in July 2021, it will train, according to international standards, more than 400 people a year.

The Energetica Oltenia Company is in a full restructuring process. At the Oltenia Energetica Complex, the restructuring plan calls for the expansion of production capacity from 660 MW currently to 1,650 MW in 2027. The company has not set a date for the complete phase-out of coal, although the potential for renewable energy in the region is significant (Dobre & Petcu, 2021).

Dobre & Petcu (2021) consider that in Gorj and Dolj counties the situation is the most difficult. Thus, it is not clear what will happen to a large part of the 12,000 employees, but also to those in related fields whose occupation supports the production of coal-based electricity. They believe that unless national decision-makers set a fixed date for the coal phase-out, the just transition in Gorj and Dolj (counties where Oltenia Energy operates) cannot be coherently planned.

The just transition process identifies other opportunities for economic development, such as solar energy (with a potential of up to 60 GW), tourism, industry, recycling, wood processing, and agriculture. Dobre & Petcu (2021) assume that Romania has a solid clean energy potential. They recommend the European Commission put pressure on the government for concrete measures, to set an ambitious date for the phase-out of all types of coal, and to plan the roadmap with local communities.

### **4.3 The impact of the just transition on labour market development in Romania**

To achieve a fair green transition by the Council Recommendation<sup>2</sup>, it is necessary to improve and retrain workers in the sectors affected by this transformation. The high share of jobs in energy-intensive sectors highlights the need for continued investment in skills to support the transition and implementation of REPowerEU<sup>3</sup>. As part of Romania's Recovery and Resilience Plan, the investments will support the development of energy certification schemes for specialists and qualifications for green construction workers. The European Social Fund Plus (ESF+) contributes to green skills and jobs through investments in education and continuous training (Ministry of European Investments and Projects, 2023).

<sup>2</sup> Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C 243/04) covers employment, skills, tax-benefit, and social protection systems, as well as essential services and housing.

<sup>3</sup>In response to the difficulties and disruptions in the global energy market caused by Russia's invasion of Ukraine, the European Commission is implementing the REPowerEU plan, launched in May 2022, REPowerEU helps the EU:

- to save energy;
- to produce clean energy;
- to diversify its energy sources.

The National Strategy for Green Jobs (2018-2025) sets out the policy analysis framework for the effects of the green transition on the labour market, including the demand for new skills. Thus, *it is estimated that more than 32,000 jobs are expected to be lost due to the impact of the green transition and just transformation in the six counties with the most carbon-intensive industries*. Workers in the affected regions will need active support to acquire new qualifications (Ministry of Labor and Social Protection, 2018).

The level of employment in the sectors most affected by the green transition remains stable and the green economy is expanding, but redundant workers need active support measures. In Romania, the greenhouse gas emissions intensity indicator of the labour force decreased between 2015 and 2021. Comparatively, in Romania, it was 11.5 tons per worker, below the EU average of 13.7 tons in 2021.

The employment in the field of large energy-consuming industries share in total employment was 4.3% (compared to the EU average of 3.0%), a downward trend registered in recent years. In Romania, the employment in mining and surface mining decreased by 20.7% compared to 2015. The share of jobs in the goods and services sector of the circular economy increased by 2.1% during 2015-2019 (compared to the EU's increase of 8.3%) while reaching 1.9% of total employment (a value close to the EU average). The construction vacancy rate, a key sector for the green transition, was relatively low 0.4% compared to 4.0% in the EU in 2022.

Upskilling and reskilling programs in green economy sectors have developed strongly. Skills are essential for smooth transitions in the labour market and maintaining jobs in sectors transforming. In energy-intensive industries, the level of participation of workers in education and training increased strongly from 2.3% in 2015 to 9.4% in 2022 but is still below the EU average (10.4%). In Romania, 47% of citizens believe that they do not have the necessary skills to contribute to the ecological transition, compared to the EU average of 38%. Romania's Recovery and Resilience Plan provides for the development of professional skills necessary for the renewable energy sectors and the energy efficiency of historic buildings and supports the training of civil servants as experts in sustainable development at both local and central levels.

The Just Transition Mechanism provides training systems for the retraining of workers from regions affected by the green transition, and in parallel the expansion of the offer of continuing education at the national level and flexibility in the training mechanisms within the company. In Romania, 117.5 million euros of ESF+ funding contributes to qualifications and jobs in the green economy through the "Education and Employment" Programme, providing training and career guidance opportunities to enhance the development of green skills and related jobs.

