



**Territorial resilience of post-mining regions
within the Just Transition framework**

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Abstract

Despite promises that the just transition will bring more democracy and prosperity, there are legitimate fears that, in some regions, pre-existing inequalities will be reinforced rather than rectified. Investigating how territorial resilience can be enhanced before, during and after mining closures, this thesis focuses on three post-mining territories in the European Union: Jiu Valley and Ștei in Romania and La Louvière in Belgium.

Based on the three case studies and the reviewed literature, the thesis proposes a reflection on the drivers that can strengthen territorial resilience in the just transition, as well as a series of methods for ex-ante assessment of the ability to achieve a successful transition to other models economic and new societal practices. The rationale behind our theoretical framework is that territorial resilience is based on individual and community resilience. In our opinion, everything starts with one. An individual that is in distress may choose to leave the territory where they no longer see the possibility of thriving, or they may stick with their fellow citizens and go through the shrinkage together.

Using empirical and action research methodologies, the study highlights the link between the inability of territorial reconversion in declining post-industrial cities and mass migration, while arguing that low levels of agency and discordant stakeholder agendas are detrimental to community resilience. We therefore approach resilience as a trait - when it comes to the adaptive capacity of individuals, as a process - when examining community actions, and as an outcome - when weighing the consequences of personal decisions and collective actions on the territory.

Our study shows that in all three former mining basins, people expect new investments that will create more jobs, while denouncing the lack of professional qualification opportunities. This comparative analysis of three case studies from different geographies and at different stages of the transition to the green economy allowed us to explore the importance of individual resilience and personal decisions in building community resilience and capitalizing on territorial assets, at different stages of the transition. Two components of individual resilience make a notable difference in La Louvière (where the population is growing) compared to Jiu Valley and Ștei (undergoing depopulation): a) the support system,

incorporating the quality of interpersonal relationships as well as aid from the state to overcome difficulties, and b) sense of place, generating a sense of belonging. These two factors create premises for collective action, strengthening the resilience of the community, while mobility could be a lifeline only for the individual, diminishing territorial assets through the loss of workforce. Moreover, the Ştei case study reveals that a good level of education is not always a component of individual resilience but, in some cases, is an additional incentive for mobility.

Lessons learned from the experience of regions that have already completed the mine closure process have shown that the earlier state or non-state actors anticipate, accept and implement steps to cushion the shock of the transition, the better the results. However, mining companies, as well as some mining communities, often have strategies to avoid or at least delay the implementation of those measures intended to lead to permanent closures, every day of delay adding to the cost of the transition for the entire community and extending the shrinkage. This thesis proposes a stakeholder mapping based on criteria of influence, trust and positioning of local actors in relation to the transition, thus deciphering who is delaying the transition.

Mining communities have often pinned their hopes on tourism as the main industry for sustainable development after mine closure, this preference giving the landscape a key role in territorial resilience. At the same time, in tourism development strategies, potential tourists become stakeholders, local actors giving up part of their influence on the outcome of the transition to external actors. Outside the control of any authority, the opinions shared by travellers who have passed through a particular place have a significant impact on the destination's reputation.

The thesis also delivers comparative analyses of social capital and the decision-making processes, methods of evaluating the territorial assets and for assessing the external image, the data thus obtained facilitating the ex-ante assessment of territorial resilience within the just transition framework. At the same time, we formulate recommendations, providing additional input to official just transition awareness and preparedness initiatives.

Résumé

Malgré les promesses selon lesquelles une transition juste apporterait plus de démocratie et de prospérité, il existe des craintes légitimes que, dans certaines régions, les inégalités préexistantes soient renforcées plutôt que corrigées. En étudiant comment la résilience territoriale peut être améliorée avant, pendant et après la fermeture des mines, cette thèse se concentre sur trois territoires post-miniers de l'Union européenne : la Vallée du Jiu et Ştei en Roumanie et La Louvière en Belgique.

Sur la base des trois études de cas et de la littérature examinée, la thèse propose une réflexion sur les facteurs qui peuvent renforcer la résilience territoriale dans le cadre de la transition juste, ainsi qu'une série de méthodes d'évaluation *ex-ante* de la capacité à réussir une transition vers d'autres modèles économiques et de nouvelles pratiques sociétales. La logique qui porte notre cadre théorique est que la résilience territoriale repose sur la résilience individuelle et communautaire. Nous prenons le parti que tout commence au niveau de l'individu. Une personne en détresse peut choisir de quitter le territoire où elle ne voit plus la possibilité de prospérer, ou bien de rester avec ses concitoyens et de surmonter ensemble le déclin.

En utilisant des méthodologies de recherche empirique et de recherche action, l'étude met en évidence le lien entre les difficultés de reconversion territoriale dans les villes post-industrielles en déclin et la migration de masse, tout en affirmant que les faibles capacités d'action et les agendas discordants des parties prenantes nuisent à la résilience des communautés. Nous abordons donc la résilience comme un trait - lorsqu'il s'agit de la capacité d'adaptation des individus, comme un processus - lorsqu'on examine les actions communautaires, et comme un résultat - lorsqu'on pèse les conséquences des décisions personnelles et des actions collectives sur le territoire.

Notre étude montre que dans les trois anciens bassins miniers, les citoyens attendent de nouveaux investissements créateurs d'emplois, tout en dénonçant le manque d'opportunités de qualification professionnelle. Cette analyse comparative de trois études de cas provenant de différentes zones géographiques et à différentes étapes de la transition vers l'économie verte nous a permis d'explorer l'importance de la résilience individuelle et des décisions personnelles dans le renforcement de la résilience communautaire et la capitalisation des

atouts territoriaux, à différentes étapes de la transition. Deux composantes de la résilience individuelle font une différence notable à La Louvière (où la population est en croissance) par rapport à la vallée du Jiu et à Ştei (en cours de dépeuplement) : a) le système d'accompagnement, intégrant la qualité des relations interpersonnelles ainsi que l'aide de l'État pour surmonter les difficultés, et b) le sens du lieu, générant un sentiment d'appartenance. Ces deux facteurs créent des conditions propices à l'action collective, renforçant la résilience de la communauté, tandis que la mobilité pourrait être une bouée de sauvetage pour l'individu, diminuant les atouts territoriaux par la perte de main-d'œuvre. De plus, l'étude de Ştei révèle qu'un bon niveau d'éducation n'est pas toujours une composante de la résilience individuelle mais, dans certains cas, constitue une incitation supplémentaire à la mobilité.

Les enseignements tirés de l'expérience des régions qui ont déjà abandonné le charbon montrent que plus tôt les acteurs étatiques ou non étatiques anticipent, acceptent et mettent en œuvre des mesures pour amortir le choc de la transition, meilleurs sont les résultats. Cependant, les sociétés minières, ainsi que certaines communautés minières, ont souvent des stratégies pour éviter ou du moins retarder la mise en œuvre de ces mesures censées conduire à des fermetures définitives, cependant, chaque jour de retard pèse sur le coût de la transition pour l'ensemble de la communauté et prolonge la situation de déclin. Cette thèse propose de cartographier les parties prenantes sur base des critères d'influence, de confiance et de positionnement des acteurs locaux par rapport à la transition, décryptant ainsi qui retarde la transition.

Alors que les communautés minières ont souvent placé leurs espoirs dans le tourisme en tant que principale industrie pour un développement durable après la fermeture des mines, cette préférence confère au paysage un rôle clé dans la résilience territoriale. Dans le même temps, dans ces stratégies de développement touristique, les touristes potentiels deviennent parties prenantes, les acteurs locaux cédant une partie de leur influence quant à l'issue de la transition à des acteurs externes. Hors du contrôle de toute autorité, les avis partagés par les voyageurs ayant transité par un lieu particulier ont un impact significatif sur la réputation de la destination.

La thèse propose également des analyses comparatives du capital social et des processus de décision, des méthodes d'évaluation des atouts territoriaux et d'évaluation de l'image

extérieure, les données ainsi obtenues facilitant l'évaluation *ex-ante* de la résilience territoriale dans le cadre d'une transition juste. Le travail formule enfin des recommandations, apportant une contribution supplémentaire aux initiatives officielles de sensibilisation et de préparation à une transition juste.

Rezumat

În ciuda promisiunilor că tranziția justă va aduce mai multă democrație și prosperitate, există temeri legitime că, în unele regiuni, inegalitățile preexistente vor fi mai degrabă întărite decât rectificate. Investigând modul în care reziliența teritorială poate fi îmbunătățită înainte, în timpul și după închiderea mineritului, această teză se concentrează pe trei teritorii post-miniere din Uniunea Europeană: Valea Jiului și Ștei în România și La Louvière în Belgia.

Pe baza celor trei studii de caz și a literaturii revizuite, teza propune o reflecție asupra factorilor care pot întări reziliența teritorială în tranziția justă, precum și o serie de metode de evaluare ex-ante a capacității de a realiza o tranziție de succes către alte modele economice și noi practici societale. Raționamentul din spatele cadrului nostru teoretic este că reziliența teritorială se bazează pe reziliența individuală și comunitară. În opinia noastră, totul începe la nivel individual. Un individ aflat în dificultate poate alege să părăsească teritoriul unde nu mai vede posibilitatea de a prospera sau poate rămâne alături de concetățenii săi, trecând împreună prin turbulențele tranziției.

Folosind metodologii de cercetare empirică și cercetare-acțiune, studiul evidențiază legătura dintre incapacitatea reconversiei teritoriale în orașele post-industriale în declin și migrația în masă, susținând în același timp că nivelurile scăzute de agenție și agendele discordante ale părților interesate sunt dăunătoare rezistenței comunității. Abordăm, așadar, reziliența ca o trăsătură - când vine vorba de capacitatea de adaptare a indivizilor, ca proces - atunci când examinăm acțiunile comunitare, și ca rezultat - când evaluăm consecințele deciziilor personale și acțiunilor colective asupra teritoriului.

Studiul nostru arată că în toate cele trei foste bazine miniere oamenii așteaptă noi investiții care ar crea mai multe locuri de muncă, denunțând în același timp lipsa oportunităților de calificare profesională. Această analiză comparativă a trei studii de caz din diferite geografii și în diferite stadii de implementare a tranziției ne-a permis să explorăm importanța rezilienței individuale și a deciziilor personale în construirea rezilienței comunității și valorificarea activelor teritoriale. Două componente ale rezilienței individuale fac o diferență notabilă în La Louvière (unde populația este în creștere) față de Valea Jiului și Ștei (în curs de depopulare): a) sistemul de sprijin, încorporând calitatea relațiilor interpersonale, precum și ajutorul de la

stat pentru depășirea dificultăților și b) simțul locului, generând un sentiment de apartenență. Acești doi factori creează premise pentru acțiunea colectivă, întărind reziliența comunității, în timp ce mobilitatea ar putea fi un colac de salvare pentru individ, diminuând activele teritoriale prin pierderea forței de muncă. Mai mult, studiul de caz Ștei relevă că un nivel bun de educație nu este întotdeauna o componentă a rezilienței individuale, ci, în unele cazuri, este un stimulent suplimentar pentru mobilitate.

Cu cât actorii de stat sau nestatali anticipează, acceptă și implementează pași pentru a amortiza șocul tranziției, cu atât rezultatele sunt mai bune ; asta ne arată lecțiile învățate din experiența regiunilor care au finalizat procesul de închidere a mineritului. Cu toate acestea, companiile miniere, precum și unele comunități miniere, au adesea strategii pentru a evita sau cel puțin a întârzia implementarea acelor măsuri menite să conducă la închideri permanente, iar fiecare zi de întârziere adaugă la costul tranziției pentru întreaga comunitate și prelungește declinul socio-economic. Această teză propune o cartografiere a părților interesate bazată pe criterii de influență, încredere și poziționare a actorilor locali în raport cu tranziția, descifrând astfel cine întârzie cu bună știință tranziția.

Comunitățile miniere și-au pus deseori speranțele în turism, ca principală industrie pentru dezvoltarea durabilă după închiderea minei, această preferință acordând peisajului un rol cheie în reziliența teritorială. În același timp, în strategiile de dezvoltare a turismului, potențialii turiști devin părți interesate, actorii locali renunțând la o parte din influența lor asupra rezultatului tranziției către actori externi. În afara controlului oricărei autorități, opiniile împărtășite de călătorii care au trecut printr-un anumit loc au un impact semnificativ asupra reputației destinației.

Teza livrează totodată analize comparative ale capitalului social și proceselor decizionale, metode de inventariere a activelor teritoriale și de evaluare a imaginii externe, datele astfel obținute facilitând analiza *ex-ante* a rezilienței teritoriale în cadrul tranziției juste. În același timp, formulăm recomandări, furnizând contribuții suplimentare la inițiativele oficiale de conștientizare și pregătire pentru tranziția justă.

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INTRODUCTION

The development of extractive industries was often accompanied by a fast forward conversion of many rural areas into industrialized urban territories. Production could not have been accelerated in the absence of an infrastructure capable to accommodate the immigrant workforce attracted by these new opportunities. This is how strong mining communities were formed and developed. All over the world, mining companies have been the driving force behind the creation of new towns. Providing housing, infrastructure and services during their boom period, these cities fulfilled an important social function, forming new communities and landscapes with specific features (Marais et al., 2018). When the extractive industries flourished and the mining territories attracted labour from everywhere, it was not much considered that there would be an expiration date for the prosperity of these communities and that mining must be seen from the very beginning as a temporary activity, the exploitation ceasing with the depletion of resources or when their use is no longer considered beneficial (Bowie & Fulcher, 2017). Since the mine closure and the separation of communities from their "mother" company is a disruptive event, often followed by a period of shrinkage, the communities in these urban industrial regions seem to be doomed to live in "boom-bust cycles" (Sewell, 2019).

The urgent need to mitigate the effects of climate change and reduce greenhouse gas emissions led to the decision taken in the 2015 Paris Agreement to phase out coal from the energy mix by 2030 in OECD member states and by 2050 in the other signatory states¹. In an effort to limit the increase in global temperature to 1.5 °C above pre-industrial levels, the European Union Parliament adopted on June 24, 2021, the European climate law or "the Green Deal", enrolling the EU member states in a race to obtain the climate neutrality until 2050². Global warming, therefore, is the triggering factor of the transition from polluting industries to a green economy, mainly through the phasing out of coal in favour of renewable energy (Copley, 2023). Both the Paris Agreement and EU climate legislation mention differentiated responsibility, depending on the proportions of pollution and the impact of closing down polluting industries, with accompanying measures provided for. However, the

¹ [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:22016A1019\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:22016A1019(01))

² https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en

pressure on mining communities to identify sustainable alternatives causes a lot of anxiety, especially in those peripheral regions where awareness regarding just transition is deficient.

The fieldwork for this research involved tens of hours of direct interaction with locals in mining regions, in Romania and in Belgium, people that were more or less informed about the transition to green economy. In the post-industrial communities, citizens often complained about the lack of information as the main cause of their inability to prepare for what is to come after the mine closure. Conducting the interviews exclusively in Romanian, we had the opportunity to detect in the tone of voice an increased irritability when we introduced terms such as *just transition* or *resilience* into the discussion (Nicola & Schmitz, 2022), and we often wondered where this discomfort comes from. Participants in a focus group explained to us: "This is *bruxelloise*, madam, a vocabulary invented by them and then endlessly repeated with emphasis, without ever being clear what they want to say". Regarding *stakeholders* and *Green Deal*, terms that have entered in the current language in their English form, sensitivities seemed even greater. "Can we switch to Romanian, please?", an otherwise very kind lady from Petroșani told us ironically during an interview, and we understood that even the use of certain words can suddenly dig deep chasms between us and the locals.

Indeed, the Just Transition has its own vocabulary, and it is not always intuitive for somebody unfamiliar with EU paperwork. Whether a territory is shaken by a cataclysm or goes through deindustrialization, in the vocabulary of just transition and resilience it means that a *stress* or a *shock* occurs (G.A. Wilson, 2017), also you may hear that a *disruptive event* took place. The immediately following period is a complicated one for the community, facing various challenges and deprivations, an economic decline and probably a decrease in population, these being the main attributes of what it is called *shrinking cities* (Hartt et al., 2019). Cities that have a minimal level of resilience will find means for *recovery*, and after a while they will manage to *bounce back*, i.e. return to their pre-shock state. Those that have more resources and vision might also have the capacity for *renewal* and *bounce forward* (Bănică et al., 2017), meaning that they have gone through a process of *transformative resilience*; these communities do not wish to return to the initial state, to the same status quo, but dare to fundamentally reinvent themselves, on more *sustainable* bases (Kemp et al., 2005).

Brought back into the public debate by the Paris Agreement of 2015 and boosted by the provisions of the *Green Deal* of 2020, *just transition* is a concept that has its origins in the discourse of the union movements of the 70s in the USA (Stavis & Felli, 2015). Today it is promoted as a guarantee that the communities will be supported by accompanying measures in the transition to the green economy imposed by the climate emergency, and in the framework described by the just transition these measures are decided through consultations between *stakeholders*, i.e. through *participatory democracy* (Edwards et al., 2019). This is the ideal course of action, promising a happy ending, still a difficult target to reach in the peripheral territories of the European Union. On the Eastern border of the EU, for example, small post-socialist towns face the prospect of endless shrinkage, and the rapid loss of population could soon turn them into *ghost towns* (Marais & de Lange, 2021). In these places, the need for a culturally appropriate translation of the just transition is at least as important as the need for funding.

Although it has been assigned a key role in the success of the just transition, resilience has rarely been predicted before the stress occurred (Weichselgartner & Kelman, 2015), therefore, designing appropriate tools and methods to anticipate the degree of resilience in a territory undergoing a transformative process is crucial to scientific progress in this area of research (Brand & Jax, 2007). The purpose of this thesis is to focus on the factors that influence territorial resilience in the transition to the green economy stressing that, regardless its features, the fate of the territory is decided by the collective action of the community members.

Questioning drivers and risk factors of territorial resilience in the just transition

Through three case studies - Jiu Valley (Romania), La Louvière (Belgium) and Ștei (Romania), our research aims to contribute to the study of territorial resilience in the transition from one economic model to another and to deliver some tools and methods for early warning upon liabilities in reconversion planning.

- The first statement we explored is that stakeholders have discordant agendas, therefore we suggest the analysis of power relations between them provides context to understand how much influence local actors have on the transition process and how they exercise it;

- The second statement is that if tourism development strategies are considered in post-mining areas, and they often are, then local actors entrust a large part of the influence on the transition to some external stakeholders: potential tourists. At the same time, the image that potential tourists build of the place becomes an external driver that can favour or, on the contrary, undermine territorial resilience;
- The third statement claims that European citizenship can be a factor of individual resilience when an industry collapses and many jobs disappear, but mass emigration means less commitment to the future of the place, and a low social capital narrows the range of options for the new purpose of the territory.

This thesis is divided into four parts:

- Part I addresses resilience, from the individual, community and territorial perspective in the context of the just transition, with an emphasis on the interdependence between these concepts;
- Part II explains the design of this research project, the methods used in the analysis of the case studies and the data sources;
- Part III places the history of the three territories in a broad context, analysing the transformations of these communities under the influence of several external drivers and their role in the history of Europe;
- Part IV provides a comparative analysis of the three case studies with an emphasis on the strengths and weaknesses of their territorial resilience.

In the first part of this thesis, we mainly rely on the literature review. Resilience will be approached as a trait, a process and an outcome manifested at three levels: individual, community and territorial. Highlighting the co-dependence between individual and community resilience, this chapter will inventory and explain the drivers of territorial resilience. The second part is devoted to the data collected through case studies bringing to the forefront our own reflection on territorial resilience and the methods we propose for: mapping the stakeholders, analysing the external image of a tourist destination, and the ex-ante assessing of territorial resilience. A set of recommendations for various entities involved either in the study of just transition or in transition management is delivered in the Discussion section preceding the Conclusions of this thesis.

PART I: Resilience as a trait, a process and an outcome in the just transition

1. Just Transition and the odds for renewal in post-industrial regions of the EU*³

The transition from coal involves radical changes for certain guilds and regional communities, miners being among the hardest hit, as countries with coal basins are trying to achieve their carbon reduction targets and move to decommissioning mines one after another (Brauers & Oei, 2020), but the negative implications of the transition for communities living in mining regions range from harmful socio-economic repercussions (Snyder, 2018) to cultural consequences, such as loss of embedded local identity (Della Bosca & Gillespie, 2018). However, the post-coal transition is in full swing worldwide with 36 governments and 28 global companies having committed themselves to eliminate coal power generation by 2030 (European Commission & Directorate-General for Energy, 2019). The idea of just transition (Harrhill & Douglas, 2019) emerged from the need to deliver firm guarantees that coal-dependent communities will not suffer major disruptions during the transition to green economy (Robins et al., 2018), therefore the European Commission created several funding programs: Just Transition Mechanism (JTM), InvestEU, Innovation and Modernisation Funds, EU's long-term budget, European Social Fund+ and Horizon Europe (Cameron et al., 2020). Looking good on paper, aiming to channel the transition towards profound changes in societal practices, accompanying measures in the energy transition often fail when they meet local realities. The European Commission provides funding and guidelines, though leaving the decision-making power at regional and local level. While it offers new opportunities for sustainable development, the distribution of benefits and costs may not always be even (O'Sullivan et al., 2020).