#### **4.4 The outlook of the circular economy in the context of just transition in Romania**

In the context of the green transition, the circular economy is also promoted as an essential component of the green economy, being considered as a production and consumption model, which involves sharing, renting, reusing, repairing, renovating, and recycling existing materials and products as long as possible. Thus, the aim is to extend the life cycle of products and minimize waste.

The transition to the circular economy meets environmental objectives and provides major socio-economic benefits, such as increasing jobs, stimulating innovation and competitiveness, and encouraging sustainability and resource security. Ensuring the transition to the circular economy, building energy-efficient buildings, and promoting organic agriculture can generate significant improvements, as these are among the most resource-intensive systems.

Romania's circular economy is insufficiently developed and requires an acceleration of the growth rate to meet the EU's circular economy objectives. The Action Plan for the Circular Economy 2020 (PAEC) aims to double the resource recycling rate between 2020 and 2030. The rate of circular use of materials in Romania decreased from 1.7% in 2016 to 1.4% in 2021, being very low compared to the EU average of 11.7%. PAEC also aims to significantly reduce the material footprint of the EU (Government of Romania, 2022). In the year 2020, Romania's material footprint<sup>4</sup> (29.6 tons per inhabitant) was well above the EU-27 average of 2020 (13.7 tons per inhabitant) and confirms the growth trend from 2017. Currently, the benefits of the circular transition on the labour market remain limited, seeing an increase in direct circular jobs from 2019. According to the European Commission (2022c), Romania is among the middle-bottom performers in The Ecological Footprint<sup>5</sup>, position 113 out of 180 countries (score 100.29).

Romania has adopted new policies to address the challenges of the circular economy. In October 2023, a National Strategy on the Circular Economy, and a National Action Plan for the Circular Economy (PAEC) were

---

<sup>4</sup> The material footprint of the European Union (EU) refers to the amount of material extracted from nature, both inside and outside the EU, to manufacture or supply goods and services consumed by EU citizens. In 2020, the material footprint of the EU was estimated at 13.7 tonnes per capita.



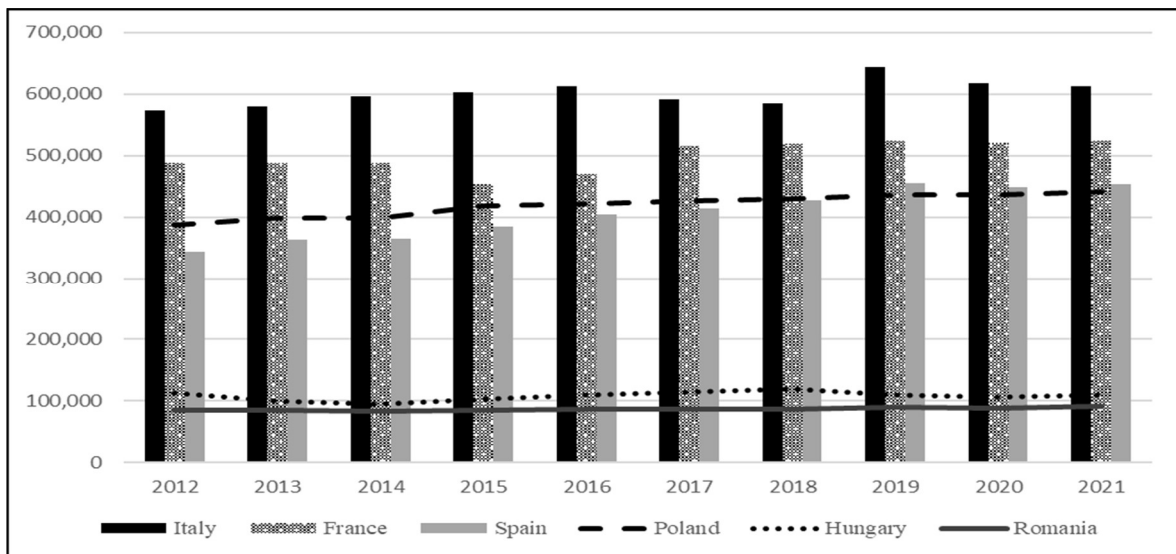
adopted. PAEC also presents actions specific to the nine economic sectors that have been identified through SNEC as the areas with the greatest potential for circularity in the Romanian economy. The sectors were selected based on their economic importance, environmental and health impacts, and circular economy opportunities. Thus, the selected sectors are agriculture and forestry; auto; constructions; food and drinks; packaging (glass, paper, plastic materials, wood, and metal materials); textiles; electrical and electronic equipment, including batteries; as well as two sectors relevant to the entire economy and society, namely: waste and wastewater. The PAEC presents and describes a total of 52 priority actions in the ten areas, of which 11% are focused on education and training.

According to PAEC, the adoption of circular economy practices is expected to have a net positive effect on job creation, but only to the extent that workers acquire the skills and competencies necessary to transition to the circular economy. Employment levels in sectors related to the circular economy, such as the recycling, repair, and reuse sectors in Romania are still relatively low at 1.55% of total employment compared to 1.76% on average EU or over 2% in other Central and Eastern European countries such as Poland, Croatia, and the Baltic States.

Vocational education and training could play a crucial role in stimulating the adoption of circular economy strategies and practices as part of a large-scale lifelong upskilling and reskilling strategy. Recent studies show the importance of developing both transversal skills, such as ecological and digital literacy or analytical problem-solving skills, as well as more specialized skills needed for innovation in the design and manufacturing phase of products, to enable their repair and reuse, as well as the adoption of circular solutions in the supply of raw materials and waste management.

Currently, in Romania the benefits of the circular transition on the labour market remain limited, registering a gradual increase in direct circular jobs, but reaching only 91,467 people employed in the fields of the circular economy in 2021. In the European Union, the first place at employment in the circular economy is Germany, with 785,297 people employed in this sector. Comparatively, among the Member States with the highest number of workers in circular economy sectors are Italy (613,339 people), France (523,904 people), Spain (454,085 people), Poland (441,671 people) (Graph 2).

**Graph 2: Persons employed full-time in the circular economy in Romania compared to other Member States**



Source Author based on Eurostat (2022)

#### 4.5 A SWOT on the just transition's impact in Romania

The following SWOT analysis expounds the research results on the just transition process in Romania (Figure 2).

**Figure 2: A SWOT matrix on the just transition's impact in Romania**

STRENGTHS:	WEAKNESSES:
<ul style="list-style-type: none"> <li>- <i>Financial resources:</i></li> <li>- <i>Just Transition Program</i> amounts to 114,118,160 euros, of which 85,588,621 euros represent the contribution from</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Job destruction:</i> in Romania, the cumulative job losses in the coal sector, by 2030, will be between 3,000 and 6,000 in the Vest region and between 6,000 and 15,000 jobs in the Sud-Vest region.</li> </ul>

<p>the Just Transition Fund and 28,529,539 euros is the national contribution.</p> <ul style="list-style-type: none"> <li>- <i>Human resources:</i></li> <li>- <i>Romania's Recovery and Resilience Plan</i> provides for the development of professional skills necessary for a just green transition as renewable energy sectors and the energy efficiency of buildings;</li> <li>- The <i>National Strategy on Circular Economy</i> could play a crucial role in stimulating the adoption of circular economy strategies and practices as part of a large-scale lifelong upskilling and reskilling strategy.</li> </ul>	<ul style="list-style-type: none"> <li>-The Valea Jiului has a largely <i>undiversified economy</i>, which is still largely dependent on mining activities;</li> <li>-The most affected regions have <i>limited connectivity and damaged transport infrastructure</i>;</li> <li>- The previous layoffs have led to a <i>demographic decline</i> in Gorj County and Hunedoara County.</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES:</b></p> <ul style="list-style-type: none"> <li>- Through the <i>National Strategy for Green Jobs</i> (2018-2025), workers in the affected regions (Gorj, Hunedoara, Dolj, Galati, Prahova, and Mureş) will receive active support to acquire <i>new qualifications for green jobs</i>;</li> <li>- According to the <i>National Action Plan for the Circular Economy</i> the adoption of circular economy practices is expected to have a <i>net positive effect on job creation</i>, but only to the extent that workers acquire the skills and competencies necessary to transition to the circular economy;</li> <li>- The just transition process identifies other opportunities for economic development, such as solar energy (with a potential of up to 60 GW), tourism, wood processing, and <i>agriculture</i>;</li> <li>- <i>The creation of new firms, SMEs, and start-ups through economic activity diversifications</i> will have a positive just transition impact.</li> </ul>	<p style="text-align: center;"><b>THREATS:</b></p> <ul style="list-style-type: none"> <li>- There are <i>high environmental and health risks</i> related to the decontamination and reduction of pollution in the areas where the mines were closed or where the thermal powers are as Termocentrala Mintia.</li> <li>- There are some <i>financial risks</i> regarding the <i>attraction of allocated EU funds</i>, which are linked with the inadequate administrative capacity and the ineffective management of the <i>National Recovery and Resilience Plan or Just Transition Fund</i>.</li> </ul>

Source: Author's representation based on literature review and European Union legislation.