In terms of climate and decarbonization targets, governance is ensured through a combination of nationally and sub-nationally determined contributions, under international monitoring and verification, creating room for exerting pressure where necessary to achieve the aspirational goal of keeping global warming under control. However, the Paris Agreement

³ Parts of this section are being published in: VOLINTIRU, C., NICOLA, S. (in press): Limitations of Coordinative Europeanisation in the Just Transition Mechanism in Romania. *Competition & Change*

explicitly stated that the success of decarbonization activities depends mainly on local factors, including some non-state actors (Bernstein & Hoffmann, 2018). In other words, no matter how good political discourse may sound, promising that *no one will be left behind*, the outcome of the just transition is not up to Brussels, but it will come down to the endogenous potential of each community (Harfst et al., 2020). Downscaling thus becomes an imperative in trying to estimate the adaptive capacity of a territory in transition to the green economy, since many processes driving and shaping its resilience operate on larger or smaller scales than the urban or national scale – and they often vary between scales. Geographers can and should be involved in such an endeavour because over operating measures from one scale to another could lead to an incorrect image and attempts to capture status and progress toward resilience may be limited without a solid geographical basis (Weichselgartner & Kelman, 2015). Local authorities have a certain degree of political autonomy in managing local issues, and these principles of autonomous governance are generally guaranteed by constitutional and territorial organization laws at the state level. However, local authorities are also under many pressures, such as demographic changes, transformations in the global economy, budgetary, legislative and regulatory constraints or technological disruptions, and they are required to meet the challenges of an ever-changing environment through constant changing structures and modes of action (Breuer & Halleux, 2016).

Mining is indeed one of the main sources of pollution. The extraction, transportation, processing and use of coal resources all cause various ecological and environmental problems (Xiao et al., 2020). Mine closures also pose major problems and have often entailed significant cumulative clean-up costs associated with long-term social and environmental damage (Haney & Shkaratan, 2003). On the other hand, removing coal from the global energy mix and from using it as a primary energy source involves a tedious transition process that, if not properly implemented, can generate a massive negative impact on local economies through issues such as unemployment, economic vulnerability, blockages or hard-to-redeem assets, especially when the ownership status of the mining sites is uncertain or the assets are already degraded (Burlacu et al., 2019).

The Just Transition Fund (JTF) is set to have a budget of € 17.5 billion and allocations to Member States are made on the following basic criteria: a) the level of greenhouse gas emissions in regions with high carbon intensity; b) employability in carbon-intensive

industries in those regions; c) employability in the coal and lignite extraction industry (Jourde & Widuto, 2021). Romania is expected to be one of the countries facing the highest risk of job losses in the EU due to the layoffs that would take place once the coal mines in the Jiu Valley and those of lignite in the Oltenia basin will be closed⁴, therefore it is foreseen to be the third major beneficiary of the budget allocations from the Just Transition Fund, 11.12% of the JTF being granted for supporting the six Romanian regions (counties) that will be affected by the transition to the green economy (see Appendix 1).

More than setting up financial instruments and allocating budgets, the European Commission has standardized a framework intended to facilitate the identification of sustainable development solutions in post-industrial regions (Alves Dias et al., 2018), emphasizing that decisions should be taken through consultations between all stakeholders (Caldecott et al., 2017; Kelemen, 2020). The eligible initiatives for the JTF are:

- investments in the creation of new firms, including through business incubators and consulting service;
- support for investments in the deployment of technology and infrastructures for affordable clean energy, in greenhouse gas emission reduction, energy efficiency and renewable energy; investments in digitalisation and digital connectivity;
- investments in regeneration and decontamination of sites, land restoration and repurposing projects;
- investments in enhancing the circular economy, including through waste prevention, reduction, resource efficiency, reuse, repair, and recycling;
- support for upskilling and reskilling of workers, job-search assistance to jobseekers and active inclusion of jobseekers;
- support for productive investments in SMEs, the creation of new firms in research and innovation activities.

Healy & Barry (2017) highlighted the deep political character of the just transition and they also state the existence of a "*carbon regime*" that should be investigated in more detail because some actors intentionally oppose or slow down the transition process. This moral

⁴ 35,600 employees, according to the European Parliament Research Service. The data is based on the Eurostat Labour Force Survey. See: <https://www.europarl.europa.eu/thinktank/infographics/JTF/index.html>

component of the just transition imperatively demands for analysis of the power relations between all stakeholders assigned to decide together upon the sustainable development solutions, i.e. the new purpose of the territory (G.A. Wilson, 2013), an issue that has been also raised by Sovacool (2021) who argues that the literature on energy and sustainability should focus more on issues of power and vulnerability. This idea is in line with the warnings given a few years before by Meadowcroft (2009) who feared that long-term transformation of energy systems will prove to be a messy, conflictual, and highly disjointed process, therefore arbitration is needed. In this regard, perspectives from geography and political economy contribute to the development of more insightful and richer understandings of the role of the state and its nature in different contexts (Johnstone & Newell, 2018).

As a process, the Just Transition Mechanism demands local stakeholder consensus and national institutional capacity for coordination. Phasing out coal has always been a compromise, but there are intractable dilemmas in the current context of global economic stagnation. While the just transition should provide guarantees that environmental policies will not be detrimental to the social or economic well-being of those dependent on the fossil fuel sector (Harrahill & Douglas, 2019; Robins et al., 2018), there are now increasing pressures on governments "to stimulate growth regardless of the environmental implications" (Copley, 2023).

Stavis & Felli (2015) identified three different approaches to the just transition: a) shared solution, b) differentiated responsibility, and c) social ecological. The approaches have different transformative potential, and two out of three are considered to be just for humans, not necessarily for nature. *Shared solution* is such an approach, relying on dialogue, aiming at mutual understanding of the stakeholders rather to reach specific targets in the transition. *Differentiated responsibility* is also just for (certain) humans, claiming that defending the losers of the transition should be the main concern, therefore the dominant stakeholders are the workers, represented by the unions. *Social ecological* approach is supposed to be just-for-nature, by fusing the social and ecological imperatives, recognizing them both as valid concerns. It is the most transformative approach, requiring a reorganization of the relations between the state, capital and labour (Stavis & Felli, 2015).

Harrahill and Douglas (2019) focused on assessing the sustainability of the new purpose of the territory, towards which the transition is geared, evaluating the new economic model in terms of *strong* or *weak* sustainability. The authors state that there may be contrasting visions of sustainable development and, consequently, different means of moving towards it. *Strong sustainability* opposes the idea of substituting various forms of capital, aims to capitalize on the uniqueness of social and environmental structures, while at the same time looking for new ways to produce and consume. *Weak sustainability* focuses on the different forms of capital that contribute to production, continuing with the same models of economic activity that approximate "*business as usual*", therefore it was more politically attractive so far, and also well aligned with the passive attitudes often manifested by different actors of the transition (Harrahill & Douglas, 2019).

The European Trade Union Institute (ETUI), the independent research and training centre of the European Trade Union Confederation (ETUC) affiliating trade unions in a single European umbrella organisation, has outlined the road map to a successful just transition:

- Initiating and mediating social dialogue;
- Assigning responsibility for implementation to local government;
- Providing reemployment options;
- Delivering re-skilling opportunities;
- Accompanying measures and welfare state;
- Investment in infrastructure.

Framing the decision-making process based on the criteria proposed by the above authors, we notice that the just transition is a choice and sustainability is a tangible objective when persevering in just decisions for both people and nature. However, Geels (2019) points out that as long as the perspective of sustainability is accompanied by the danger of job loss, income decline or other distress-causing consequences, people will always be resistant to the changes that the transition to the green economy entails. To mitigate the negative consequences, policy makers should identify appropriate compensatory measures, and, at the same time, the educational infrastructure and learning services must be strengthened in

pre-transition, to support professional reorientation and to provide adequate opportunities for re-skilling (Geels, 2019).

2. Stakeholder impact on just transition and territorial resilience: between business as usual and bouncing forward

Initially, the talks about Just Transition have been dominated by the great development opportunities opening for mono-industrial regions through investment in sustainable projects (O'Sullivan et al., 2020), while discussions about power relations between stakeholders deciding a community's green future have been avoided (Sovacool, 2021). Lessons drawn from the experience of regions that have already made the transition from coal taught us that the faster state and non-state actors anticipate, accept and implement steps to cushion the transition shock, the better the results (Caldecott et al., 2017). However, mining companies, but also mining communities, sometimes have strategies to avoid or at least postpone the implementation of those measures designed to result in sustainable closures, while each day of postponement adds to the cost of the transition and prolongs the downturn (Edwards et al., 2019). Considering these findings, the mobilizing discourse of resilience asking communities to adapt to exogenous influences and thus placing full responsibility for the outcome of the transition on the shoulders of locals, became increasingly worrying for some geographers (MacKinnon & Derickson, 2013; Welsh, 2014). Since both the ecological crisis (imposing the need for decarbonisation) and the social crisis (creating the need for a just transition) are producing inequalities (Velicu & Barca, 2020), then territorial resilience in the just transition is expected not only to ensure survival during the distress, but also to increase the equity of knowledge distribution and access to resources (Weichselgartner & Kelman, 2015).

The directives of the European Commission speak extensively about participatory democracy, a mechanism including citizens in the decision-making process and requiring that any post-mining development strategy to be put into public debate (Kelemen, 2020). By this, the national and local authorities often understand to publish an announcement on the website of the institution - town hall, ministry, etc., and to send consultants to the field to find out "*what the stakeholders want*". Although the consultations take place in a democratic framework, what the local actors think they want does not always coincide with the optimal

solution for achieving more spatial justice, i.e. more democracy (Setianto & Gamal, 2021). Moreover, this expectation from citizens from peripheral regions without a long democratic tradition to know how to claim their "*right to the City*" (Lefebvre, 1967) and to impose their point of view in debates with much more influential stakeholders, is at least inadequate if not naive.

Public acceptance is a key element in the success of the transition (Heffron & McCauley, 2018), and people's perceptions of potential risks and vulnerabilities can be influenced both by previous negative experiences and by the discourse of the most trusted stakeholders. Questions related to ecological costs vs. the social costs are legitimate, as is the question for whom it is truly just and equitable, especially as places have different capacities to engage in energy projects and innovations (Brock et al., 2021). Investigating the social acceptance of renewable energy in the Global South, Van Der Horst et al. (2021) emphasize that social acceptance must be rooted in the local context and recommend sensitivity towards the evolving expectations of people in transitioning communities. Amid the debate that sometimes tends to be more about the energy transition and less about being just, Harrahill & Douglas (2019) recalled that just transition aims to improve the environment, the labour conditions and social justice frameworks, by promoting policies based on just sustainability, while Oei et al. (2020) warned that delaying the transition and protecting a declining industry for decades leads to increased transition costs.

There are two essential conditions for a post-industrial region to have chances of renewal on a sustainable basis: a) stakeholders from different social categories and different age groups have to harmonize their point of view (Nicola & Schmitz, 2022), and b) the point of view of the territory has to be prioritized (Moore, 2020). Starting from the hypothesis that stakeholders can have discordant agendas and divergent interests, the present research tests methods of analysing local stakeholders aiming to find out who exerts the greatest influence over the transition process, and who deliberately tries to delay the transition (Healy & Barry, 2017).

3. Intra-EU mobility: an asset of individual resilience and a saboteur at community and territorial level*⁵

In the just transition framework, the sustainable reclamation strategy aims for both social and spatial justice, therefore successful closure scenarios involve a continuing human presence with economic returns. Deciding upon new purpose of the territory may require years of research and stakeholder consultations (ICMM, 2019) however, this continued human presence provides the best motivation for securing post-mining integrity (B. Harvey, 2016). In any scenario of territorial reconversion, demography plays an important role, and the available workforce represents an asset of interest for any possible investor. With the closure of an industry that used to employ the largest part of the working population in a certain region, the community will be under major stress, and in the absence of shock mitigation measures and a new professional horizon, some will choose to look for a job elsewhere. Whether we are talking about temporary mobility or permanent emigration, this individual rescue prejudices the collective action. Population loss is not desirable, but it has so far proved difficult to prevent in post-socialist Romania, especially after joining the European Union.

If community resilience has already been addressed extensively in several branches of research, most notably in environmental and risk management studies, describing it as a process and/or outcome, individual resilience is addressed mainly by psychology, as a trait. To our knowledge, there is only one comparative study of individual resilience in all Member States, carried out at the request of the European Commission (Joossens et al., 2022). By assigning and combining coefficients for the self-perceived ability to bounce back from hardship in life, personal traits and support measures available to the citizen in distress, the authors calculated the individual resilience index in each Member State. The EC report places Romania among the states with the least individual resilience (along with Bulgaria, Croatia, Greece and Italy) and this strengthened our conviction that there is a need for a better understanding of the realities in the Romanian post-industrial regions that are now seeking to bring to fruition the historic chance for renewal offered through Just Transition

⁵ Parts of this section were published in NICOLA, S., ZICKGRAF, C. & SCHMITZ, S. (2021): The Romanian white-collar immigrants in Brussels: a transnational community under construction, *Belgeo*, 1 | 2021 DOI: <https://doi.org/10.4000/belgeo.46679>

Mechanism. Taking a step further from the findings of this EU report, we argue that when the individual feels overwhelmed and hopeless in the country of origin, the European citizenship becomes the lever to try to gain resilience elsewhere.

Of all the rights and freedoms arising from membership in the European Union, the freedom to move and reside in any other Member State is, arguably, the most valuable advantage (EPRS, 2013). Whether you look at European citizenship only as a “*supplement to national citizenship and a practical necessity*”, as expressed by one of the characters interviewed by Favell (2008) in his book “*Eurostars and eurocities*”, or on the contrary, an opportunity to break away from a country where you cannot reach your potential and the desired lifestyle, as is the case of many Romanians living in Brussels (Nicola et al., 2021), freedom of movement in such a vast, integrated space is one of the greatest blessings of the Maastricht treaty (Favell, 2010). The individual who knows how to make use of all the civil rights offered by European citizenship gains access to new lifestyles, opportunities for personal development, immersion in other cultures and will embody the archetype of the *European Man (Homo Europaeus)*. They will borrow habits from the new places and their identity will be shaped by the new cultural experiences and thus, stripped of their national clothes, the ethnic or social characteristics, this Homo Europaeus would no longer have anything to do with the traditional figure of the migrant (Duez, 2015).

European citizenship has been considered transnational from the outset, derived from the right to live freely in any other EU country, while several civil rights further derived from European citizenship. Homo Europaeus has the right to vote, to stand as a candidate or to be elected to the public office in the host country and has been socially identified by Duez (2015) with the following characteristics: European cosmopolitan, polyglot, dynamic, often young, having an important social status, and a graduate of higher education. This citizen belongs to the upper middle class and knows how to take advantage of the opportunities offered by an integrated Europe. They behave as talent aware of their value and move freely in a knowledge economy praised by the Lisbon European Council in March 2000. This citizen also represents the archetype of the (neo-) liberal man who would successfully fulfil a job at the European institutions due to its mobility, dynamism, and personal initiative (Duez, 2015).

There are multiple reasons leading people to migrate but most of them expect to improve their lives in one way or another. Nowok et al. (2013) wrote about this expectation of the immigrant to be happy once they settle in a new place and about *subjective well-being* (SWB), stressing its importance in the progress of a society. Their study reveals that almost always one's migration is preceded by a period of decline in the happiness of the individual. The link between resilience, psychological vulnerability and subjective well-being was made by Satici (2016) in a study on the mediating role of hope between all three. Hope reduces vulnerability, enhances resilience and subsequently may generate subjective well-being. Perceiving themselves powerless and lacking horizons in their country of origin, many citizens of working age from peripheral regions choose to go to work abroad, and what sometime starts as seasonal, temporary migration often turns into permanent migration. Comparing the results of the study on individual resilience with the data on mobility within the EU, we noticed that the states with low individual resilience also lead in the ranking of mobility, Romanians far exceeding the European average (Appendix 2).

Moreover, recent analysis of the transnational Romanian communities confirm that dysfunctionalities of their native cities are an important "push" factor, at least on the Bucharest-Brussels migration corridor (Nicola et al., 2021), the so unwanted communist past being often invoked as an insurmountable obstacle for the development of individual and community resilience.

4. Resilience, the virtue at risk of becoming an empty word

The need to understand what may strengthen or weaken the resilience of a territory is essential in the current context, when the aims of budget allocations and guidelines issued by the European Commission are not only to replace one industry with another activity (Cameron et al., 2020), but to steer the transition towards a predefined model of society (Kelemen, 2020) where the resilient community (Nicholls, 2012) is supposed to embrace the upcoming changes as opportunities for renewal and thriving (Campbell & Coenen, 2017). From a social sciences perspective, resilience is understood as the ability to cope with external stresses and disorders as a result of social, political, and environmental change (Adger, 2000). The term had an interdisciplinary evolution and today it refers most often to the ability to reorganize spontaneously during disruptive events (Castree et al., 2018). In the earlier stages

of the resilience study, it was argued that resilience is a network of adaptive capabilities that, once put into the right dynamics, will allow a system to bounce back after a shock (Holling, 1973; Norris et al., 2008). Subsequently, a clear distinction was made between resilience as a process and resilience as an outcome (Van Breda, 2018) while, within the context of disaster studies the construct of resilience is generally understood as a trait (Cox & Perry, 2011; Prayag et al., 2021).

Discussing the genesis and evolution of resilience (Allen & Holling, 2010; Folke et al., 2002), and following the migration of the term from the field of mechanical engineering to environmental, social, economic, or political sciences (Adger, 2000; Walker et al., 2004), it needs to be stressed that each of these fields of research has reinterpreted in its own fashion the meaning and utility of resilience, yet the term remaining relatively ill-defined and elusive (G.A. Wilson, 2017). Also, the over-use of the term in the current public debate on just transition is transforming it day by day into an even more vague and way too often politicized "buzz-word" (Walker, 2020; Weichselgartner & Kelman, 2015).

Our goal is to extract from the vast literature the definitions, components and attributes enabling us to highlight how individuals and communities in regions transitioning from mining to other economic models can gain more resilience. Given the complexity and uniqueness of the socio-ecological system in mining areas (Xiao et al., 2021), with communities undergoing economic, social and environmental disturbances at once, an over-arching framework seems appropriate. Therefore, instead of making an additional fragmentation of the concept (G. A. Wilson, 2017), we try to reinforce it by integrating elements from several distinct research fields.

The rationale behind this theoretical framework is that territorial resilience rests on individual and community resilience. In our view, everything starts from one. One who, when in distress, may choose to leave the territory where they no longer see possibilities to thrive, as mentioned in the previous section, or to stay beside their fellow citizens and go through shrinkage together. We therefore approach resilience as a trait - when it comes to the adaptive capacity of individuals, as a process - when we examine community actions, and as an outcome - when we weigh the consequences of personal decisions or collective actions on the territory.

4.1. Individual resilience

The scientific term resilience gained momentum in psychology research in the 1970s, where it was put in relation to psychological disorders, especially maladaptive responses to stressful events. Later, the idea that resilience is the flip side of vulnerability was also discussed. Derived from the Latin word *vulnerabilis*, it refers to the potential to be hurt or harmed (Kelly & Adger, 2000). Although closely related to the responsiveness of vulnerability, resilience is still only a component of it and therefore would be less than its flip coin (Gallopín, 2006).

In psychology research resilience is often defined as the ability to "bounce back" in adverse situations (Comas-Diaz et al., 2004). However, Ferreira et al. (2021) warn that an unanimously accepted definition has not been reached among psychologists and they summarize four stages of resilience, as drawn from the literature: low, intermediate, evolutionary and strategic. If the first two stages relate to the individual's ability to return to the level of functioning before the shock, the evolutionary stage provides that, recovering from the disturbance, the individual will reach an even higher level of functioning, however all these three forms of resilience are reactive in the face of an adverse, disruptive event. On the contrary, the fourth stage has proactive elements that, by cultivating them, the individual who possesses strategic resilience becomes able to anticipate and prepare for the impact (Ferreira et al., 2021).

4.1.1. Measuring individual resilience

We owe to Burton et al. (1978) one of the early analyses of how people in different places manage specific risks, the authors of the book *"The Environment as Hazard"* stressing that the proportions of damage caused by disasters depend not only on the strength of the hazard itself, but also on how the population is distributed in the territory and the strategies used in preparing for the impact. This scientific contribution marked a shift including in the policy-making sphere, from one of recovery after the disaster, to one that relies on awareness and preparedness for the shock. In a similar way, Kelly and Adger (2000) later evaluated the level of individual vulnerability by analysing access to resources and their distribution, these being factorial determinants of social vulnerability. The need to develop frameworks that combine the narratives of vulnerability and resilience, so necessary in finding methods of increasing resilience and reducing vulnerability while avoiding maladaptive outcomes (Maru et al.,

2014), arouse naturally and showed that resilience approaches are not alternative but complementary to vulnerability. Moreover, if resilience is an increasingly used word, it is also to counterbalance the demobilizing effect of vulnerability, as it has been proven that labelling people as vulnerable can be stigmatizing and could limit one's own estimation of agency. Resilience, even at a low level, carries a positive charge and that makes it preferable, especially in the political discourse.

Through a mixed methods study carried out in fourteen different places in the world, Ungar (2008) highlighted the influence of culture and context in defining risk and identifying mediating factors associated with resilience, as well as the perception of positive outcomes. More than 1500 young people from different countries were interviewed and the processing of the collected data showed that even when faced with similar adversities, there is a great variation between cultures regarding the capacity to adapt. The researchers developed a set of 58 questions touching a common ground of all the cultures from which the respondents came, thus investigating the drivers that can positively or negatively impact individual resilience: the sense of cultural and community belonging, the quality of relationships and individual traits. Summarizing, individual resilience is not based exclusively on individual qualities; in order to be resilient, individuals need a place and a role within a community, they need to adhere to the values of a group, where they are guaranteed access to the necessary material resources and where they can balance personal interests with a sense of responsibility for the greater good (Ungar, 2008).

Using a methodology aggregating several EU-wide research over the past decade, a technical report provided by the Joint Research Centre (JRC), the European Commission's science and knowledge service providing evidence-based scientific support for policymaking, has the merit of being the only attempt to measure individual resilience throughout the European Union. Starting from the premise that a resilient society has its roots in the strength and resilience of each individual, the authors of the research built a methodology using the data collected by the *Special Eurobarometer 88.4 on fairness, inequality and intergenerational mobility*⁶ from the 27 Member States plus the United Kingdom of Great Britain (Joossens et al., 2022). Participants from all states were surveyed regarding their own perception of

⁶ See: <https://europa.eu/eurobarometer/surveys/detail/2166>

several aspects of resilience: a) their self-perceived ability to bounce back from life's difficulties, b) their personal traits and attitudes, in general, and c) strategies for coping if a potential economic distress would cause a brutal drop in income. The data thus collected were processed and used in the calculation of the resilience index.

Among the findings, we note the following conclusions that outline the heterogeneity at the level of the European Union and reinforce the need for customized approaches in the implementation of the transition to new economic models:

- Age, education and socio-economic background play an important role in resilience, while territory appears to have less of an impact. However, being adjacent to poor areas reduces the resilience potential. Young Europeans show a generally higher level of resilience compared to their older compatriots, although their coping capacities are lower. The higher an individual's educational level, the smaller the contribution of resilience to positive life outcomes. Individuals are more resilient in those countries where gender equality is balanced and active aging is high, where people are more involved in voluntary activities, where the quality and trust in institutions is higher and with less financial debt;
- The most resilient Europeans live in Denmark, Finland, Sweden, Luxembourg and the Netherlands, while the inhabitants of the south and east of the continent show lower resilience. One group of participants expressed extreme vulnerability in terms of their ability to cope with an income shock. They are mainly participants of Bulgarian, Greek, Hungarian, Italian, Portuguese, Romanian and Slovak origin.

Although rich in the range of investigated issues, this research is based solely on self-reported perceptions, and it is axiomatic that perception does not coincide with reality very often. Gender, race, class, professional activity, disabilities and even hobbies, all these factors may substantially influence the perception of the same reality (Friedman, 2019). Also, the analysis argues that more resilient individuals contribute to better community values, stronger bonds and more active societal participation, but pre-existing community resilience literature suggested that a collection of resilient individuals does not necessarily guarantee a resilient community (Norris et al., 2008).

4.1.2. Migration as a strategy for higher individual resilience

There is a cross-disciplinary consensus that where you live matters for overall well-being, often decisively influencing the level of individual resilience. As the study discussed in the previous section shows, the chances to prosper are largely determined by living conditions, community safety, access to good quality learning and medical services, as well as employment opportunities (Christodoulou et al., 2022). When a city goes through deindustrialization, especially if it is geographically isolated - thus excluding the option for laid-off workers to commute to a nearby job, there is a high risk of emigration (Gafer et al., 2022). Migration studies abound in research that points to financial circumstances as the motivation behind the decision to emigrate, but these circumstances always derive from a mix of social, professional and personal factors, those leaving are looking for an improved quality of life in general, not just career opportunities (Dahl et al., 2022). The same conclusions were drawn from a study involving 124 Romanian citizens with official residence in Brussels that explored the factors behind the accelerated growth of the Romanian community in the Brussels-Capital Region, from a few thousand residents before Romania's EU accession to becoming the second largest community of foreigners in the Brussels-Capital region (Nicola et al., 2021). Romanian citizens responded to a questionnaire addressing topics related to the date of emigration, age, marital status, household composition, education, place of origin, professional situation and individual resilience before and after leaving Romania, as well as projections regarding the prospect of return (Box 1).

Box 1. PUSH AND PULL FACTORS FOR ROMANIAN WHITE-COLLAR IMMIGRANTS IN BRUSSELS (NICOLA ET AL., 2021)

- Half of the survey participants were over 35 years old, had families with children and had emigrated based on rigorous documentation in search of a place where each family member could feel fulfilled. The circumstances that led to their decision to emigrate can be classified into two broad categories: a) those associated with low individual resilience, and b) those related to severe dysfunctions in the territorial development of post-socialist cities.
- One quarter said that the decisive factor for choosing Brussels was the opportunity to work in a European institution. This answer required a broader interpretation because in most cases it was about the job, as well as the attached lifestyle and more individual resilience. By obtaining a full-time contract at the European Commission, the employee obtains the guarantee of a generous salary, relocation allowances, fixed working hours, VAT deductions, diplomatic discounts on the purchase of certain goods, health insurance with substantial compensations, and access for their children to European schools.
- Of those that left Romania out of a desire to seek better career opportunities (23%), most of them speak with dissatisfaction about the work environment in their home country and the absence of clear objective criteria for advancement. Those who have tried their luck in entrepreneurship (20%) complain that bureaucracy, accompanied by incompetence and corruption, often made them feel powerless.
- For those having children, the reasons most often invoked refer to giving their children access to good education and a high-performing healthcare system, while all the immigrants that used to live in Bucharest mention the stress and anxiety accumulated while being stuck in traffic and the impossibility to adopt a more nature-friendly lifestyle.

In theories on international migration with a strong spatial component, aspects related to regional development with an impact on quality of life are considered as crucial variables influencing the international mobility of youth. Exploring an interregional stream, Yang et al. (2017) took several economic variables (regional GDP, income, employment opportunities, investments) combined them with variables related to quality of life (green spaces, investments in education, availability of leisure services and of household facilities) and geographical variables (distances travelled between regions, between home and

work/school, etc.) Their study revealed that regional GDP is much less relevant in explaining migration rates than environmental and social indicators that affect the quality of life (Staniscia & Benassi, 2018).

Sense of place (SOP) has been suggested as a very promising approach for understanding people-place relationships (Stedman, 1999), as it is a multidimensional construct representing beliefs, emotions and behavioural commitments regarding a portion of space. This view of the notion reveals the complex relationships between the experience of a place and the attributes of that place (Jorgensen & Stedman, 2006). Given that level of territorial development was identified both as a “push” and a “pull” factor on the Bucharest-Brussels migratory corridor, we reflected on the notion of sense of place, both in relation to the place of birth and the current place of residence. This willingness to break away from their native country and to ‘start over’ elsewhere, which we find clearly manifested in all social strata in Romania, can be explained by analysing how sense of place is formed. Shamai & Ilatov (2005) point out that this concept cannot be precisely defined but the researchers provided us with a scale as a measuring instrument. They also argue for the importance of measurements since the sense of place is better reflected in human behaviour than by fitting a description of the term. Citing Shamai, Schmitz (2012) suggests a structuring of the concept in three distinct stages: a) sense of place begins with an awareness of belonging to the place; b) awareness triggers the process of attachment to the place; and c) attachment leads to the person’s commitment to the future of the place.

By introducing the concept of sense of place in the discussion about individual resilience, we argue that beyond personal traits, there is a co-dependency between the individual and the community, and when the feeling of belonging lacks, individual resilience is lower and there is a greater predisposition to migrate to another place. When faced with a shock, the individual who has a support system (e.g. they can rely on state institutions for assistance, be it financial, psychological, etc.) will prove more resilient than the one who feels they cannot trust anyone.

4.2. Community resilience*⁷

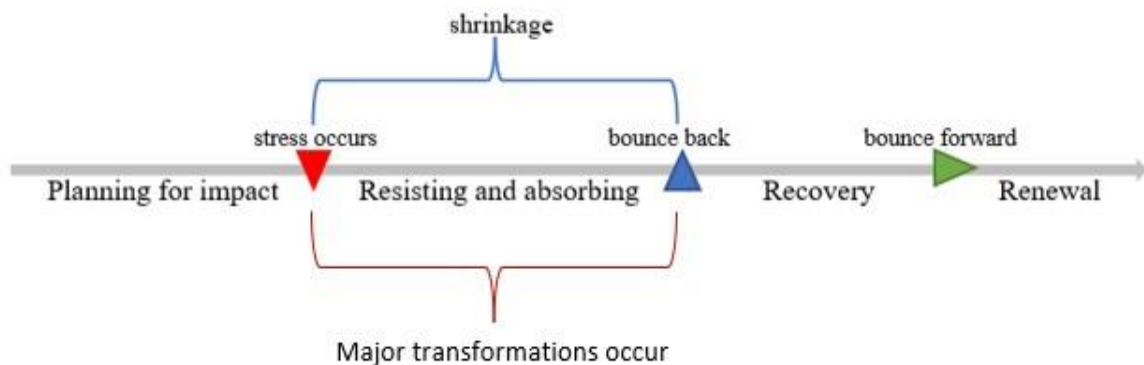
Community resilience is often linked in literature to theoretical concepts such as vulnerability, fragility, social disruption, risk, and sustainability, interacting and influencing each other's emphasis. Vulnerability theory is the basis of disaster recovery research, and Jordan & Javernick-Will (2012) concluded that community resilience works to counter vulnerability. A high level of vulnerability does not always mean that a community is not resilient, however, high vulnerability can often indicate a certain inability to respond in the event of a disaster (Jordan & Javernick-Will, 2012). Not surprisingly, to identify ways to improve resilience and reduce vulnerability, frameworks combining the two narratives have been developed (Maru et al., 2014). By linking resilience to disruption theory, the pre-emptive character is once again revealed, in the sense that social disruption is more likely to occur in low-resilience communities (Becker, 2018). Research also connected resilience and risk management, considered to have similar purposes.

4.2.1. Stages of community resilience

When defining community resilience, scientists from different fields agree that it is the ability of a group/system/organization to withstand severe conditions, absorb shocks, and thrive in the face of change (Lindberg & Swearingen, 2020; Weichselgartner & Kelman, 2015). From the need for a better response in emergency situations, a broad, transdisciplinary term was born, containing several stages of action when a potential hazard occurs: a) planning for the impact; b) resisting and absorbing the shock; and c) recovering, as stressed by Koliou et al. (2020). However, when we talk about communities in mono-industrial areas it is appropriate to import from the ecological literature one more stage of resilience, and that is d) renewal (Berkes & Ross, 2013). The renewal capacity of a community is shaped by the duration and performance of the recovery (Bevington et al., 2012). Ideally, the measures taken at this stage will generate a bounce forward (Bănică et al., 2017) that will make the shrinkage transient, followed by a relaunch of the region (Stryjakiewicz & Jaroszewska, 2016).

⁷ Parts of this section were published in 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. doi: <https://doi.org/10.2478/mgr-2022-0017>

FIGURE 1. STAGES OF RESILIENCE (KOLIOU ET AL. 2020)



4.2.2. Aims of community resilience

In traditional risk management, the goal is to reduce the likelihood or impact of risks that have been identified before the crisis, while resilience seeks to increase organizational performance and reduce recovery time (Rezaei Soufi et al., 2021). More recently, community resilience has been acknowledged as a hallmark for sustainability, and further research in this area is considered useful to increase a population's ability to adapt to change and uncertainty (Matlaba et al., 2021).

G.A. Wilson (2017) breaks down the concept into pieces and shows that community resilience can be preventative, with an important role in developing coping mechanisms while going through changes, or a facilitator of recovery, after the distress has passed. Therefore, community resilience does not aim to avoid the shock. The hazard is treated as a good opportunity to make a transformative, evolutionary leap (Simmie & Martin, 2010), but it will be managed in such a way as to avoid social disruptions (Becker, 2018). This reflection leads to the definition of resilience as a desirable state that will enable the system to react optimally at different stages of the transition, while uncertainty and surprise are the necessary triggers for resilience to be proven (G.A. Wilson, 2017). On the same note, research over the last decade deliver a tripartite vision of what community resilience is aiming for:

- to reduce the impact of a shock, or at least its consequences;
- to reduce the recovery time;
- to reduce future vulnerabilities.

When considering broader social systems, the current trend is for definitions to encompass all three dimensions (Koliou et al., 2020). Studying resilience to wildfires, McWethy et al. (2019) had identified three types of resilience of varying intensity. The first type is *basic resilience*, describing the capacity to bounce back. The second type, *adaptive resilience*, describes how communities adapt to new conditions by changing the fundamental characteristics of the system. The third type is *transformative resilience* and involves the creation of fundamentally new systems. In this view, adopting a transformative-resilience approach means to bounce forward and it becomes a necessity when a return to pre-perturbation conditions is not desirable (McWethy et al., 2019).

4.2.3. Features of the resilient community in transition

Ways to build community resilience have been increasingly explored in the study of risk management, with an emphasis on adaptive capacity that requires access to relevant and timely information (W. Liu & Agusdinata, 2021). Therefore, we argue that community resilience is gained through the optimal combination of the following components: a) risk management; b) communication; c) agency; and d) collective action.

Risk management aims to ensure sufficient resources (Pasteur, 2011) and to increase **awareness** and **preparedness** by creating an early warning system that will monitor local resources and stimulate endogenous potential (Harfst et al., 2020). To ensure sufficient resources, it becomes essential to strengthen community organizations and facilitate the access of local people to skills and technologies designed for monitoring and evaluation. However, they can only prove effective if they are customized to suit local culture and translated into local forms of communication (Uddin et al., 2020). **Communication** is, therefore, a central component of most models of community resilience, because adaptability can be increased or decreased by the strength of media narratives, the existing media infrastructure, the accessibility to reliable, independent sources, the skills and responsibility of the actors dominating the public agenda (Houston et al., 2015). Resilience is closely associated with good, two-way communication, facilitating both the transmission of public interest messages from the authorities to the population, and information about the needs of the community to leadership (Nicholls, 2012). Discussing the poor communication of climate change, for instance, Gemenne & Depoux (2020) touch upon the imperative need for the citizens to understand the direct impact of climate change on their lives. Only after the

personal damage has been assessed could they be motivated to make the necessary behavioural changes needed to achieve the goals of the Paris Agreement. **Agency**, the property that distinguishes social systems from ecosystems (G.A. Wilson, 2017), is the critical element for mobilizing community members as “active agents” with the willingness to take the lead in the transformative process (Magis, 2010). **Collective action** is another defining feature of the social resilience relying on building the kind of collaborative relationship between **stakeholders** allowing them to co-produce frameworks that will ultimately influence change in a way that provides equity (Luke & Evensen, 2021). According to Magis (2010) the key element in achieving community resilience is **adaptive capacity**, however this is not enough without the agency to act, while G.A. Wilson (2013) insists on the right timing in the implementation of measures. In summary, the *sine qua non conditions* for a community to obtain and strengthen its resilience are: a) to have the capacity to adapt, b) to have the agency to act, and c) to take action on time (Magis, 2010; G.A. Wilson, 2013).

To highlight the characteristics of a resilient community, we use the seven-point list developed by Walker (2020), valid for both ecosystems and social systems. Using the ecologist's criteria, we argue that for a community in transition to be resilient, it is desirable that the following conditions are met:

1. to have different solutions to the same problem;
2. to show the courage of exposure to disturbances;
3. to be modular, i.e. neither under nor over connected;
4. to have the ability to react quickly to systemic changes;
5. to be ready to transform, if necessary;
6. to think, plan and manage on a large scale;
7. to be guided (not directed) towards changes that are culturally appropriate.

Regardless of how it is defined, the process of strengthening resilience itself will produce both winners and losers and will not always reach those who need it most (Wisner et al., 2012).

4.2.4. Measuring community resilience

Jordan & Javernick-Will (2012) observed that disaster relief organizations are the ones that have developed tools and methodologies for measuring community resilience over time, but these were often checklist tools to track resources, vulnerabilities, and capacities necessary

in disaster response and recovery. To identify indicators for measuring resilience and assessing recovery, we reviewed journals that offered a variety of perspectives - engineers, social scientists, geographers and other practitioners, finding that some professional groups have difficulties to go beyond the point of view of their disciplines.

Finding the proper methods for measuring and validating resilience is a necessary step that will allow decision-makers to intervene at the right time, with the right tools when the community is going through distress. Lindberg & Swearingen (2020) noted two directions of investigation as paramount: a) identifying the factors that will facilitate thrive; and b) assessing the degree of resilience in different locations, at different times. This is what McCrea et al. (2019) have done when measuring the impact of the industrial transition on the well-being and resilience of a community, by modelling quantitative data. The same survey tool was used in the same host community at two different stages of the transition, and the results were then compared. Cretney & Bond (2014) stress that community well-being and community resilience can be measured both objectively and subjectively. In their study, they also chose the survey method, being aware that different community processes and actions have their own reality, which can be captured only subjectively. In their opinion, the measure of resilience is given by the unequal power relations and the resources allocated to stimulate community participation.

Edwards et al. (2019) addressed the issue of mining communities stating the need to investigate the standard of living within the community prior to mining development and to analyse the factors that have improved or harmed the lifestyle of the local people. Measuring resilience should start by determining the current degree of dependence on mining, from the household level to the local business level. The same opinion is shared by Morelli et al. (2021), considering that the most appropriate tool for detecting the co-dependencies would be the mapping of local actors to understand the network of stakeholders and the nature of relationships within the network in the given context. This thesis emphasizes the importance of a careful analysis of the power relations between stakeholders (Castaneda & Jamison, 2017) in the co-construction of sustainable development solutions for their community and proposes their classification based on criteria of trust, influence and the attitude adopted towards the just transition (L. Liu et al., 2019). Such a mapping of local actors provides a snapshot of the forces that could accelerate the transformative process of the post-mining region and those that slow it down.

Xiao et al. (2021) argue that resilience is under the influence of many factors, but the key indicators must be representative, scientific, and accessible, and they have selected twelve socio-ecological indicators for their research in China. However, although it is justified by the need of political-administrative institutions to evaluate and allocate resources, quantifying resilience can lead to decontextualization, and further to obtaining an erroneous picture of communitarian ability to respond when a hazard occurs. The effort to place all indicators in the same index could therefore prove futile because it would lose contexts and subtleties of community dynamics (Weichselgartner & Kelman, 2015).

This thesis proposes the use of the population pyramid (T. Wilson, 2016; Witt, 2016) as a data collection tool on community resilience, as well as the calculation of the dependency ratio (Ingham et al., 2009). Dependency ratio is a shortcut to visualize the pressure put by the presumed economically dependent population on the shoulders of the productive segment, therefore we believe that it is an essential indicator for the degree of community resilience.

4.3. Territorial resilience

After transcending almost all disciplines, the umbrella term "resilience" has also reached territorial development, standing out as a much-needed emerging concept in managing socio-ecological and technological transformative processes. Although the concept of resilience has been investigated from different perspectives, a lack of understanding of its conceptual aspects persists and this limits spatial planning to some extent making it difficult to adopt appropriate policies and programs (Brunetta et al., 2019). Hence the need for even more research, holistically approached, because by overcoming the analytical barriers between different disciplines, the notion has the potential to integrate a diversity of problem-solving possibilities for territorial development.