The *net positive effects* of the circular economy on job creation, particularly, in Romania are related to job diversification, innovation, and entrepreneurship. While job diversification provides opportunities by expanding roles in areas such as repair, remanufacturing, reverse logistics, and sustainable design, innovation, and entrepreneurship are stimulated by the encouragement of start-ups focused on sustainable solutions (products, and services that minimize waste and maximize resource use). An example of best practice in the circular economy is *Recycllux*, a company dedicated to facilitating the collection and retrieval of plastic waste from marine ecosystems for recycling purposes. This process enables the reintegration of plastic materials back into the economy. The company's journey began in 2020 when it joined the Parsec Accelerator, a startup incubator supported by the Horizon 2020 program. This accelerator focuses on nurturing innovative concepts that leverage satellite data to address global challenges.

*Access to financial support* remains a *significant challenge* for entrepreneurship and new green company-making in Romania. According to the Romanian Green Startups Overview Report 3<sup>rd</sup> edition (2023), the Romanian green technology startup sector is no exception to major difficulties, encountering a unique set of obstacles in this rapidly evolving landscape. Green technology startups often require substantial capital to develop. The limited access is linked with two other major challenges, which are the complex regulatory landscape and the bureaucracy. Understanding green regulations, obtaining permits, and ensuring compliance can be time-consuming and costly. An example of best practice for incubation, acceleration, and design thinking programs is *Impact Hub Bucharest*, which has supported over 1.000 entrepreneurs and startups in different stages of development, in the growth process, provided *access to direct financing* of over 5.1 million euros, and laid the foundations of the largest online platform for *entrepreneurial education*. Impact Hub Bucharest is part of the global *Impact Hub network* and has over 100 locations on five continents and a community of over 16,000 members, connected through a dedicated online platform<sup>5</sup>.

<sup>5</sup> See more on the official site: <https://www.impacthub.ro/cine-suntem/>

In this evolving context, *an immense window of opportunity* opens when support for entrepreneurs and startups provides *partnerships* with local authorities, central authorities, big corporations, European Union institutions. In just transition-affected regions, green best practice examples can be extended through *startup sector development and economic activities diversifications*. As a good practice example of green entrepreneurship diversification initiative, Impact Hub Bucharest represents *EIT Food as an EIT Food Hub*. This is a great opportunity to connect the national/local network of agri-food entrepreneurs and innovators with European opportunities<sup>6</sup>.

## 5. Conclusion

Against the geopolitical outlook generated by the war in Ukraine, the European Commission also recognized that, in the short term, Member States may have to increase coal consumption before switching to renewable energy sources to avoid dependence on gas natural, but that the climate and energy objectives set for 2030 must be further respected.

There are various best practices regarding the just transition and the shift to circular economy in the Member States. The Silesian Voivodeship in Poland exemplifies a successful model of a just transition from a mining region to a modern industrial area since through the development of sectors such as IT, healthcare, and innovative technologies like artificial intelligence, achieving a reduction in coal extraction and mining employment. Other states like Hungary have used the European Social Fund Plus (ESF+) to support access to the labour market and quality education with a special focus on developing skills necessary for the green and digital transition. While the Czech Republic has successfully supported the economic restructuring of coal-bearing regions, in Germany's Ruhr Region, innovations in environmental technologies such as renewable energy and waste management have driven economic diversification creating a key hub for environmental technology and research, employing approximately 100,000 people in these sectors since the late 2000s. By incorporating these lessons into its renewable energy strategy, Romania can foster sustainable development, reduce greenhouse gas emissions, and enhance energy independence while achieving the just transition to a low-carbon economy.

Therefore, in Romania, the just transition mechanism can have a positive social, economic, demographic, and environmental impact, which will allow the inhabitants of the 6 regions most affected by this complex process, respectively: Gorj, Hunedoara, Dolj, Galati, Prahova, and Mureş to find new jobs more easily and can transform these regions into an industrial area developed on the basis new green technologies.