It is already proven that the concept of resilience offers a new way to reflect on how to strengthen the adaptive capacity of cities and regions in the face of various risks and changes, gradually becoming a global action of urban planning and governance. However, theoretical research on territorial resilience is still in its infancy, focusing mainly on post-disaster emergency situations and reducing vulnerability, while the operational paths of territorial resilience are still insufficiently explored (Zhang et al., 2022).

Another shortcoming of the literature on territorial resilience is that it usually analyses examples of good practices from large cities/regions with governance systems that do not have correspondence in many places around the globe, thus making it impossible to replicate the same model on a different scale and in a different geo-political context (Assumma et al., 2021). Moreover, it could be misleading to aggregate regional economic indicators and present it as a tool for measuring territorial resilience capacity, as is the case with the analysis made by (Pontarollo & Serpieri, 2020) using data before and after the global recession of 2008. The same data were included in the technical report of the European Commission entitled "*How resilient are the European regions? Evidence from the societal response to the 2008 financial crisis*" (Manca et al., 2020) and, although this document adds social components to the analysis, the research is still totally devoid of information related to territorial assets, landscape features, or demographic profile. Without denying their merits in better understanding the consequences of an economic crisis with global effects, these *a posteriori* analysis of economic trends can be of little use in anticipating the resilience of the territories during the transition to new economic models. In our view, an *ex-ante* assessment, evaluating the pre-shock territorial resilience is more useful. This vision, derived from the geopropective approach (Voiron-Canicio & Fusco, 2021), is designed to meet the requirements described in the framework of the just transition, allowing future behaviour to be evaluated in accordance with the adaptive potential of the territory.

One of the key issues for human societies, in the context of global changes, is the future evolution of territorial systems, be they global or local. Further transformations can be approached with a variety of purposes and from a variety of angles; depending on the chosen point of view, the specific approaches may be identified and the optimal accompanying measures to be taken. In the case of the present thesis, *the chosen point of view* is that of the just transition and the achievement of the targets assumed by the governments and companies that are signatories of the Paris Agreement of 2015, through which the territorial transformations aim not only at a decrease in carbon emissions by giving up polluting industries, also more spatial justice, i.e. more equitable distribution of resources.

4.3.1. Reflections on the distinction between space, place and territory

Reviewing the literature on territorial resilience requires the identification of scientific branches addressing the same issue, albeit under different names. Clarifying the term territory in relation to the other two equally important notions in geography, space and place, was a necessary step for the selection of the articles included in the present synthesis.

Considering it as a set of fixed elements and flows, Santos (1990) defines **space** as the relationship between systems of objects and systems of actions, where objects are non-human constituents, while actions are always human and always having a purpose. Defining social space, which always involves objects produced by people, Lefebvre (1981) adds an important distinction, the one between object and product. If the first is unique and irreplaceable, the second is produced with the purpose of being endlessly repeated as a singular piece, but also as the assembly of social actions that design it. Nature is included in the concept of space of both authors, but it is a signified nature, subordinated to humans who introduce it into their system of objects and actions. This finding leads to the following definition: "space is the implementation of flows and entities; and humans, or other living beings who perceive such elements, intervene in this implementation, playing a crucial role in the construction of space systems" (Duarte, 2017).

The **place** is a portion of space on which a person or a group of people projects certain values by which they identify, and Duarte (2017) emphasizes both the informative and formative role of the place. The informative character is given by the diversity of values that different people/groups can attribute to a place, and the formative process is represented by the reiteration of these values within the group. How can we differentiate space from place? Ferrara (1993) introduces perception and the perceptive as working tools, suggesting that the space is marked by the perception arising from a poly-sensory impact, while the place is assessed according to own awareness of the action of perception in comparison with other objects, where the comparison is essential for establishing their value.

If the values accepted by a group and projected centripetally over a portion of space create the place, then the centrifugal spread of these values in space will create the **territory**. Through the territorialization of places, the values adopted by different groups living in the same portion of space acquire legislative value. Borders are a critical device of territory, its

legitimacy being also based on the recognition of its rules and institutions by social groups living in other territories (Duarte, 2017). Territory is therefore "a political and legal term referring to the relationship between sovereignty, land and people" (Elden, 2009). Sack (1983) used the ethological observation in the study of territoriality, questioning the functions and accessibility of the territory. According to the American geographer, the territory is the delimited space where the residents decide on its use and where they will take the freedom to impose a limited access. Analysing Sack's approaches, Schmitz (2012) added another question to the discussion on the characteristics of the territory: is the territory specific to a population or specific to a certain purpose? Di Méo (2006) brings forward personal lived experiences and our ability to affect the territory through daily routine and practices; the mobility between the places where we carry out our activities connects the dots resulting in a discontinuous territorial fabric, "a network of familiar places separated by more or less known interstices" (Di Méo, 2006). In summary, territories are the result of social and political constructions and express the desire of organized human communities to approach and control a certain portion of space and Moore (2020) observed a growing interest in political philosophy for the concept of territorial rights. Since many of the major concerns of the present day have important territorial dimensions - such as migration, resources and self-defence, a normative theory of the territory is very much needed (Moore, 2020).

Although space encompasses all places and territories, not every portion of space becomes a place or territory; the place is determined by the set of values assigned by the community, and the territory is defined by the borders and the recognition of their legitimacy both internally and externally. This reflection strengthened our opinion that the relevant scientific literature for territorial resilience can be found in all those branches that address resilience within the limits of clearly defined territories, recognized as administrative units, having their own governance and legislation, regardless of scale. Therefore, to carry out a review of the scientific literature, we consulted articles searching for the key words: territorial resilience, regional resilience, urban-rural resilience and resilient cities, which we found mainly in publications of geography, urban studies, environmental studies and political economy. Starting from the premise that territorial resilience relies on individual and community resilience, we expanded the area of documentation to other research fields such as

psychology and sociology, citing studies that helped us highlight the interdependence between them.

4.3.2. Resilience of an unevenly developed geography

Territorial resilience is defined by the ability of a territorial system to absorb the impacts generated by endogenous and exogenous factors, and thus obtaining a new dynamic balance, where the territorial system can be a region, subregion or province (Dumitru et al., 2020). When talking about cities and regions, resilience is therefore an internal property of the territory and, ideally, it is juxtaposed with exogenous risks, be they environmental risks or socio-economic disruptions (Jonas, 2012a). In terms of crisis management, the need for resilient thinking to prepare regional and urban systems for unforeseen and unexpected disruptions has already been affirmed. Robust assessments are therefore needed to support the decision-making process, but even though the idea of territorial resilience is increasingly important in planning, its applicability remains problematic (Toth, 2015). Addressing the fate of “old industrial regions” (OIRs), defined as regions over-specialized in declining industries, Campbell & Coenen (2017) signal the emergence of a line of inquiry in the regional studies literature investigating why some regions are capable to overcome shocks while others are not. To be resilient in the transition to the green economy, regions need to imagine new ways of industrial development and innovation. If a region is resilient indeed, it depends on the distinction between a region's short-term ability to absorb shocks - which is just an adjustment, and its long-term ability to develop new growth pathways - meaning to renew itself (Martin & Sunley, 2015).

The literature examining regional case studies shows that the adaptative capacity varies greatly between regions. Uneven geographical development occurs at multiple scales through processes shaped by physical, historical, cultural, economic, and political conditions that produce and reproduce spatial differentiation and inequalities (D. Harvey, 2019; MacKinnon & Cumbers, 2018; Smith, 2020). The link between uneven geographical development and energy transition has already been made by Bridge et al. (2013) arguing that the low-carbon energy transition is fundamentally a geographical process that involves reconfiguring current spatial patterns of economic and social activity (Bridge et al., 2013).

At whatever scale we relate, undesirable consequences are unevenly distributed among the population of European Union, and some communities are more vulnerable to possible side effects than others (Carley et al., 2018). Like resilience, vulnerability is generally seen as specific to system disruptions (Gallopín, 2006) both approaches being concerned with how systems respond to change (Miller et al., 2010). Faced with the same challenges, having access to similar financial resources, communities still achieve different results in managing the energy transition, because local capital (summing up material goods, know-how, people and community) (Castle, 1998) has a greater influence on their vulnerability and resilience than the EU directive and even national legislation. Therefore, copying a certain smart practice in a new context does not necessarily lead to success, as it could be perceived differently by different groups of actors (Frantal et al., 2018).

Geographical location plays a decisive role in economic diversification, influencing the presence, absence and mixture of enterprises and industries (Garmestani et al., 2006); at the same time, the potential to attract highly qualified employees depends on the attractiveness of a region (Sherrieb et al., 2010), hence several limitations in imagining post-industrial scenarios.

4.3.3. Drivers of territorial resilience in the just transition

The just transition requires that the decisions defining the future purpose of the territory be taken through consultations between stakeholders. When the goal is not only to replace a polluting industry with a less polluting one, but above all to obtain more spatial justice and a fairer access to resources for community members, then every member of the community becomes a stakeholder in the just transition. Oei et al. (2020) offered the markers of a sustainable development strategy that, in theory, would pave the way to a just transition in post-industrial communities. A first aspect refers to the combination of climate, energy, social and structural policies, giving the same importance to both the local specifics and the connection to global trends. Other indications of the sustainability are the consideration of long-term effects, the call for external consultancy, independent from the regime in power, aiming at a diversification of the economy and allowing a wide participation of stakeholders.

In the just transition framework, the post-industrial development strategy is place-based, originated in the articulation between **social capital** and **territorial assets**, the two pillars of

the territorial resilience. By social capital we understand the quality of collaborative relationships in a community, forming, in a rather informal manner, the support networks that facilitate collective action, for the benefit of all (Bourdieu, 2021; Coleman, 1988; Putnam, 2000). As shown in previous section, resilience potential of the individual is determined by personal traits, but it needs interaction and belonging to a community to fully manifest itself. The individual choice to collaborate with others converts individual and community resilience into social capital, a necessity in the success of the just transition.

Social capital is found to be pivotal for the resilience of a territory (Sagan & Masik, 2014) and in times of crisis evoked by Christopherson et al. (2010) absorption and adaptive capacity matter as much as growth potential and competitiveness. The global financial crisis of 2008 revealed that regional resilience depends equally on internal capabilities and the quality of their external relations. They also drew attention to the perception that globalization could weaken certain regional/local communities against factors once considered exogenous. The major deficiency of the studies carried out so far is that the empirical research has rather sought explanations for quantitative data, operating with predominantly conventional economic indicators (employment or unemployment rate, GDP, added value, and disposable income) and does not focus on individuals and their perception on the disruptions, as well as on their perceived ability to avoid and overcome the subsequent damage caused by the disruptions. A scenario with a region having positive macroeconomic indicators, yet not translated into a satisfactory level of quality of life is always possible (Toth, 2015).

Regarding the assets of a territory, in planning and territorial development studies we most often encounter the concept of "territorial capital", defined as the system of territorial assets of an economic, cultural, social and environmental nature that ensure the development potential of places. This concept stands out by recognizing the possible interactions between factors of different nature and includes social relations in this system (Camagni & Capello, 2013; Perucca, 2014). Our choice, however, is to separate social capital from material or immaterial goods, since, from the point of view of the just transition, we can consider the possibility that a territory has valuable goods, but a social capital is precarious, and the deficient relations between stakeholders to prevent the implementation of the most sustainable measures. We will therefore call **territorial assets** the second driver of territorial resilience and list a number of endogenous factors that may differentiate the reconversion

capacity of post-mining regions: geographic position, connectivity, economy, natural resources, climate, landscape features, cultural heritage, workforce.

Vaneekhaute et al. (2017) recommends that resilience at the community level be analysed in an ever-changing context, because an exogenous disturbance - whether natural or anthropogenic, sudden or slow - can generate local crises. Natural catastrophes such as tsunamis, earthquakes or volcanic eruptions, as well as anthropogenic disturbances such as geopolitical decisions, migration and climate change can always ruin the plans of local stakeholders (Matarrita-Cascante et al., 2017; G.A. Wilson, 2012, 2015). Extreme droughts, for example, due to abnormal rainfall deficits, are already occurring regularly across Europe, and global warming will increase their frequency and intensity. Thibaut & Ozer (2021) highlight that despite the slow dynamics of the drought, it has a wide area of spread, therefore the multidisciplinary impacts of this atypical phenomenon are capable not only of disrupting the environment, but also of causing major socio-economic crises. If resilience during sudden natural hazards has been extensively studied, slow-onset risks associated with anthropogenic factors of change, such as sociopolitical or economic changes, require more thorough research (Steiner & Markantoni, 2014; G.A. Wilson, 2012). In our opinion, overlapped crises that humanity is experiencing at the moment show us that the adaptive capacity depends not only on endogenous resources but also on the wider context. The **external drivers** that can positively or negatively influence the resilience of a territory in the just transition are notably: EU funding, geo-political decisions, natural hazards, climate change, humanitarian crises, migratory flows, economic competition, but also the external image of the territory that can influence tourism development and the decisions of potential foreign investors in the local economy (Bell et al., 2022; Gimmon et al., 2014; Oei et al., 2020; Onderco & Portela, 2023).

For a territorial reconversion on a sustainable basis, social capital, territorial assets and external drivers are placed at the core of the post-mining development strategy. In a predictable scenario, such as mine closure within a time horizon established for each EU member state, the subsequent use of the territory, i.e. **the new purpose**, is decided before the actual closure (Bowie & Fulcher, 2017; Svobodova et al., 2020, 2021). This preventive action can favour obtaining spatial justice, a term that connects notions of social justice with notions of space. The concept was addressed primarily in the works of Henri Lefebvre, Ed Soja

and David Harvey, who consider that, once achieved, social justice is also visible in space (Harvey, 1996; Lefebvre, 1968; Soja, 2009; Watson, 2019).

From the point of view of the just transition, **the new purpose of the territory** is considered sustainable if it was established by mutual agreement between local stakeholders, if it creates "green" jobs, in non-polluting sectors, capable of absorbing the existing workforce, if it generates more social cohesion and if it offers a fairer distribution of resources. There are different degrees of sustainability because there are sometimes contrasting views of the stakeholders on the new goal and, consequently, different means of moving towards it. Harrahill & Douglas (2019) provide keys to distinguishing "strong" from "weak" sustainability. For the future purpose of the territory to meet the strong sustainability criteria, the post-industrial development strategies will mainly pursue the capitalization of pre-existing territorial assets.

Once the common vision of the green future of the territory is decided, a governance structure is needed to effectively manage the transition to the new economic model and guide the community to a new predefined societal model, but transitions are long-term transformative processes, in which society reaches fundamental changes over several generations (Meadowcroft, 2009). The notion of **transition management** appears in the Netherlands, where historical transitions have been given a lot of attention in scientific research (Geels, 2014; Rotmans et al., 2001; Schot, 1998) and where it has been found that effective management involves sensitivity to existing dynamics and a frequent adjustment of objectives to overcome the conflict between long-term ambition and short-term concerns. Essentially, transition management has its roots in systems theory, and it is a constant and conscious effort to produce phased structural changes (Kemp et al., 2005). This governance structure needs authority and public acceptance to implement the measures that the transition to the new purpose of the territory entails, therefore it could bring together state officials but also NGO activists and academics, in an equal partnership.

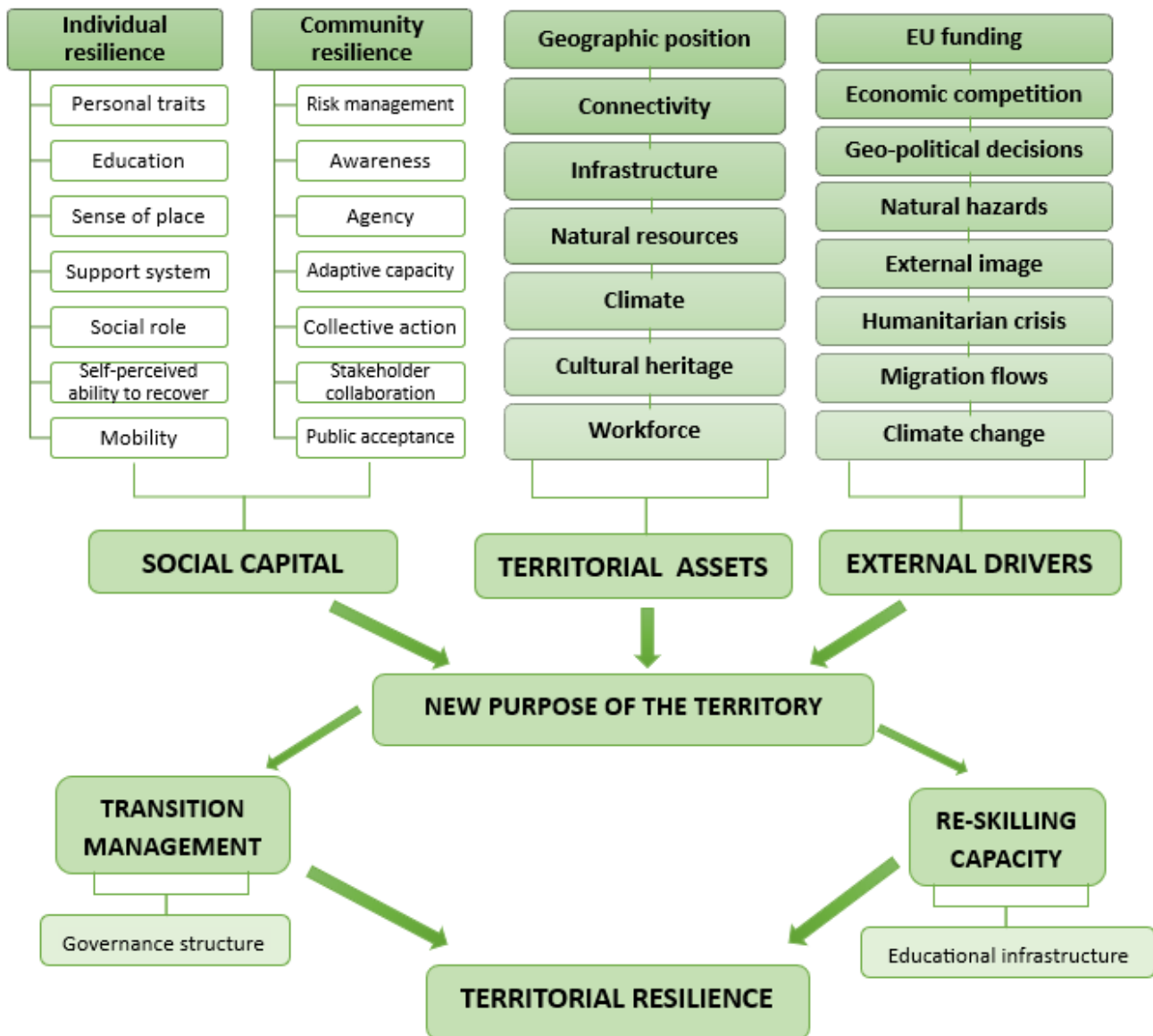
The transition to new economic models implies a shift of the labour force. Many traditional methods of operation are gradually being replaced by automation-based operation; therefore reskilling capacity is another driver of territorial resilience (Wahab et al., 2021). Upskilling means that employees acquire new skills to perform better in their current job, while

reskilling means that employees need additional knowledge and skills to take on different or completely new roles (Li, 2022).

A report by the World Economic Forum predicts that half of all employees worldwide will need reskilling by 2025, and a third of essential skills in 2025 will consist of technological skills (Schwab & Zahidi, 2020). It was discussed that the responsibility for the reskilling process is shared between employers, employees, public administration and higher education institutions, but the most desirable option is the interconnected action, in which all interested parties work in synergy, always taking into account other pressing challenges, such as age/gender inclusion, for instance (Aguar et al., 2022). In the just transition framework, there are funds specifically intended for professional reconversion programs, and these programs can be hosted in the classic educational network (short and medium-term certified vocational training, master's programs, postgraduate training, etc.) as well as in - a non-traditional setting (seminars, workshops organized by the employer, exchange of experiences, etc.).

To conclude this theoretical framework chapter, we argue that territorial resilience relies on the individual resilience of each member of the community and their agency to act collectively as stakeholders in the transition process towards another economic model and other societal practices. Based on the previous analysis, we draw a theoretical framework through which we emphasize that the level of cooperation between stakeholders builds community resilience, determines the value of social capital and the premises to optimally exploit territorial assets. However, the endogenous co-construction potential for a green future of a mining region can be enhanced or weakened by exogenous factors, therefore in deciding the new purpose of the territory there are three equally important drivers: social capital, territorial assets and external drivers. Once the new goal is decided, the management of the transition is ensured by a governance structure. The capacity for reskilling through an educational infrastructure and learning services adapted to the new purpose is the ultimate component of the pursued outcome: territorial resilience (Figure 2).