As a result of our research, the *recommendations for Romania are*:

- At the regional level (NUTS2), in Romania a specific institutional framework should be developed for the efficient management of funds and, finally, the development of active employment and social protection measures is necessary. In this sense, in Romania, local community representatives and civil society can have a key role alongside the government and companies in ensuring the good governance of the just transition;
- Decision-makers and public authorities must ensure much easier access to public funds, which involves de-bureaucratization to support a fair and inclusive just transition while ensuring competitiveness;
- Boosting the process of diversifying economic activities, while promoting proactive industrial policies, as well as increasing the involvement of the private sector in this just transition process;
- Romanian policymakers should ensure that labour markets and education and training systems are adequately equipped to accompany the just transition in a way that supports inclusive employment and sustainable development, good working conditions, and competitiveness;
- Attracting funds through the Just Transit Mechanism has the main role of ensuring quality, permanent, and, better-paid jobs, as well as retraining programs at the company's level;
- The implementation of strategic measures in Romania includes, the responsible restructuring of the core traditional local economy while building new competitive advantages through public policies which creates an advantageous business environment for investment, employment, and development of the most affected regions: Gorj and Hunedoara Counties.

---

<sup>6</sup> See more on the official site: <https://www.eitfood.eu/eit-food-hubs>

## References:

- [1] Abram, S., Atkins, E., Dietzel, A., Jenkins, K., Kiamba, L., Kirshner, K., J., Parkhill, K., Pegram, T. & Santos Ayllón; L.M. (2022), *Just Transition: A whole-systems approach to decarbonisation*, *Climate Policy*, DOI: 10.1080/14693062.2022.2108365.
- [2] Activize, Impact Hub Bucharest, Spherik (2023), *Romanian Green Startups Overview Report 2023*. 3<sup>rd</sup> edition, <https://activize.tech/green-startups-romania-overview/>
- [3] Anczewska, M., Grandpré, J., Mantzaris, N., Stefanov, G., Treadwell, K. (2021), *Just transition to climate neutrality, Doing right by regions*. *WWF*, <https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Just-Transition-to-Climate-Neutrality-neu.pdf>.
- [4] Apostoiu, C. (2021), *Cărbunele salvează situația din Germania și portofelele consumatorilor din Polonia*. *Ziarul financiar*, <https://www.zf.ro/business-international/carbunele-salveaza-situatia-in-germania-si-portofelele-20262360>.
- [5] CEE Bankwatch Network. (2021), *Status of the Territorial Just Transition Plans in Central and Eastern Europe*, *Bankwatch Network*.
- [6] Czako, V. (2020), *Employment in the Energy Sector Status Report 2020*, EUR 30186 EN, Luxembourg: Publications Office of the European Union. ISBN 978-92-76-18206-1, <https://ec.europa.eu/jrc/en/science-update/employment-energy-sector>
- [7] Dobre, D., Petcu, R., (2021), *Romania government coal phaseout blabber*, <https://www.just-transition.info/romanian-governments-coal-phaseout-blabber/>.
- [8] European Commission (2022a), *EU Cohesion Policy 2021-2027: Investing in a fair climate and digital transition while strengthening Hungary's administrative capacity, transparency, and prevention of corruption*, Press release, 22 December. [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_7801](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7801).
- [9] European Commission (2022b), *Just Transition Score*, <https://composite-indicators.jrc.ec.europa.eu/explorer/explorer/indices/jts/just-transition-score>
- [10] European Commission (2022c), *Romania, a European Green Deal*, <https://composite-indicators.jrc.ec.europa.eu/explorer/explorer/countries-and-territories/ro/romania>.
- [11] European Commission (2021a), *The Just Transition Mechanism: Making sure no one is left behind*. Bruxelles, [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism\\_ro](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_ro).
- [12] European Commission (2021b), *Commission services working document on territorial plans for a just transition*. Bruxelles, 23.9.2021 SWD(275), [https://ec.europa.eu/regional\\_policy/sources/funding/just-transition-fund/swd\\_territ\\_just\\_trans\\_plan\\_ro.pdf](https://ec.europa.eu/regional_policy/sources/funding/just-transition-fund/swd_territ_just_trans_plan_ro.pdf)
- [13] European Commission (2019), *Communication from the Commission. European Green Deal*, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN>
- [14] European Parliament (2022), *The Just Transition Fund*, <https://www.europarl.europa.eu/factsheets/ro/sheet/214/fondul-pentru-o-tranzitie-justa>
- [15] Eurostat (2022), *Persons employed in circular economy sectors*. [https://ec.europa.eu/eurostat/databrowser/view/cei\\_cie011/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/cei_cie011/default/table?lang=en)
- [16] Galgóczi, B. (2018), *Just Transition towards environmentally sustainable economies and societies for all*, ILO ACTRAV Policy Brief.
- [17] García-García, P., Carpintero, O., & Buendía, L. (2020), *Just energy transitions to low carbon economies: A review of the concept and its effects on labour and income*. *Energy Research & Social Science*, 70(101664), 1–16.
- [18] Government of Romania, Department for Sustainable Development (2022), *The Action Plan for the National Strategy regarding the circular economy*, <http://www.mmediu.ro/app/webroot/uploads/files/Planul%20de%20aciune%20pentru%20Strategia%20Nationala%20privind%20Economia%20Circulara%20-%20varianta%20final.PDF>
- [19] Heyen D.A., Menzemer, L., Wolff, F., Beznea, A., Williams, R. (2020), *Just transition in the context of EU environmental policy and the European Green Deal*, [https://ec.europa.eu/environment/enveco/growth\\_jobs\\_social/pdf/studies/just\\_transition\\_issue\\_paper\\_final\\_clean.pdf](https://ec.europa.eu/environment/enveco/growth_jobs_social/pdf/studies/just_transition_issue_paper_final_clean.pdf).
- [20] Just Transition (2022), *Estonia: Fund covering loss of wages*, <https://www.just-transition.info/bestpractices/estonia-fund-covering-loss-of-wages/>.
- [21] Kojouharova, V. (2023), *What is the current state of play of the just transition processes in Bulgaria?* Central and Eastern Europe. *Bankwach Network*, [https://bankwatch.org/wp-content/uploads/2023/01/2023-01-30\\_What-is-the-current-state-of-play-of-the-just-transition-processes-in-Bulgaria.pdf](https://bankwatch.org/wp-content/uploads/2023/01/2023-01-30_What-is-the-current-state-of-play-of-the-just-transition-processes-in-Bulgaria.pdf).
- [22] LaBelle, M. C., Bucată, R., & Stojilovska, A. (2021), *Radical energy justice: a Green Deal for Romanian coal miners?*, *Journal of Environmental Policy & Planning*, 25(2), 142–154. <https://doi.org/10.1080/1523908X.2021.1992266>
- [23] Ministry of European Investments and Projects (2023a), *National Recovery and Resilience Plan*. <https://mfe.gov.ro/pnrr/>.
- [24] Ministry of European Investments and Projects (2023b), *The Just Transition Program*. <https://opportunity-ue.gov.ro/program-operational-tranzitie-justa/>.