FIGURE 2. DRIVERS OF THE TERRITORIAL RESILIENCE WITHIN JUST TRANSITION FRAMEWORK



Based on this articulation of theoretical concepts leading us to our own reflection on territorial resilience, we developed an ex-ante assessment grid that inventories the drivers as well as the quality of the new purpose of the territory, from the point of view of the just transition. The grid can be consulted in the methodological design section, being used as a data collection method in all three analysed territories.

PART II: Research design

Introduction

This thesis is a contribution to the study of territorial resilience in the transition to the green economy, focusing on finding methods for identifying the factors that could weaken or rather empower a post-mining region. Using both quantitative methods - surveys and qualitative methods - semi-structured interviews, field observation, focus groups, we carried out three case studies. The decisive argument in support of this choice was that all three territories belong to all three case studies belong to medium to poorly developed European regions (La Louvière - BE 32 Hainaut, Jiu Valley - RO 42 West, and Ştei - RO 11 Northwest), defined by a large heterogeneity⁸. For example, statistics on the average economic performance of the West region, the second most developed in Romania, mask the difficulties faced by the Jiu Valley microregion. Using smaller population samples, the results of the studies cannot be extrapolated to large populations, but they are suitable for in-depth analyses, aiming to shed more light on issues with a certain specificity, difficult to fit into a pattern (Mbaka & Isiramen, 2021) and can also lay a solid foundation for larger, conclusive studies (Saunders et al., 2012). Another attractive feature of case studies is the flexibility allowing for change of direction as new perspectives are revealed while co-constructing data with actors through action research (Schmitz & Lekane Tsohgou, 2016). Indeed, the most prolific stage of data collection process was the participative action research in the Jiu Valley, a distinctive feature of participatory action research being that the participants not only offer insights in the analysis but also participate in the iterative empirical cycles "plan-act-observe-reflect" (Everingham et al., 2020; Mackenzie et al., 2012). The methods tested during the action research in the Jiu valley were then verified in: a) a territory of similar size and characteristics, but in a different culture and geography - La Louvière, in Belgium, and in b) a considerably smaller territory and community, but in the same culture and geography - Ştei, Romania. We thus obtained a spatial triangulation facilitating the collection of complementary data, valuable in clarifying why a global solution, such as the *just transition*, can be ineffective when faced with specific local problems. Moreover, the three case studies highlighted the importance of geographic

⁸ <https://ec.europa.eu/eurostat/web/regions/statistics-illustrated>

and cultural constraints in post-mining territorial reconversions. Due to the different contexts, including the availability of data and strategic plans, and the possibility to conduct action research in Jiu Valley, the methods followed in the three case studies differ but aim to document the same issues in order to compare the different synthesis grids appropriately.

Our assessment of territorial resilience (TRI) in the just transition involved crossing the three territories several times to collect the data needed for performing comparative analyses between the three territories. The methodological design is based on three categories of data:

a) primary data - obtained through surveys, interviews with experts, semi-structured interviews and Transitions Lab;

b) secondary data - development strategies of the analysed territories, literary review, reports and legislation (EU, Belgian and Romanian), archive documents, media monitoring, monographs, statistical data from official sources (Eurostat, Statbel, Romanian Institute of Statistics) ;

c) a set of specific tools that we have optimized in our own fashion to better suit the specificities of the local communities:

- benchmark grids (drawn from the literature review);
- population pyramids;
- stakeholder mapping method, based on criteria of influence and trust;
- analysis of the image revealed by social media;
- grid for ex-ante assessment of the territorial resilience (TRI).

Case studies have different weights in certain parts of the research, resulting either from the opportunity to conduct elements of action research during an ongoing decision-making process (see Jiu Valley) or from deepening the historical context that allowed a better understanding of the interaction between mining, territorial development and migratory flows, under the influence of geopolitical decisions (see La Louviere). It will be noticed that the case studies are not always presented in the same order, but rather the lessons drawn from their deepening and comparison were ordered and highlighted.

Box 2. CONTEXT FOR THE CHOSEN CASE STUDIES AND METHODS

- One of the most uncomfortable situations for the researcher is studying familiar phenomena and evaluating developments that are not at all indifferent to them. When you yourself are a stakeholder, an actor, a subject, a statistic, this could increase anxiety about your work ethic, acknowledging that it will be difficult to control all your biases. However, a potential link of the author to a community subjected to analysis can be of great value, if an essential requirement is met: to be framed in the appropriate methodology.
- Regarding the present research, it is relevant to specify that the author is a former journalist of Romanian origin, born and raised in Hunedoara County, keeping close ties with the community where she comes from. Hence the genuine desire to opt for research methods that would allow her not only to collect data about her compatriots residing in the Jiu Valley, but also to adopt different roles in the different stages of the research.
- From being a cold observer in data collection, she moved to being a passionate facilitator during focus groups when verifying the hypotheses, periodically summarizing the data collected and re-informing the informants, aiming to co-construct useful information for the post-mining strategies and transition management.
- The author's deep access to the mining community in her native region, combined with the coal phase-out plan assumed by Romania and the European Commission, provided the proper context and the right timing to use some elements of action research, thus explaining why this particular case study weighs more heavily in our methodological design.

1. Literature review

To start an in-depth analysis of the transitions and evaluate the implemented measures' performance, we needed benchmarks. Reviewing the preexisting literature provided us with the necessary markers. From comparative analyses delivering frameworks for a successful just transition (Brauers and Oei,2020; Campbell and Coenen, 2017; Felli, 2014; Harrahill and Douglas, 2019; Kelemen, 2020; Kern and Rogge, 2018; Oei et al., 2020), we extracted the information to develop the survey questionnaire and the focus group protocol. The data thus obtained became grids for assessing the implementation stage, the quality of stakeholder consultations and their attitudes towards the imminent closure of the mines.

Table 1 highlights the types of just transition, depending on the transformative potential of the adopted measures. It was useful for us in analysing the degree of sustainability of post-mining development strategies, as well as in deciphering the behaviours of stakeholders.

TABLE 1. VARIETIES OF TRANSITION

Varieties of just transition	
Approach	Principle
Shared solution	This approach proposes dialogue, mutual understanding, and common solutions as the path to a successful transition.
Differentiated responsibility	The focus is on defending the “losers” of the transition and puts a strong emphasis on workers’ and unions’ power. It is most prominent amongst unions in sectors that may be negatively affected by environmental regulations, such as chemicals, mining, and manufacturing.
Eco-socialist	It fuses social and ecological imperatives, recognizing both as pressing and valid concerns. This approach requires reorganization of the relations between state, capital, and labour

**(Stavis & Felli, 2015), table produced by the author*

From the literature on mine reclamation and good practice guides, we have developed Table 2, summarizing the stages of a mine closure that would allow the adoption of the necessary accompanying measures for: a) mitigating the shock of layoffs; and b) adopting the

appropriate procedure for closing the mine, considering the subsequent purpose of the territory.

TABLE 2. STAGES PRECEDING THE MINE CLOSURE

Stages preceding the mine closure	
1.	Territorial mapping to identify productive and unproductive habitat
2.	Inventory of local capital (material and immaterial assets)
3.	Awareness initiatives and public debates
4.	Stakeholders' consultations to determine the subsequent purpose of the territory
5.	Assessment of budgetary impact and potential funding sources
6.	Adapting the infrastructure for the new purpose
7.	Setting a closure deadline and communicating the decision to all stakeholders involved
8.	Presenting the valid options for the laid off workforce: compensations, early retirement, re-skilling programs
9.	Reconversion programs begin
10.	Initiation of decommissioning and decontamination procedures, considering the subsequent purpose of the territory

**Produced by the author, based on literature review*

Table 3 provides information on the economic activities that can be financed from the Just Transition Fund and can be useful to all stakeholders when initiating development projects in the beneficiary regions and Table 4 provides the evaluation grid of the just transition, based on the criteria proposed by the European Trade Union Institute.

TABLE 3. ELIGIBLE INITIATIVES FOR THE JTF

Eligible initiatives for the JTF	
1.	investments in the creation of new firms, including through business incubators and consulting services.
2.	support for investments in the deployment of technology and infrastructures for affordable clean energy, in greenhouse gas emission reduction, energy efficiency and renewable energy;
3.	investments in digitalisation and digital connectivity
4.	investments in regeneration and decontamination of sites, land restoration and repurposing projects
5.	investments in enhancing the circular economy, including through waste prevention, reduction, resource efficiency, reuse, repair, and recycling.
6.	support for upskilling and reskilling of workers, job-search assistance to jobseekers and active inclusion of jobseekers
7.	support for productive investments in SMEs, the creation of new firms in research and innovation activities

**Report on a toolkit for national and regional decision-makers (Kelemen, 2020)*

TABLE 4. ETUI ASSESSMENT CRITERIA

ETUI ⁹ criteria for a just transition	
1.	Social dialogue
2.	Local governance in charge of implementation
3.	Re-employment options
4.	Re-skilling opportunities
5.	Accompanying measures and welfare state
6.	Infrastructure investment

By structuring the revised literature on mine closure, we obtained benchmarks for the analysis of stakeholders and development strategies. At the same time, these data were the object of knowledge transfer from the researcher to local actors, within the action research in Jiu Valley.

⁹ The European Trade Union Institute is the independent research and training centre of the European Trade Union Confederation (ETUC) which itself affiliates European trade unions into a single European umbrella organisation

2. Collection of secondary data

In order to contextualize the just transition in the three territories, we inventoried the existing public information about mining in these areas in books, monographs, archives of local institutions, local and national media. Demographic data, as well as indicators related to employability and unemployment came from the National Institute of Statistics in Romania, Statbel, Eurostat, processed by the author. A rigorous analysis of the post-mining development strategies was also necessary. The European directives regarding the just transition and their transposition into national legislation were scrutinized while also monitoring the media coverage on transition from coal in Romanian national and local media from January 2020 to October 2023.

3. Jiu Valley case study

3.1. Selection of study participants

Taking the opportunity to observe the decision-making process closely, we decided on a purposive sampling that allowed the creation of a pool of participants for the different stages of the research: survey, semi-structured interviews, focus groups, transitions lab and the public debate of the co-created information. In preparing the next stages, the need for two different samplings was highlighted: 1) one that will provide an overview of the attitude towards the transition, the divisions within the community and the perceptions of all the stakeholders, and 2) the other that will reveal the point of view and the perceptions of those with the greatest expertise and least biases.

For the first objective, we considered that a sampling with maximum variation is the most suitable, allowing us to capture a diverse range of experiences or viewpoints (Moser & Korstjens, 2018). One hundred and five people between 20 and 65 years old, with different backgrounds and different visions of the future of the region, answered the survey (Appendix 3). The subjects were recruited from all categories of stakeholders – current or former miners, activists in local NGOs, academics and high school teachers, journalists, civil servants, local authorities, and entrepreneurs, some wearing several “hats”. For example, 26% of survey respondents said they were NGO activists, but we

found out later that some of them were also former miners, others had entrepreneurial initiatives, and local government representatives included mining retirees. A majority of 83% were natives still living in the region, while others knew the issue through the lens of their professional activities – consultants, journalists, Romanian government employees or officials in the European Commission and European Parliament, having duties in implementing or reporting the just transition.

We achieved the second objective through a critical case sampling, selecting key informants on the research topic who are likely to provide unique insights: retired miners (freed from bonds of subordination to the union), university professors, local and European elected officials, as well as activist leaders from the community. Usually these are actors who know more than the others, since they were personally involved in certain events that shaped the local context. The fifteen participants thus sampled were the subjects of semi-structured interviews. During recorded discussions lasting at least forty-five minutes we detailed their beliefs regarding the mine closure, their reliable sources of information on the impact of the closure, and their perception regarding the influence and credibility of the stakeholders. Their profile data can be consulted in the Appendix 4.

3.2. Online survey

The purpose of the questionnaire was to test hypotheses and to collect data that would inform a stakeholder mapping, illustrating their positioning toward transition: supportive, passive, or against. At the same time, we aimed to determine the degree of perceived influence that each of the following categories of actors exerts on the transition process: European Commission, national authorities, local authorities, NGO activists, national media, local media, academics, entrepreneurs, unions, and former miners. The questionnaire was written in Romanian and was administered online between December 2020 and April 2021.

The survey included closed, open-ended, multiple-choice questions and a series of Likert-scale questions and it was structured in four parts:

1. Part I: profile data indicating the category of stakeholders and beliefs related to the necessity of mine closure;

2. Part II: beliefs related to the vulnerability of the community and their capacity to adapt;
3. Part III: their sources of information on the transition and their perception about the influence and credibility of the incumbent actors; and
4. Part IV: their vision on the economic profile of the region in the postmining stage.

3.3. Focus group

The results of the survey provided clues to investigate further *who* and *why* is slowing down the transition in the Jiu Valley and the one-on-one interviews led us to the following grouping of the stakeholders: current mining employees (represented by trade unions), mining retirees, local authorities, national authorities, local media, national media, academics, NGO activists and the European Commission. In March 2021, twelve men and eight women from all these professional groups responded to the invitation to participate in the focus groups. This is where the author behaved as a facilitator, thus co-producing with the locals' 'warm' data that provided even more context for understanding the specifics of the just transition in the Jiu Valley. During these discussions, local actors were informed about assessment tools we extracted from literature review, we also submitted to their attention the partial results of the case study, and they validated the hypotheses formulated in the early stages of the research.

TABLE 5. VALIDATION OF HYPOTHESIS

Ctr.	Hypotheses	Valid or not
1.	Even though mining activities have been decreasing in Jiu Valley since late 1990s, the level of awareness and preparedness for the coal phase-out is low.	
2.	Actors with a high level of agency do not benefit from a high level of influence and vice versa.	
3.	Certain stakeholders intentionally slow the transition down.	

3.4. Observing the stakeholders' consultations

On April 14th, 2021, the author participated as an observer in consultations between stakeholders, representatives of the Romanian government and PwC, the consulting company mandated by the European Commission to elaborate the post mining development strategy of the Jiu Valley. Having access to these consultations, we had the opportunity to see who dominated the negotiations for the designation of the future purpose of the territory, who are the voices that impose their point of view and who is too shy to defend their "*right to the city*". Attending these debates, we gathered the extra information needed to carry out the mapping of the stakeholders grouping them on criteria of influence, trust, and their attitude toward just transition. In a debate where national and local authorities were represented, mediated by external consultants, power relations were more visible than in other contexts.

3.5. Transitions lab

We revisited Jiu Valley ten months later, when the post-mining development strategy was already approved and the foundations were being laid for a new governance structure that would be the link between the community and the Regional Development Agency in the development of projects that, ideally, will be financed from the Just Transition Fund. The word "tourism" was mentioned 152 times in the strategy document, thus confirming what we already knew from the results of our survey, that the community has high hopes regarding the mountain landscape and the proximity of several national parks.

During a week-long seminar, ULiège students and participants from several Romanian universities had joint workshops and field activities aiming at promoting the exchange of experience between universities from regions with a similar economic profile and fuelling the debate with local stakeholders on climate change, just transition, resilience, and opportunities for territorial reconversion. The students did territorial diagnostic analysis prospecting the city of Petrosani, visiting Parâng ski area and going underground, 350 meters deep in the Vulcan mine, where they talked with the miners on duty about the extraction process, but also about their prospects once the mine is closed.

Transitions Lab ended with community awareness activities: the local community and local media representatives had access to the seminar activities and actively participated in the debates.

4. Ştei case study

Three field trips were organized in Ştei between January and April 2023, one of them in 22-26 February when Ştei was hosting the ATRIUM¹⁰ seminar of the European network of cities with totalitarian architecture. Also, we prospected the twelve projects developed with European funding managed by the City Hall and conducted seven interviews with former miners currently involved in community projects, including the mayor of Ştei Iulian Balaj, dismissed from the Băita mine in 1999.

The next step was the initiation of an online survey (to be found in Appendix 5) designed to collect data from the respondents regarding: a) their profile, b) their family's history of internal or external migration, c) the quality of life in the city of Ştei, d) their vision for the future economic activities, e) the aspirations for the future of their children. For this questionnaire, we used maximum variation sampling, managing to obtain responses from participants of all age groups. At this stage of our research, 96 people participated, 52 women and 44 men, distributed by age as follows:

- people aged between 15 and 24 (starting their professional life): 28%;
- people aged between 25 and 54 (the fully productive ones): 45%;
- people aged 55 to 64 (approaching retirement): 15%;
- people aged 65+ (retired): 12%.

5. La Louvière case study

To collect primary data that would allow a better understanding of the historical, social, economic and cultural context of La Louvière, we first called on expert knowledge and interviewed Jaques Gobert, the Mayor of La Louvière since 2006, Alan Dewier, historian,

¹⁰ <https://www.atriumroute.eu/>

lecturer guide at Écomusée du Bois-du-Luc, author of several works on the Center region and La Louvière, and Laurent Cannizzaro, manager of "Centrissime" Maison de Tourisme du Parc des Canaux et Châteaux.

The essential factor in this case study was the analysis of the development strategy, the municipality assuming the implementation of the project LLO 2050¹¹ on three key development axes - ecological, civic and economic, until 2050. Based on the analysis of this document and other secondary data from Statbel, we then developed the questionnaire that was applied in La Louvière, door to door, on November 8, 2023, by thirty students from the geography department. The collection of primary data aimed mainly at: a) finding out the citizens' opinion about the quality of their life in La Louvière; b) to test the level of awareness of the development strategy among citizens; c) gathering data about their future aspirations. 150 residents of La Louvière were surveyed, of which:

- 49% Belgian nationality;
- 21% Italian;
- 8% Turkish;
- 5.4% Moroccan;
- 2% Romanian;
- 1.3% Spanish;
- 1% Congolese;
- 12.3% Other nationalities.

A little over 50% stated that someone from their immediate family worked in mining, and 30% claim that their families suffered as a result of the closure of mining. 59% of the respondents are women, and 41% men, recruited from different areas of the city, both central and peripheral. Their survey may be consulted in the Appendix 6.

6. Analysis of the image revealed by social media

In digital times, the image of a place over the internet may be an asset or liability in the post-mining development. Mining communities have often linked their hopes to tourism as the main industry for sustainable development after the mine closure, this preference

¹¹ <https://llo2050.be/>

giving the landscape a key role in the territorial resilience. At the same time, in tourism development strategies potential tourists become stakeholders, thus local actors giving up part of their influence over the outcome of the transition to external actors. The landscape is defined as the sum of the features visible on a certain surface of the Earth, an essential territorial asset considering its attractiveness potential, but the most important characteristic of the landscape is that it is a product of perception, an idea built by the mind and emotions (Castle, 1998; Fairclough, 2006; Occhiuto, 2016). Whilst exploring the potential of a territory to become a tourist destination, it was proved that the assessment of pre-existing resources is often biased due to an erroneous perception of local actors of their own territory (Schmitz & Vanderheyden, 2016a). Locals who evaluate their own landscapes view them from a subjective perspective, adding a sense of ownership to their evaluation, while foreigners pay more attention to landscape aesthetics (Vanderheyden et al., 2014).

At the same time, the image of a destination is increasingly influenced by the perceptions of travellers who choose to post on social media *manifest content* (explicit, referring to observable features of the images) or rather *latent content* (implicit, requiring "reading between the lines") (Kim & Stepchenkova, 2015). Being situated outside the control of any authority, the opinions shared by travellers who have passed through a particular place have a significant impact on the destination's reputation. Citing Gunn (1988) in an analysis of the image of agritourism in Wallonia and Luxembourg, Dubois et al. (2017), classified the image of a destination as follows: a) the *induced image*, resulting from official communication and promotion, b) the *organic image*, formed by consulting independent sources of information (such as word of mouth, social media, specialized websites) and, finally, c) the *modified image*, based on one's own lived experience in that place.

This research pays increased attention to the modified image, since the lived experience of the traveller is the trigger for publishing reviews on the Internet, thus contributing to the formation of the organic image of other potential travellers. In the democratized and accessible virtual space, but subject to mechanisms of control and verification of identity

and bias, the real image of the destinations is revealed, often differing substantially from the one officially promoted. While promotion on official channels can be misleading, relying on professional photo-video services and catchy copy writing, reviews on social networks present the destination from the subjective angle of each user, as they perceived it when they got there. Many unbiased reviews have the great merit of providing detailed descriptions and differentiated ratings regarding the *natural setting*, *cultural heritage* and *aesthetically well-feeling*. According to Antrop (2000), these are the values of the landscape, and his classification inspired us to develop an assessment method of the external image of a territory, based on reviews posted on internet platforms with destination rating system and geolocation.

7. Ex-ante assessment grid of territorial resilience

We also developed an ex-ante assessment grid to analyse territorial resilience. This grid is designed based on our own reflection on territorial resilience, aiming to qualitatively inventory the drivers that potentiate it. We see its usefulness especially used *ex-ante*, in the preparation stage for the impact, but it can also be a recurring checklist throughout the transition, periodically checking the state of local capitals and endogenous influences that can impact the transition, as well as the performance of the transition management.

TABLE 6. EX-ANTE ASSESSMENT GRID FOR TRI

Social capital	
Tools to assess the state of social capital: a) stakeholder mapping; b) population pyramid; c) dependency ratio	
Territorial assets	
Assets are defined as all those elements that give value to the territory, be they material or immaterial, and these differ from one place to another and, sometimes, from one period to another. Our inventory includes the following features of the territory:	
<ul style="list-style-type: none"> a. geographic position b. connectivity c. infrastructure d. natural resources e. climate f. cultural capital g. external image h. demography i. employability j. workforce 	
Purpose	
The analysis aims to differentiate between “weak” and “strong” sustainable development, since there are contrasting visions of sustainable development and, consequently, different means to move towards it (Harrahill & Douglas, 2019).	
Strong sustainability	Weak sustainability
<ul style="list-style-type: none"> 1. opposing the idea of substituting various forms of capital 2. valuing the uniqueness and irreplaceability of social and environmental structures 3. engaging a different growth path and new ways of producing and consuming 	<ul style="list-style-type: none"> 4. focusing on different forms of capital that contribute to production 5. continuing with the same patterns of economic activity which approximate ‘business-as-usual’ 6. politically attractive 7. closely aligned with ‘passive’ transition approaches
Transition management	
Transition management aims to guide the transformational process to a structural change involving a shift to new technologies and new societal practices. The analysis includes the description of the governance structure and the decision-making process.	
Re-skilling capacity	
By comparing the activity profile of the new goal with the profile of the pre-existing workforce, the need for re-skilling will be revealed. The inventory of tertiary and secondary education institutions, vocational schools and other bodies that can offer professional training programs will indicate the re-skilling capacity.	

PART III: The role of the three territories in the history of Europe

Introduction

The shrinking city or « *ville intermédiaire* » generally defines urban environments that for various reasons suffer depopulation, however the term fits perfectly with post-socialist cities (Constantinescu, 2012) that have gone through unprofitable privatizations of their once-thriving industries, causing local working-age residents to migrate to more competitive urban environments, leaving behind an aging population in constant decline. For the shrinkage to be transient (Strykiewicz & Jaroszevska, 2016) and a new boom to be possible, it will depend on the territorial assets, geographical constraints, quality of the landscape and, predominately, the degree of resilience manifested by the community in all stages of the transition towards another economic model. In an optimistic scenario, the shrinkage is a period of recoil and conservation, as well as preparation for bounce back, as shrinking cities can take advantage of the context to renew, restructure and become even more attractive than before (Bănică et al., 2017). However, we cannot ignore the considerable amount of research focusing on a more pessimistic outcome, warning that, whatever the causes of the contraction, the decline is usually long-lasting, and the shrinking of post-industrial territories poses a serious threat to European competitiveness. Coal mining regions traditionally offer limited access to other industries, and the transition of the coal sector may lead to significant social dislocation in the affected regions, partly due to the lack of an anticipatory policy to accompany the transition (Botta, 2018). Moreover, as both climate change and mitigation efforts produce economic disruptions generating structural changes in some local and regional economies, the ex-ante assessment of a territory's resilience is essential in planning for the impact of the transition and in developing the post-exploitation strategy.

Many post-mining territories are urban administrative units only in appearance, "on paper", since strictly urban endowments are poorly developed, and the surrounding spaces retain the characteristics of rural landscapes. When the mines close, these regions

find themselves in an intermediate environment where the urban vocation is often favoured by local actors rather than the revival of rural activities (Dumitru et al., 2020; Jonas, 2012b; Pontarollo & Serpieri, 2020). The meaning of the term « *ville intermédiaire* » has nothing to do with size but with posture, these towns seeking openness and exchange in an urban staging (Querrien, 1989). Its spectrum tends to widen the simple vision of the urban hierarchy as we traditionally perceive it - metropolis, medium-sized cities and small cities, the notion of "intermediary" positioning the city in the middle of a change of context and state of mind. The intermediate city represents a form of territorial co-ownership that would combine a spatial "metropolitan" urban space and rural space (Nadou, 2010). It is the city "*in between*" and this reality, by no means isolated, deserves increased attention in the debate about financing the territorial reconversion of such places.

All three case studies in this thesis prove that the processes of urban decline are in fact characterized by a series of negative trends, demanding a rethinking of urban planning, therefore planners are called to imagine new uses of the territory (Florentin, 2016). Spatial planning policy varies according to contexts and timing, but it is generally articulated around three main levels of intervention. The first level corresponds to strategic planning, when the main orientations are shaped and developed, i.e. political choices from the point of view of the territory. The second stage is the regulation, when the ownership rights of the land are decided, through occupancy plans and town planning normative acts. At the third level lies the operational planning, when decisions upon tools and course of action are taken (Guilliams & Halleux, 2009).

Yet, another common characteristic of the three European mining basins discussed in this thesis is the difficulty encountered by local actors in imagining their common "green" future. Beyond the clichés related to the development of tourism and the desire to host international companies to create jobs, the exploration of territorial resources is often biased due to an erroneous perception of both their landscape and their territory (Schmitz & Vanderheyden, 2016b). Rooted in the aspiration to live in the city, many actors are unaware of the potential for economic growth through rural development solutions,

neglecting that a territorial-based approach may be preferable to other solutions for the reconversion of mining territories, as it would capitalize on the sustainable characteristics of landscapes, rather than designing a landscape according to the economic ambitions of current users (Van Rooij et al., 2021).

We dedicate this chapter to presenting the history of the three territories that have served as case studies in enriching our own reflection on the concept of territorial resilience: La Louvière in Belgium, Jiu Valley and Ştei in Romania. All these places are mining communities within the European Union that were born from nothing and proliferated around the extractive industry, under the impetus of industrialization, and war or post-war efforts. They are sometimes called "artificial", yet they naturally acquired a cultural identity, and in the bosom of the communities there was an effervescence that characterized them all (Sirjacobs, 2011).

Located in the province of Hainaut, in Belgium, **La Louvière** had about 16,000 inhabitants in 1850. The town rapidly grew, hand in hand with the exploitation of coal from the Bois-du-Luc mine and the construction of « *cités ouvrières* » between 1838 and 1853. The steel and tile industries were also very strong, surviving for another decade after mining ceased in 1973. In 1976, La Louvière had 23,052 inhabitants (Mardaga, 1999). A year later, a process of administrative reorganization of Belgium began, through merger, leading to the reduction of the number of municipalities from 2,359 to 596. The total population exceeded 77,000 inhabitants in 1977. Today's La Louvière was formed by the merger of the communes of La Louvière, Houdeng-Goegnies, Houdeng-Aimeries, Strépy-Bracquegnies, Besonriex, Haine-Saint-Paul, Haine-Saint-Pierre, Saint-Vaast, Trivières, Maurage and Boussoit and on January 1st, 2022, the city had 80,992 inhabitants¹².

Jiu Valley, located in the South-West of the historical province of Transylvania, in Romania is a cluster of six mining towns where coal was extracted starting in the 1850s (Nagy, 2015). The industrialization of the region was strongly accelerated in the 1970s, when the communist dictator Nicolae Ceausescu chose to make a reverse energy transition, from

¹² See: https://www.hainaut-developpement.be/documents/hainautstat/La_Louviere.pdf

oil back to coal, to ensure the country's energy independence (Țoc & Alexandrescu, 2022). In 1989, Jiu Valley had a total population of almost 170,000 inhabitants, and there were over 45,000 employees in mining, however the transition from socialism to capitalism brutally put an end to the growth and the region is shrinking ever since (Nicola & Schmitz, 2022). According to the Romanian census in 2021, the total population of Jiu Valley has decreased a little below 100,000¹³ and there are less than 4,000 employees in the mining sector. Although the six cities are always discussed together and they constitute a micro-region in need of specific accompanying measures in the transition from coal, Petrosani, Petrila, Uricani, Aninoasa, Vulcan, and Lupeni are distinct administrative divisions, their merger always being a solution put forward by political leaders, but never put into practice.

The town of **Ștei** is in Bihor County, in North-West Romania, 12 km away from the uranium mine "Avram Iancu" (Zajzon et al., 2015). During the Second World War, Ștei was just a village with two hundred houses and a population of no more than 550 inhabitants. At the end of the war, Romania fell into the sphere of influence of the USSR and was forced to cede the uranium mining in Bihor to the Soviets for several years. By order of the dictator Iosif Vissarionovici Stalin, a workers' town was built in Ștei, and the archive documents I consulted showed that, in 1956, 17,000 people lived in that town - Romanian miners with their families, as well as Russian soldiers who supervised the extraction and transport of uranium from Romania to USSR (Băncilă, 2016). The Russians left Ștei at the end of the 60s, the exploitation continuing for the benefit of the Romanian state until the mid-90s when the uranium mine was closed. Since then, the city has steadily lost its stable population, dropping below 6,000 inhabitants¹⁴.

To understand the stakes and the dynamics of mining development, a permanent contextualization is mandatory, in relation to: a) geographical position, proximity and connectivity; b) the stage of technological development in the era (e.g.: invention of the steam engine, construction of railways and waterways); c) territorial and administrative

¹³ See: <https://insse.ro/cms/ro/content/recens%C4%83m%C3%A2ntul-popula%C8%9Biei-%C8%99i-locuin%C8%9Belor-runda-2021-date-provizorii-%C3%AEn-profil-teritorial>

¹⁴ Romanian Institute for Statistics

reorganizations; d) labour mobility; e) military conflicts and potential occupation regime; f) global threats, such as pandemics; and g) supranational directives (Murray & Silvestre, 2020). Coal was the most important source of energy in the world, especially in Europe, for about two hundred years, from the beginning of large-scale exploitation around the 1750s, during the Habsburg Empire, and until the 1950s, when oil and gas are becoming the most sought-after resources. Brüggemeier (2022) claims that, without coal, European industrialization would not have taken the spectacular leap seen in the 19th century and highlights the role of this resource both in fuelling the war and in peacetime reconstruction efforts. The case studies of La Louvière in the Belgian region of Wallonia, and the Jiu Valley in the Romanian province of Transylvania, prove that the geography and geology of a territory could very well empower the resident population in a certain era, and weaken it in a different time and context. The idea is in line with Culbertson (1924) who had warned from the interwar period that the energy resources of different countries depend on their geography and geology, these two giving nations important levers for political negotiation in the international arena. Ignoring this reality has thwarted many peace efforts because the desire to control deposits, be it coal, iron, copper, oil, gas, uranium, etc. it was often the determining factor in disputes between states and redrawing borders.

Putting a magnifying glass on the construction of the coal communities of La Louvière and the Jiu Valley, located at the western and eastern extremity of the Habsburg Empire between the borders of 1789, we go through two hundred years of ultra-fast evolution, yet for which an excessive price has often been paid. Despite the amazing technological progress, the Industrial Revolution had two major sins: a) it exploited the workers, especially in mining, beyond the limits of human dignity; and b) it brought into fierce competition for the same resources - natural and human - all the great powerhouses of Europe. The following sections will analyse the fate of the two mining communities impacted by rapid industrialization, territorial reorganizations, tracking the changes in migratory flows caused by the growing demand for coal (i.e., implicitly a growing demand for labour), and inventorying the gains and losses at the end of the two world wars.

We could have stopped our analysis there, on an optimistic note of the peace process initiated by the signatory states of the Paris Treaty founding in 1951 the European Coal and Steel Community, this precursor of the European Union. However, at the end of the Second World War the nuclear arms race had already begun, and another ore had now become the most sought-after resource on earth: uranium. The town of Ştei was built from scratch in the vicinity of the uranium mine at Baiţa, in Northwest Romania, during the Soviet occupation after the Second World War. In the midst of the fierce competition between the USA and the USSR for military supremacy, Ştei also had an ultra-fast urban development according to plans drawn up in Moscow and implemented identically in all cities of strategic importance for the Stalinist nuclear program. After the fall of the Iron Curtain, making the brutal transition from socialism to capitalism, Ştei had the same fate as the mining communities in the Jiu Valley, facing closure at the end of the 90s.

The questions we had in mind while documenting these case studies were the following: a) what the labour force recruitment strategies were when these mining communities were founded; b) what external drivers disrupted the course of community life, and c) what lessons can we extract from the previous transitions that Europe went through, in order to obtain truly just transitions today. A series of conclusions will be formulated at the end of this chapter, while others will be found in the articulation of the theoretical concepts in the next chapter.

1. La Louvière, Centre Region, Hainaut Province, Wallonia

The Wallonia region comprises five provinces: Walloon Brabant, Hainaut, Liège, Luxembourg and Namur. What we refer to in this paper as the "Centre region" is the territory located in the industrial belt of Hainaut province, between the Borinage (to the west) and the Charleroi region (to the east). The "Centre" does not correspond to any precise legal or administrative boundary, but the name has been adopted in everyday language and also in scientific literature as the geographical area encompassing before the merger approximately sixty municipalities spread around La Louvière. Moreover, the "Centre" is generally accepted as a social and economic entity, the seat of an old industrialization, mainly coal and steel (Courrier hebdomadaire du CRISP, 1969). Several

industrial sites spread throughout Wallonia still dominate the landscape, providing tangible evidence of the industrial, cultural and ecological transition of the region in the last two centuries. Since 2012, UNESCO has recognized the importance of four of the best-preserved coal mining sites from the 19th and 20th centuries and classified them as World Heritage: Grand-Hornu, Bois du Cazier, Blegny and Bois-du-Luc (Stal et al., 2013). Bois-du-Luc mining site of La Louvière is marking the centre of the coal furrow that stretches from the Borinage to the Basse Sambre (Stal et al., 2013).

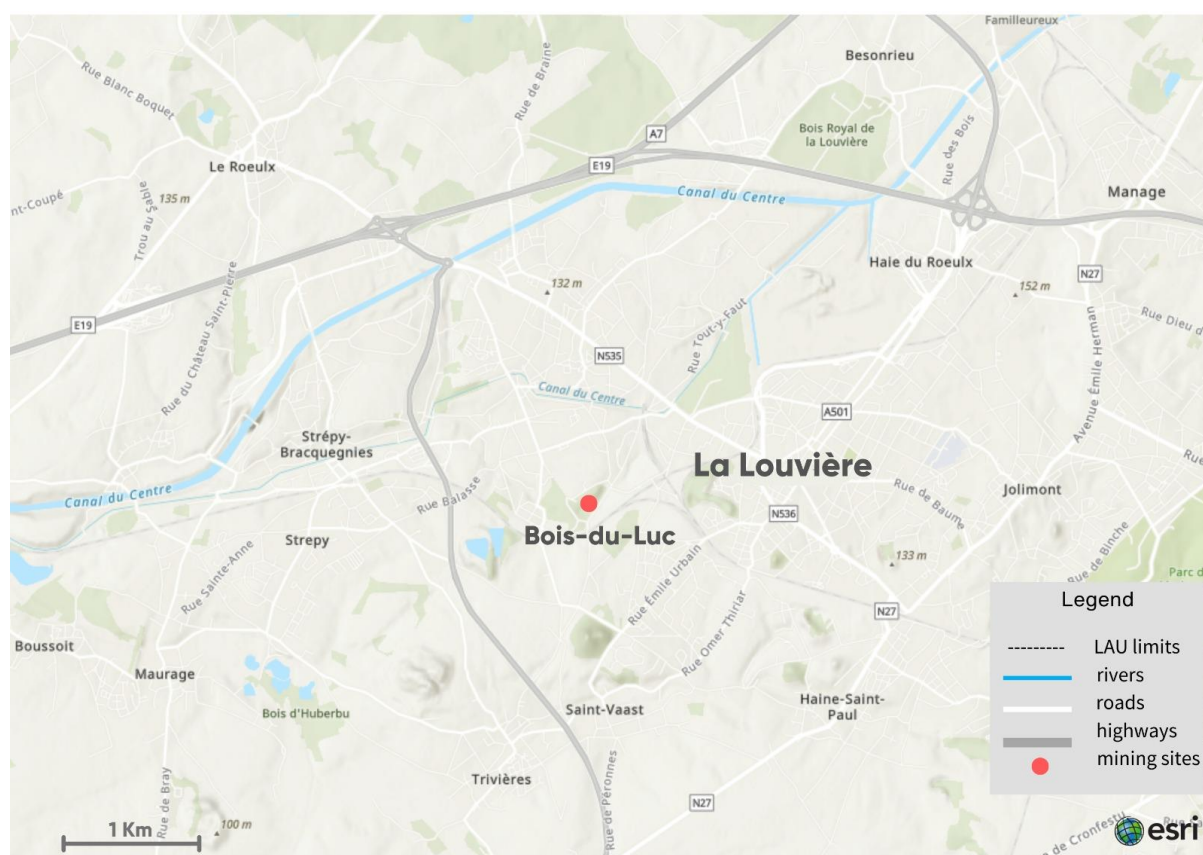
1.1 Current geographical and social context

La Louvière is centrally located on the European highway E19 Paris - Brussels - Amsterdam and on the E42 Paris - Liège - Cologne, being directly connected to the most important cities of Belgium and the capitals of neighbouring countries. It is also a short distance from Charleroi (28 km) and Zaventem (59 km) airports and has a trimodal platform named "Garocentre".

MAP 1. LOCATION OF LA LOUVIERE ON BELGIUM TERRITORY



MAP 2. LA LOUVIÈRE, HAINAUT PROVINCE, WALLONIA, BELGIUM



The town of La Louvière covers an area of 6,456 ha. With a population of 80,992 inhabitants (51.3% women and 48.7% men), La Louvière has an average density of 1,255 inhabitants/km² and it is the third most populated commune in Hainaut, behind Charleroi and Mons¹⁵.

A daughter of the Industrial Revolution and once a pole of attraction for international labour, La Louvière has remained to this day defined by its ethnic diversity. In 2022, foreign residents represented 17.1% of the total population, higher than the rates recorded in the rest of the Belgian territory. The vast majority of foreigners residing in La Louvière are of Italian nationality (59.6% of the entire foreign population), French (6.8%), Romanian (6.6%) and Congolese (3.3%). In the last decade, the population of La Louvière grew by 2,218 inhabitants, this increase (2.8%) being higher than that of the Province of Hainaut (2.2%) and lower than Wallonia Region (3.3%), Flanders (5.5%) and Belgium (5%)¹⁶.

¹⁵ STATBEL, 2023

¹⁶ Fiche communale

1.2. Infrastructure development prior to Industrial Revolution

According to local historian Alan Dewier¹⁷, the coal deposits in La Louvière area were already known at the end of the 14th century and the first traces of exploitation were identified in Houdeng-Aimeries. Numerous hill mines flourished along Thiriau, however, even though local coal miners made wells accessible by ladder, their exploitation remained problematic due to the lack of a drainage system to evacuate the water (Nicolas, 2006).

The economic development began in the 18th century, when the current territory of Hainaut Province was part of the Austrian Netherlands (*fr. Les Pays-Bas Autrichiens*), during the reign of Empress Maria Theresa (Douxchamps-Lefevre, 1968). The southern part of the Austrian Netherlands covered the vast coal formation that stretches from the banks of the Ruhr to the west of England. Ferraris' map, one of the most important historical maps of Belgium, drawn up between 1770 and 1777, locates mine shafts around Tamines (Basse-Sambre), at Gilly, Lodelinsart, Châtelineau and Dampremy (Charleroi) at La Louvière and at Ville-sur-Haine (Centre) and between Cuesmes and Baisieux (Borinage). This overlap is a proof that these coal mines on the Walloon territory were of major importance for the Habsburg rule.

One of the most pressing problems for the industrial development in the 18th century was the construction of communication routes (Genicot, 1939), since geography and connectivity played an essential role in setting the prices and accessing markets. The net value of coal as a raw material and a heavy commodity was reasonably small, but transportation costs sometimes added heavily to the final price. Therefore, coal mining could only be profitable in regions with developed transport infrastructure (Douxchamps-Lefevre, 1968). The easy access to the Theresian communication routes built by the Habsburgs (1777-1778) was the basis of the early expansion of the operations in Centre region. The extension to Charleroi, via Nivelles, of the road that ran from Brussels to Waterloo facilitated the transport of coal to more distant markets, some mining companies taking upon themselves the responsibility for the construction of "pavements" to connect their operations to this axial route. The transport infrastructure will be completed with the construction of the Charleroi-Brussels canal in 1832 and the opening of the La Louvière railway station in 1849.