- [25] Ministry of Labor and Social Protection (2018), National Strategy for Green Jobs 2018-2020. [https://mmuncii.ro/j33/images/Documente/Munca/2018/21082018\\_SN\\_Locuri\\_Munca\\_Verzi\\_2018-2025.pdf](https://mmuncii.ro/j33/images/Documente/Munca/2018/21082018_SN_Locuri_Munca_Verzi_2018-2025.pdf)
- [26] Nicola, S., & Schmitz, S. (2022), Discordant agendas on a just transition in Romanian coal mining areas: The case of the Jiu Valley. *Moravian Geographical Reports*, 30(4), 257-269.
- [27] Rosch, L.B, Epifanio, D. (2022), *Just Transition in central and eastern European countries*, <https://euagenda.eu/upload/publications/2022-04-just-transition-in-7-ceecs.pdf>.
- [28] Śniegocki, A. (2021), *Crucial Months Ahead for Coal Transition in Silesia, Poland*, <https://coaltransitions.org/news/crucial-months-ahead-for-coal-transition-in-silesia-poland/>.
- [29] Voicu-Dorobanțu R, Volintiru C, Popescu M-F, Nerău V, Ștefan G (2021), Tackling Complexity of the Just Transition in the EU: Evidence from Romania. *Energies*. 14(5):1509. <https://doi.org/10.3390/en14051509>
- [30] Volintiru, C., & Nicola, S. (2024). Limitations of coordinative Europeanisation in the Just Transition Mechanism in Romania. *Competition & Change*, 10245294241242256
- [31] World Resources Institute (2021), Hungary: *Converting the Mátra Power Plant into a Diversified Hub of Green Energy and Industry*, <https://www.wri.org/update/hungary-converting-matra-power-plant-diversified-hub-green-energy-and-industry>.