¹⁷ Alan Dewier was interviewed for this doctoral project in February 2022

By the end of the 18th century the coal industry had doubled, however, as Douxchamps-Lefevre (1968) described, it was a mix of traditional and innovative practices. The legislation allowed the landowners to dispose of the underground resources at their discretion, thus in some places it was divided into many small concessions, without considering the geology of the place and the orientation of the veins. Those who did not understand the geographical and geological constraints, who did not keep up with new technologies and were not willing to reorganize their business, disappeared from the coal market sooner or later. Others, who were aware that the advent of Newcomen steam pumps (Delaunay, 2018) allows greater depths to be reached (i.e. greater production), they gathered concessions, founded real capitalist companies and prospered. At Bois-du-Luc, for instance, Société civile des Charbonnages de Bois du Luc owned approximately thirty pits within a 20-kilometer radius and the Bois pit had been fitted with a Newcomen fire pump in 1779. From 1725 to 1794 the number of workers increased from 56 to 152, while production also increased, from 2,200 to 17,000 tons of coal per year (Nicolas, 2006).

In 1794, French troops occupy the Belgian provinces and Wallonia will be part of the First French Republic until 1814. During the first years under French occupation, Walloon society was in turmoil, and the extractive industry registered a serious setback. After 1800, the access gained to the markets dominated by France proved profitable for the mining industrialists, as well as the protection obtained against the competition with the British industry, thus creating the right context for Wallonia to become a leader in the world economy, in science and industrial engineering (Buyst, 2018). A small country is only able to grow sustainably if entrepreneurs can export their products on a large scale and Buyst (2018) explained that, from this perspective, Belgium's dependence on Britain was as much a curse as a blessing, Belgian exporters facing fierce competition from the Brits in the same markets.

After the fall of the French Empire led by Napoleon Bonaparte, the Belgian provinces were incorporated into the construction of the United Kingdom of the Netherlands, the decision being taken at the Congress of Vienna in 1815. An analysis of the developments during industrial revolution (Kittell, 1967) showed that coal production in Belgium doubled in the French period and almost doubled again in the Dutch one, the steel industry following a similar pace. During these two periods, especially the second, Belgian heavy industry moved

from local to world markets, however Kittell (1967) was stressing that production figures were relatively low until the country finally gained its independence.

1.3. Labor shortage and labour conflict in independent Belgium

At the beginning of the 19th century, the Belgian provinces with the highest GDP per capita were Hainaut and Liège, the areas with the richest coal deposits. It is proven that the territories with such resources had earlier economic prosperity than others, and Wallonia was no exception, however the large-scale exploitation of coal deposits in order to satisfy the growing demand for coal puts the mining owners in front of a work force deficit (Buyst, 2018).

1830 is the year of the Belgian Revolution, the conflict leading to the secession of the Belgian provinces from the United Kingdom of the Netherlands and the establishment of a new independent state. The Kingdom of Belgium was recognized by the great powers at the London Conference of the same year (Schroeder, 1994). Between 1850 and 1860, amid an economic crisis in Flanders, the coal companies in the Centre managed to attract a first wave of Flemish immigrant labour¹⁸, through a proactive employment policy. By the 1870s, coal production had tripled, and the record productivity was only possible due to the workforce attracted from Flanders, the total number of miners in Hainaut and Liège thus exceeding 100,000 at that time.

To attract and attach workers at Bois-du-Luc, the company started in 1838 to build a *cit  ouvri re* (Duch ne et al., 2013), following the example of the workers' town of Grand Hornu, built by the architect Bruno Renard between 1820 and 1832 (Van Loo, 2019), with 166 houses forming a trapezoid cut into four parts by two perpendicular axes¹⁹. Originally, each house included two rooms and a garden, two cellars and a hayloft, but over time other spaces were added to accommodate families. For single miners, a dedicated phalanstery was built. In 1844, a separate quarter was built for the director-general, as well as a hospital, school, a park, library, grocery store, hospice, concert hall. The plan was successful, several streets being quickly populated by Flemish workers and their families

¹⁸ Historian Alan Dewier, interviewed in February 2022

¹⁹ See: www.boisdulucmdd.be

(Eggerickx et al., 2010). Trying to attract even more Flemish people from the rural areas to work in the mines in the Centre region, some recruitment agents even promised them bigger gardens than those of the Walloon workers. When they noticed that the idea of moving to La Louvière was no longer attractive to many Flemings, mine owners turned to another strategy, asking the Minister of Railways to organize a special train from Grammont in Flanders to Morlanwelz in Hainaut, thus offering subscriptions to those who want to commute to work at the Mariemont and Bois-du-Luc mines. One again, Bois-du-Luc proved to be the better choice, coal company archives showing that in 1908, there were 865 commuters out of a total of 3,790 workers at Bois-du-Luc, while at Mariemont there were only 65 commuters out of 5,806 employees (Eggerickx et al., 2010). Basically, all sources we have consulted for this research indicate a significantly higher level of working and living conditions at Bois-du-Luc compared to other mining sites in Europe at that time.

Industrialization caused a serious problem in terms of housing throughout the entire Western Europe, with workers living most often in overcrowded slums, without access to running water and heating (Voldman, 2022). The inhuman living conditions of the working class came to light in the terrible years of the cholera epidemics (1831 - 1832 and 1863 - 1875) (Mackenbach, 2020), when doctors and architects documenting the phenomenon of contagion called for the need to regulate housing by law (Van Loo, 2019). By acknowledging the poverty of workers' housing has associated risks of public health and social unrest, the first government initiatives and laws normalizing housing appeared: in Belgium in 1889, in France in 1894, in the Netherlands in 1901, in England in 1911. These laws allowed private or public organizations to borrow at low and long-term rates, from funds allocated to the construction of housing for their employees (Voldman, 2022). This legislative framework favoured the emergence of innovative urban planning solutions such as the "garden city", an option both for the good organization of cities and for the pressing demand for popular housing, advanced by the English theorist Ebenezer Howard (1850-1928). Howard rejected the idea of a monumental city for elites, as was the city of the classical era, in favour of social urbanism and, with the support of the socialist

architect Raymond Unwin, built the first garden city in 1904 in Letchworth, about fifty kilometres from London (Blanco Pastor et al., 2023).

Returning to Bois-du-Luc, which was built between 1838 and 1853, well before the dissemination of Howard and Unwin's ideas, we find pertinent the assessment made by Sirjacobs (2011), stating that this Belgian mining site is a unique example of a working-class town built in the incomparable spirit of an industrial paternalism. In the History of Social Housing in Belgium, the author mentions Bois-du-Luc, along with Grand-Hornu and the Mariemont establishments, as examples of a real concern on the part of the industry for the quality of life of the workers, offering optimal conditions for personal hygiene - access to hot water and heat, and a suitable living space arrangement for family life, for a much lower rent than the prices set by the real estate market (Smets, 1977). Inventorying the technological and social innovations that made Bois-du-Luc more attractive to workers than other mining sites, we mention here: the Newcomen steam engine (1779), housing for workers (starting 1838), elevator cages (1850), and the pneumatic hammer Rimo "*made in Bois-du-Luc*" (1910) (Sirjacobs, 2011). Our hypothesis is that workers' grievances were smaller at Bois-du-Luc compared to the neighbouring pits since their working and living conditions were superior, this explaining why the workers here had a more passive involvement in the protest movements marking the end of the 19th century.

1893 was a year of strikes and widespread social unrest in England, France and Belgium. The price of coal was already in drastic decline for several years and the employers were trying to reduce the production costs by reducing the salaries of the employees (Chapelle-Duliere, 1988). The crisis broke out in July 1893, when British miners refused to have their wages cut by 25% and caused a gigantic "lockout". This conflict also encouraged the miners on the continent, and it was the first time that French and Belgian workers acted unitedly (Michel, 1982). Going through the local publications of that time, of different political orientations, Chapelle-Duliere (1988) documented the conflict that broke out in La Louvière in September 1893. Bois-du-Luc was considered to be one of the coal mines where the workers were kept most closely under surveillance, and journalists with

socialist views doubted that they would take part in the protest movement²⁰. To everyone's surprise, on September 13, several hurriers²¹ gathered at the Saint-Emmanuel fountain in Bois-du-Luc and declared a strike. The contagion effect was immediate, all staff joining the protest. The strike at Bois-du-Luc is part of the social trend of 1893, with this differentiating characteristic: the spark was ignited by the women who were paid per wagon pulled/pushed, whose incomes were severely affected by the reduction of the working day²².

The general strike of 1886 summed up a series of insurrections by workers in industrial areas located in the provinces of Liège, Hainaut and Namur, between March 18-29 (Deneckere, 2010). According to our knowledge, the miners from Bois-du-Luc did not join this protest movement, moreover, when the strikers tried to reach the Center region, they were met by armed groups of soldiers, bourgeois, workers and peasants together that prevented the extension of the protest to La Louvière, Manage and Seneffe (Van Kalken, 1936). Following the strike, 27 alleged leaders of the movement were tried before a tribunal in Mons in May 1889. The trial was compromised, and the case closed when it emerged that the *Sûreté Publique*, a state intelligence service, had infiltrated the radical group, acting as provocateurs of bloody riots (Keunings, 1995).

Michel (1982) devoted himself to an analysis of labour conflicts in the European coal mining industry and writes about a "failure" of the miners in 1893 to negotiate their rights, be they wages or working conditions. In the following years, their attempts had even poorer chances of success (Michel, 1982). Despite the unrests, Leboutte (1997) noted that many concessions were merged to improve their profitability, their number falling from 257 in 1839 to 125 in 1913, the author thus estimating that the period from the end of the 19th century until the beginning of the First World War was favourable for the Belgian coal industry.

²⁰ La Gazette du Centre, 21 septembre 1893 : "Charmants, ces meneurs, qui traitent carrément de lâches ceux qui ont le courage de montrer quelque indépendance !"

²¹ The women who pulled/pushed the wagons in the galleries where the horse did not fit

²² Archives Générales du Royaume (A.G.Ä.), 1ère Inspection des Mines (Mons), dossier n°307(22 au 28 septembre 1893).

1.4. Walloon coal in World War I

On August 4, 1914, the German army invaded Belgium, a neutral state that suddenly finds itself propelled right into the heart of the conflict (De Schaepdrijver, 2016). It was the moment when Belgium paid a huge price for its geographical position and for its coal deposits, these territorial assets being Germany's stakes for violating Belgium's neutrality. Berlin had indeed a long-term plan for the annexation of Belgium, but in the summer of 1914 the main goal was the invasion of France. However, evaluating that it is more desirable to avoid the fortresses of Belfort and Verdun, the Second German Army considered the route through Belgium more convenient (Wegner, 2014). These are the circumstances in which the battle of Liège on August 5, 1914, was recorded in history as the *First Battle of the Great War*, and the heroic fight of the people of Liège during the 11-day battle built the myth of the *Belgian resistance* that gave the Allies extra time to prepare for war (Marchandise & Schnerb, 2013).

Belgian coal mining was never interrupted during the First World War, but Tilly & Deloge (2012), who documented the plight of Belgian industrialists whose businesses were placed under German supervision, state that those who refused to collaborate with the Germans saw their businesses deprived of all raw materials and technology, while those who were friendly with the enemy faced accusations of lack of patriotism and even treason. However, even though mining activity continued, less than half of the coal mined in Belgium during the German occupation was used on the domestic market. The Germans had established a Central Coal Bureau, and all Belgian mines were required to sell their coal ore at this counter. From there, depending on the needs, the Germans directed part to the war effort, part to export to the neutral Scandinavian states, and part to domestic consumption in Belgium (Lieberman, 1996).

1.5. Interstate labour agreements in interwar period

The reconstruction of Belgium required industries to restart their engines at full capacity, but the labour force, already insufficient before the Great War, was now even lower due to the heavy losses suffered during the war. The authorities accepted immigration as a

great necessity (Grimmeau, 1988) and decided to regulate it through agreements concluded in a first stage with other European states, in 1923. These employment contracts were for a fixed period of five years and did not allow family reunification (Defosse, 2019). In November 1927, a total of 16,633 foreign workers appeared on the payrolls of the six Belgian mining basins, and 1,830 of them were in the Centre. Amongst foreign miners working in La Louvière, the main nationalities at that time were Italian - 660, Polish - 565, French – 300 (Loriaux, 2005).

During the Great Depression of the 1930s, Belgium decided to limit the access of foreign workers to the labour market, as unemployment had reached 23.4% in 1934 (Zimmermann & Saalfeld, 1988). One of the measures taken by the authorities was the introduction of a work permit, thus restricting mobility (Defosse, 2019). There have also been documented situations in which the Belgian government resorted to a strategy resulting in the expulsion of certain foreign citizens considered less desirable than others. A two-step strategy was implemented in 1933: 1) the Belgian government excluded all foreign workers from unemployment benefits, except the French, Dutch and Luxembourgers; and 2) an order was subsequently issued to expel foreign nationals who have no income and no other legal means of subsistence. The foreigners mainly targeted for expulsion were Poles, Hungarians and Czechs (Zian, 2023).

The mining company Bois-du-Luc was also affected by the crisis, the accounting archives indicating in 1931 an 85% decrease in profits. In 1935, the company, then having almost 4,000 workers, became a Limited Liability Company, setting the stage for an economic recovery with the return of profits and wage increases. June 1936, the country was paralyzed by a general strike at the end of which the miners obtained a reduction of the working week from 48 to 45 hours, with the maintenance of the same salary. The economic recovery, the increase in production, brought back into the discussion the labour force deficit, and recruitment abroad was once again necessary. Through the Ministerial Decree of March 15, 1937, the employment of 1,000 Poles and 1,000 Czechs was authorized (Loriaux, 2005). But the revival is short-lived; in 1938 immigration was completely stopped, and in 1939 mobilization led to a slowdown in coal production.

1.6. World War II: From importing workforce to exporting miners to Nazi Germany

Belgium was again neutral at the start of World War II on September 3, 1939, when United Kingdom and France declared war on Nazi Germany after it invaded Poland. However, after surviving the trauma of the German occupation during the First World War, Belgium was determined to take pre-emptive actions this time. The Government decided upon the mobilization of an army of 600,000 soldiers, the increase of industrial production, the transfer of part of the Central Bank's gold to London and New York, but also a diplomatic offensive, including in the USA, to obtain supplies of food and armaments in case its neutrality is again violated (Van Der Wee, 2013). However, no one anticipated that the biggest problem that would arise for German-occupied Belgium in the Second World War would be the exodus of the workforce. The Germans needed the raw materials of the Belgians, but the Nazi doctrine of war aimed at the concentration of all major industries on German territory, therefore the most coveted asset was the workforce, not coal, nor technology. Between July 1, 1940, and May 31, 1941, approximately 15,000 employees from Belgium heavy industry went to work in Germany every month. Estimates based on registration data at the National Labor Office²³ (tracking the placement of Belgian workers in Germany) indicated at the beginning of 1944 somewhere between 425,000 and 450,000 Belgians employed on the territory of Nazi Germany (Van Der Wee, 2013).

When WWII ended, Belgium had escaped with its production system relatively intact, unlike the end of WWI. In the context of a strong demand for energy production both nationally and internationally, Belgian industrialists put all available resources back into operation, and for five years (1944-1948), the growth rate was exceptional. Through the port of Antwerp, Belgium supplied the Allied troops in Germany and sent raw materials to the United States, especially uranium from the Belgian Congo. To develop the atomic bomb project, the United States of America were on a quest for uranium ore (Williams, 2017).

²³ Office National du Travail

Box 3. CONTEXT FOR URANIUM EXTRACTION FROM THE BELGIUM CONGO

- The monopoly on the uranium market was held since the 20s by the Belgian company Union Minière du Haut Katanga (UMHK), which operated in the then Belgian colony of Congo, owning most of the deposits known at the time (Robison, 2014).
- The uranium deposit at Shinkolobwe, Congo, was accidentally discovered in 1913 during copper mining (Adams, 1993) and proved to be the richest in the world, averaging 65% uranium oxide, the active ingredient for nuclear fission (for comparison, American or Canadian ore contained less than 1%) (Williams, 2017).
- The uranium mined in the Congo basin was mostly transported to the UMHK uranium ore refinery located in Olen, about 35 Km from Antwerp. When Belgium was occupied by Nazi Germany in 1940, almost 1,200 tons of uranium were stored at the Olen refinery, the German army building a defence belt around it (Heinrich, 1958).
- Since Adolf Hitler had his own nuclear ambitions, the recovery of the uranium ore captured by the Nazi Germans was a top priority of the Allied troops who liberated Belgium in 1944 (Schrijvers, 2012)

Box 4. WILLIAMS` (2017) ANALYSIS ON THE GLOBAL IMPACT OF CONGOLESE URANIUM EXPLOITED BY BELGIUM

- Shinkolobwe deposits were vital in the construction of the atomic bombs that were dropped by the Americans on Japan in August 1945.
- Thanks to the economic agreements with Belgium, the USA won the nuclear arms race with Nazi Germany.
- America's nuclear endowment opens a new arms race, this time with the USSR.

1.7. Immigration in post-war Belgium mining regions

Planning to speed up reconstruction and compensate for the loss of manpower at the end of World War II, many countries developed strategies to recruit workers from abroad (Castles, 1986). It was therefore in the post-war context when the idea of freedom of movement was initially discussed and developed, aiming to solve both the labour shortage in certain countries and the unemployment problem in others (Lafleur & Mescoli, 2018).

In Wallonia, the labour shortage was covered for a while with German prisoners of war and collaborationists, at the Bois du Luc pits, for example, about 600 prisoners were brought to work underground. However, their productivity was too low, therefore, in 1946, Belgium will conclude a bilateral agreement with Italy that undertakes to send workers in exchange for coal. This agreement between Belgium and Italy of June 23, 1946 was essentially marking the beginning of the great Italian migration to Belgium (Leboutte et al., 1998).

The factors favouring the conclusion of this agreement were: a) a pre-existing agreement before the war; b) the Italians were already in large numbers in Belgium, many anti-fascists had taken refuge with the coming to power of Benito Mussolini in 1922; c) Italy wanted to restore good relations with Belgium and Europe in general after the fascist episode; d) Italy had around two million unemployed, among them soldiers and dissatisfied partisans considered a danger to the state, whom Italy had the opportunity to "export" (Mascitelli & Morelli, 2023). The agreement stipulated that Italy would send approximately 2,000 workers weekly, and in exchange for each worker Belgium will deliver 200 kilograms of coal per day (Defosse, 2019). Recruitment was done in three stages: 1st - a brief medical examination in the worker's hometown, 2nd - evaluation of professional experience and criminal record in the recruitment centre opened by Belgium in Milan; 3rd - final assessment at the mine in Belgium where it was placed. After a short trial period, those who were declared unfit were returned to Italy (Morelli, 1988).

In 1947-1948, Belgian coal mines reached a record level of employment, with Bois-du-Luc returning to its pre-Depression workforce. Other basins, such as Campine, have almost doubled their numbers compared to the 1930s (Bruwier, 1988). By 1948, no less than 75,000 Italian workers had arrived to work in the coal mines of Belgium (Defosse, 2019), and this situation again raised great housing problems. The option of the Belgian authorities and the

industrialists was to house many of them in the concentration camps built by the Germans to accommodate the Russian prisoners they put to work in the Belgian mines. Russian prisoners were replaced after the defeat of Nazi Germany with German prisoners, and as they were released, Italian workers were accommodated in their place, in deplorable conditions (Morelli, 1988).

In 1954, approximately 161,000 Italians lived in Belgium based on the agreement between the two states, an agreement that Belgium did not strictly respect in terms of labour protection or living conditions. The misery of miner's life shocked public opinion in the aftermath of the explosion at Bois du Cazier, in Marcinelle, on August 8, 1956, killing 262 miners, 136 of them Italians (Lafleur et al., 2015). At that time, television had been already invented and TV sets were spreading in homes all over the world (Belgium in 1953 and Italy in 1954), fascinating people with the feeling of real time closeness to distant places. News reports about the explosion at the Bois du Cazier mine were closely followed by outraged viewers from Belgium, but also in Italy, thus decisively influencing Italy's position to denounce the protocol concluded with Belgium for labour supply (Jahan, 2007). The information revealed by journalists regarding the working and living conditions of the miners greatly disturbed the Belgian society and Puissant & Vijver (2006) talk about a *before* and an *after* Marcinelle in terms of how Italian minority was perceived, suggesting that, after the tragedy, the Belgian citizens from Charleroi, Centre, Liège or Borinage showed greater openness and acceptance towards Italian workers than ever before (Puissant & Vijver, 2006).

Another important consequence of the explosion at Bois du Cazier mine was the modification of migratory flows, subsequently leading to long-lasting demographic changes. To replace Italian workforce, Belgium concluded in the upcoming years new bilateral conventions, with: Spain (1956), Greece (1957), Morocco (1964), Turkey (1964), Tunisia (1969), Algeria (1970), and Yugoslavia (1970) (Lafleur et al., 2015).

1.8. European Coal and Steel Community and the decline of coal mining

Through the Treaty of Paris, signed by Belgium, France, Italy, Luxembourg, the Netherlands and Germany, the European Coal and Steel Community (ECSC) was established in 1951, integrating the European coal and steel industries into a single supranational common market (Kahn, 2021). Assumed and announced by Robert Schuman, the French foreign minister at that time, the project aimed at obtaining a lasting peace in Europe as well as a reconstruction based on more cooperation and less competition.

The Belgian Federation of Coal Associations anticipated from the outset that there would be a capping of production as well as a levelling of prices, and although they affirmed their "unreserved loyalty to the principle of European unification", Belgian industrialists criticized the Schuman Plan highlighting the dangers ahead : a) the capping of salaries will affect the miners in Belgium the most, as they had salaries approximately 40% higher than those of the other countries in the agreement; b) if production were capped, Belgium would have to cover its needs from other states and would be flooded with cheaper coal from Germany, and c) if some mines were closed, only a third of the workers laid off could be sent back to their countries of origin, while two-thirds would become unemployed on the Belgium territory (Duchenne, 2009). However, their cry remained unheeded and Belgian mining sector entered a 5-year transition period, meaning reorganizations and restructurings. Bruwier (1988) rigorously analysed the stages of redundancies and estimated that between 1952 and 1958 the Central Basin was the most affected, shedding 17% of all staff, followed by Charleroi (11%), Campine (10%), Borinage (10%), and Liège (6 %). Between 1958 and 1961, the Belgian coal mines went through their darkest period, with closures affecting all mining areas and eliminating 63,337 jobs, i.e. 41.7% of the workforce (Bruwier, 1988).

And yet, the labour recruitment programs continued, with work permits still being granted to foreign workers who were sometimes directed precisely to the deemed outdated mines in Wallonia. In the 1960s, Flanders went through an economic transformation, on the Marshallian model (Vandermotten, 2017), modernizing its economy and workforce, and consequently drawing in foreign investment, thus succeeding to absorb a good part of the workforce laid off from the Limburg coal mines. Wallonia, however, went into a steep decline,

starting with coal and continuing with steel industry (Van Oudheusden et al., 2017). At ECSC level, the accompanying measures (*re-adaptation*) for the unemployed miners were decided after several chaotic years on the labour market and proved to be little effective. Centre was the first Walloon mining region to be completely closed, in 1972, when there were only 1,085 miners left, compared to 24,055 in 1948 (Bruwier, 1988).

From 1980 to 1990, the Belgian economy transformed into a post-industrial one and, according to Vandermotten (2017), the Belgian state (which at the end of WWII had fought so hard to restart coal and steel production) finally supported the organized coal phase-out within the European Coal and Steel Community and the transition to a tertiary economy.

2. Jiu Valley, Transylvania Province, Romania

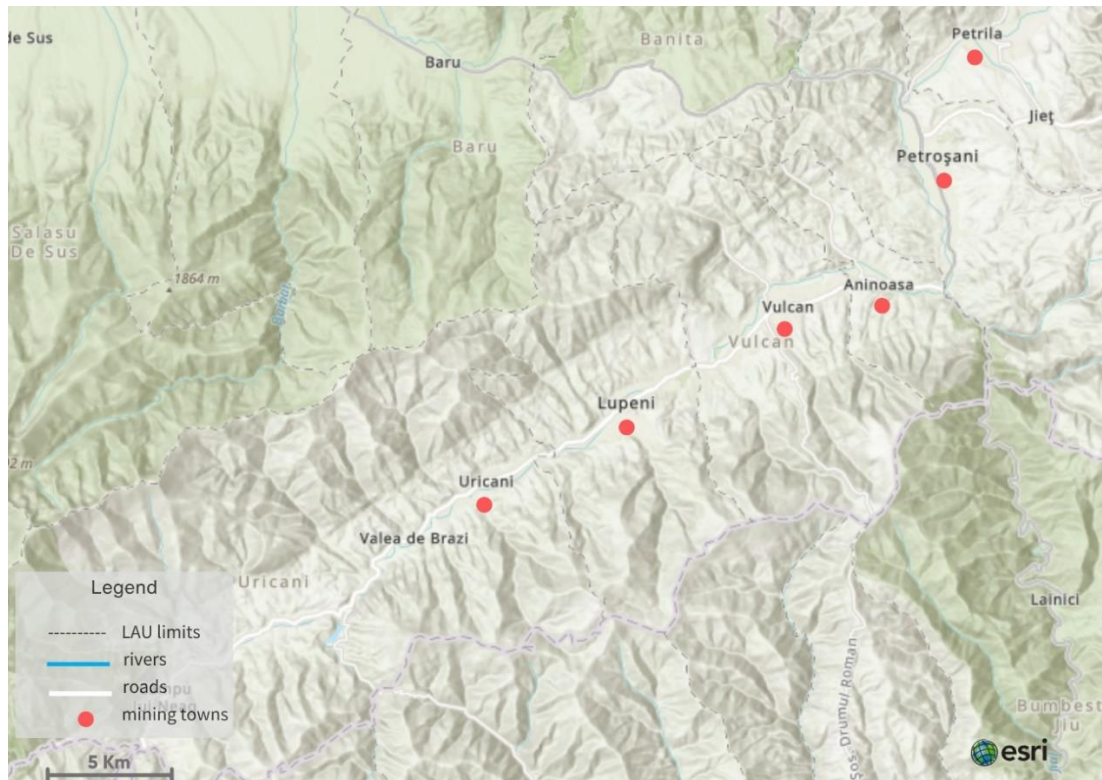
2.1. Current geographical and social context

Like other mining basins in Europe, Jiu Valley proves the importance of coal in the Industrial Revolution, in fuelling the two world wars, but also for post-war reconstruction efforts. This micro-region in the Western Romania is a group of six mining towns (Petroșani, Petrița, Lupeni, Lonea, Aninoasa and Uricani) that correspond to the definition of *shrinking cities* or *ville intermédiaire* which, through the budget allocations that are due to Romania through the Just Transition Mechanism and other financial instruments, would have historical chances of renewal in the upcoming years. However, the funding available for the territorial reconversion of the Jiu Valley would be absorbed and invested for the benefit of the community if several conditions imposed by the just transition framework are met: a) closing the last four mines still active by 2032; b) the elaboration of the post-mining development strategy through consultations between stakeholders, and c) the new economic activities would meet sustainability criteria. Jiu Valley is the gateway to Retezat National Park, surrounded by the Retezat and Parâng Mountains (2,500 m, highest peak) and it is crossed by the Jiu River (Map 4)

MAP 3. LOCATION OF JIU VALLEY ON THE ROMANIAN TERRITORY



MAP 4. JIU VALLEY DEPRESSION, HUNEDOARA COUNTY, ROMANIA



2.2. From the Habsburg Empire to WWI: welcoming workforce from all over Central Europe

The first records of the existence of coal deposits in Jiu Valley were documented in 1782, when accidental fires occurred in the outcrop areas. The Province of Transylvania was part of the Habsburg Empire at that time. However, it was only in 1835 that the first prospecting works took place, considerable coal reserves being identified. Large-scale coal mining began in 1848 and was initially carried out by Polish, German and Czech companies, with workers from various parts of the Habsburg Empire. The few available documents about the recruitment of labour for the mines in Southwest Transylvania claim that these workers were quickly and smoothly integrated into the existing population in the area (Bulearcă et al., 2014).

In 1867, the Austro-Hungarian Empire was founded, and Transylvania was reincorporated into the Kingdom of Hungary. In 1870, the construction of the Petroșani - Simeria railway was completed and thus the Jiu Valley was connected to the main line Brasov - Arad - Budapest. Offering convenient transport capacities, the mining basin became even more attractive for investors from the Empire, demand and production increasing exponentially (Nagy, 2015). In a report of the League of Nations that inventoried the raw materials needed for the war effort during WWI, Hungary is listed among the main producers of coal in the world (Culbertson, 1924), and this is partly due to the exploitation of the deposits in the Jiu Valley.

Between 1869 and 1910, the population of the region increased from 12,671 to 50,015 inhabitants, and from the archives of the mining companies it appears that in 1911, 93% of the employees were recruited from other regions of the Dual Monarchy (Nagy, 2011). There is little data regarding the ethnicity and place of origin of the immigrant labour force in the Jiu Valley, however the Hungarian census of 1910 gives us some clues. During this period, data were collected on the mother tongue and nationality of the workers. Most of the workers declared Hungarian (47%) or Romanian (36%) as their mother tongue, followed by those who considered their mother tongue German (6%), Polish (3%), Ukrainian (3%) and others, such as Slovak, Czech, Italian, Serbian, Croatian, Slovenian (1%). In 1910, 91% of the miners in the micro-region were citizens of the Hungarian part of the Austro-Hungarian Monarchy, 8% were officially citizens of the Austrian side and the remaining 1% were mostly Italians and

Germans²⁴. However, large-scale immigration constantly changed the linguistic and ethnic composition of the population in the region, and within a single decade (1900 - 1910) Romanians, counted as natives, lost their numerical superiority within the population (Nagy, 2011).

In 1918, the Great Union of Romanians from all historical provinces was accomplished, therefore Bessarabia, Bucovina and Transylvania united with the Kingdom of Romania. From that moment on, almost all the coal mines in Transylvania accelerated their activity and production, covering the demand from the whole country with the aim of also achieving an economic unification of the young Romanian state (Bulearcă et al., 2014).

2.3. Coal mining in interwar Romania

A chronology of strikes and social movements in interwar Romania shows that they were few and always brutally repressed. Any protest against the industrial and financial oligarchy was suppressed, and the main force of government repression was the army. Historians also talk about the support and protection offered to far-right hooligan groups in order to use them to break strikes, to intimidate political opponents or to suppress the freedom of the press (Veiga, 1995). Although Romania was a member of the International Labor Organization²⁵, created in 1919, the implementation of the labour protection principles promoted within the organization was systematically postponed. The first legislative measures were taken in 1925, through the adoption of the Law on Sunday rest and on legal holidays, but the limitation of the working day to 8 hours and the protection of the labour force represented by women and children remained unresolved (Țiu, 2005).

In 1928, the workers at the Lupeni mine began to organize themselves into an Independent Trade Union and triggered a labour conflict, the claims addressed to the employers being in accordance with the existing national and international legislation. They asked for the extension of the collective labour contract, the working day of 8 hours, salary increase by 40% for the workers on fires and in wells, the supply of food and boots, and the prohibition of the

²⁴ Magyar Statisztikai Közlemények. Új sorozat, 48, A magyar szent korona országainak 1910. évi népszámlálása. Második rész. A népesség foglalkozása és a nagyipar, (Budapest, 1913), pp. 1068-1069.

²⁵ The only tripartite U.N. agency, since 1919 the ILO brings together governments, employers and workers of [187 Member States](#), to set labour standards, develop policies and devise programmes promoting decent work for all women and men.

activity of miners underground. In the morning of August 5, 1929, about 3,000 miners refused to go underground and headed towards the centre of Lupeni. The workers then occupied the local power plant where they shut down the pumping machine (Guță, 2016). Some workers did not want to take part in the strike, and they ended up fighting each other, endangering those who were underground at that time. The situation degenerated and during the night a border company and an infantry regiment were brought to Lupeni to restore order. On August 6, facing the miners' refusal to restart the power plant, five companies were ordered to fire into the crowd. Initially, 22 dead and around two hundred wounded were reported (New York Times, 1929), but more wounded died in the following days, therefore the death toll continued to rise. Some reports show that in total there were 58 dead and hundreds injured (Țiu, 2005). The violent suppression of the miners' strike from Lupeni captured the attention of the international press and brought the harsh working conditions in Romanian mining into the public debate for the first time.

2.4. Stakes of coal mining during WWII

In 1940, as a result of the unexpected Ribbentrop - Molotov Pact, the Kingdom of Greater Romania disintegrated through successive territorial concessions to neighbouring revisionist states (USSR, Hungary and Bulgaria). King Carol II abdicated on September 6, 1940, and with the support of Nazi Germany a legionary government was formed (Țiu, 2016). The loss of a third of the national territory and 6 million inhabitants was a strong motivation for Romania to enter with all its resources into war, alongside the Axis powers, hoping that reunification could be achieved again (Gheorghe, 2011). The mobilization of reservists led to a labour shortage in mining precisely when there was a greater need for coal to ensure the operation of railway transport and to cover the needs of the Romanian Army involved in the anti-Soviet war.

Between August 1942 and August 1944, several thousand Soviet prisoners of war, either in Romanian or German captivity, were used as labour force in the Jiu Valley coal mines. This is how Baron (2021) described the recruitment process: the mining company made a request to the General Staff of the Romanian Army, communicating the need for manpower and the level of qualification, and the recruitment was done by the Army. According to the Geneva Convention, the mining company was obliged to respect the 8-hour working day and the

prisoners' right to rest, to pay a salary to each prisoner, the salary being collected by the army, which would then hand over the sums to the prisoner upon release. Also based on international regulations, the mining company had to provide the prisoners with adequate accommodation and food to cope with the hard work (menu of 2500 calories/day). Camp no. 9 was established at Vulcan and sub-camps next to each mining unit. The Soviet prisoners who worked in Jiu Valley were brought from camps on Romanian territory, but also from concentration camps located on German soil, as recorded in a document from 1943 that indicated the arrival of 989 prisoners from Germany in Camp no. 9 Vulcan (Baron, 2021). Initially, the company made a request for 1,100 prisoners, however, since the partnership proved effective, the need increased over time. The documents show a constant presence of about 2,000 people, with groups of prisoner-miners changing with new ones at various intervals of time. The use of Soviet prisoners of war in the mines of Jiu Valley ended immediately after August 23, 1944, when Romania switched sides (Țiu, 2016) and continued the war fighting from there on against Nazi Germany. Documents from the available archives indicate that the prisoners were released and sent to USSR at the expense of the mining company.

Turning the weapons against Nazi Germany, Romania contributed substantially to the victory of the Allies, however the decision was considered belated, as a result during the post-war negotiations it was not very clear which side of the table this country belonged to, the side of the victors or the vanquished. Romania regained part of the territories lost in 1940, Northern Transylvania from Hungary, but the NE border with the USSR, and the one in the South with Bulgaria did not change (Kirk & Raceanu, 1994). In addition, Romania was obliged to pay compensations of war to the USSR in the amount of 300 million dollars, with the repayment of the debt by providing raw materials, maritime and river vessels, and other machinery for a period of six years (Banu, 2003; Volokitina, 2015). The Soviet occupation of Romania that started in 1944 lasted until 1958, paving the way to absolute power for the Romanian communists who maintained the dictatorship until 1989 (Boia, 2001). Through the "nationalization law" of June 11, 1948, the communists dealt a blow to private property in

Romania by expropriating the majority of enterprises, and the new Constitution of Romania stipulated that mining deposits are common property of the people²⁶.

2.5. Return to coal during the dictatorship of Nicolae Ceaușescu

As we showed in previous sections, coal has been mined in this depression for over 150 years, but the region's rapid growth, the "boom", was closely linked to the oil crisis in the late 1970s (Holloway, 2021), when Iran stopped delivering crude oil to Romania. The communist dictator Nicolae Ceaușescu then decided to turn the coal industry into the most important component of the energy industry, launching a national program aimed at accelerating coal production and reducing the amount of oil and natural gas in the energy mix from 50% in 1981 to 5% in 1990²⁷. As the centrally planned economy steered away from oil and gas – following the oil shocks – coal became the central element of energy production in socialist Romania. This created opportunities for the intensified exploitation of coal from the Jiu Valley. The national program had a mobilising slogan - "*more coal for the fatherland*" (Țoc & Alexandrescu, 2022), while underground work was glorified in epic performances by which communist propaganda carefully constructed the myth of "the hero miner", the one who sacrifices himself to preserve the country's energy independence (Horghidan-Anghel, 2019). The dictatorial ambitions allowed for the creation of even more jobs, increasing the area's attractiveness; thus, the total population of the Jiu Valley reached a record of 167,456 inhabitants (Davidoiu, 2017). Not least, as the importance of mining increased in the Romanian economy, as did the community's dependence on this industry, the Jiu Valley gaining all the traits of a community living in a "boom-bust cycle" (Sewell, 2019), plagued by the danger of shrinkage after mine closure.

The rapid urbanization of the communist period and the need to attract labour to the Jiu Valley also accelerated the construction of houses, and the housing model for the workers in the extractive industry was imported from the USSR. The mining settlements built by the communists in the period 1948-1980 had several common characteristics: a) they had a high

²⁶ See: https://www.cdep.ro/pls/legis/legis_pck.htp_act_text?id=1575

²⁷ According to former Mining Minister Nicolae Dicu, interviewed by Digi24 for the investigative television program *România furată: Jaf de miliarde în Valea Jiului*, available at: <https://www.digi24.ro/special/campanii-digi24/romania-furata/romania-furata-jaf-de-miliarde-in-valea-jiului-413159>

height regime (generally P+4), b) prefabricated elements were used in construction, and c) there was little concern for aesthetic details and for common spaces (Paşcu, 2017). The street tram was designed to be simple and clear to ensure miners easy access to the workplace. In the vicinity of the housing blocks, there were some minimal urban amenities: shops, a cultural club, canteen, dormitories for bachelors, a nursery or a doctor's office. It was a standardized formula of blocks with an exclusively functional role, erected quickly, with poor quality construction materials. The working-class neighbourhoods of the Jiu Valley rapidly decayed and created a monotonous grey urban landscape (Rey, 2002).

In August 1977 the Romanian communist leaders faced the most important protest movement of the Romanian workers. The strike and several violent actions took place in the Jiu Valley, caused by the new law prepared by the communist government limiting certain rights of the miners, especially those related to pensions. Other grievances of the workers referred to: the condition of women as housewives, the lack of employment opportunities for the miners' wives, the reduction of the working hours underground to 6 hours, the inadequate supply of gas cylinders, drinking water and domestic hot water, the lack of comfort in homes, disruptions in the supply of consumer goods and the lack of protective equipment for miners.

Declassified reports from the archives of the former Security (political police), cited by Banu (2007), show that more than 35,000 miners participated in the protest who, during the negotiations, seized several government envoys - including the Minister of Mines - and did not relent until the dictator Nicolae Ceauşescu came before them. The dialogue between the dictator and the miners led to the de-escalation of the conflict, and Ceauşescu promised that no miner would be punished. However, 14 workers were convicted for various crimes of civil disobedience. At the same time, most of the miners' claims were settled by Nicolae Ceauşescu.

2.6. Transition from socialism to capitalism

On December 17, 1989, in Timisoara, the Anti-Communist Revolution began and, a week later, the dictatorial couple Nicolae and Elena Ceauşescu were in front of the firing squad.

On December 27 it was discussed for the first time the abandonment of the system subordinated to the single party and the establishment of a democratic system of government, by organizing free elections in April 1990 (Preda, 2003). Strictly for the Jiu Valley region, the Romanian Revolution of 1989 was the disruptive event that put an end to growth. Shortly after the fall of communism, the myth of the “hero miner” collapsed as well when trade unionists put themselves in the service of the new regime, with miners repeatedly acting as repressive forces. The first decade of democracy in Romania was marked by several violent episodes, in which miners were at the forefront, especially during their repeated marches on Bucharest, *mineriade*²⁸ (Kideckel, 2001). They threatened Bucharest five times (January 1990, June 1990, September 1991, January 1999, and February 1999), their interventions resulting in the death of several people and the injury of more than 1,300, while hundreds of people were illegally detained and subjected to physical and mental abuse (Gledhill, 2005).

Once the authoritarian political system was removed, it turned out that the “boom” of the Jiu Valley was unsustainable, and the coal industry was underperforming in a free market. Deindustrialisation led to a decrease in energy consumption (Deacu, 2016), and the price of imported coal was lower than the cost of domestic production; therefore, restructuring could not be avoided. Nevertheless, by partnering with the new neo communist political power, the trade unionists managed to delay the restructuring, obtaining state subsidies to keep the mines operating for many more years (Kovacs et al., 2021). It was not until 1997 that mining restructuring began (Haney & Shkaratan, 2003) and, at that point, the overconnectivity of the economic sectors proved to be very detrimental for the region when transitioning to capitalism.

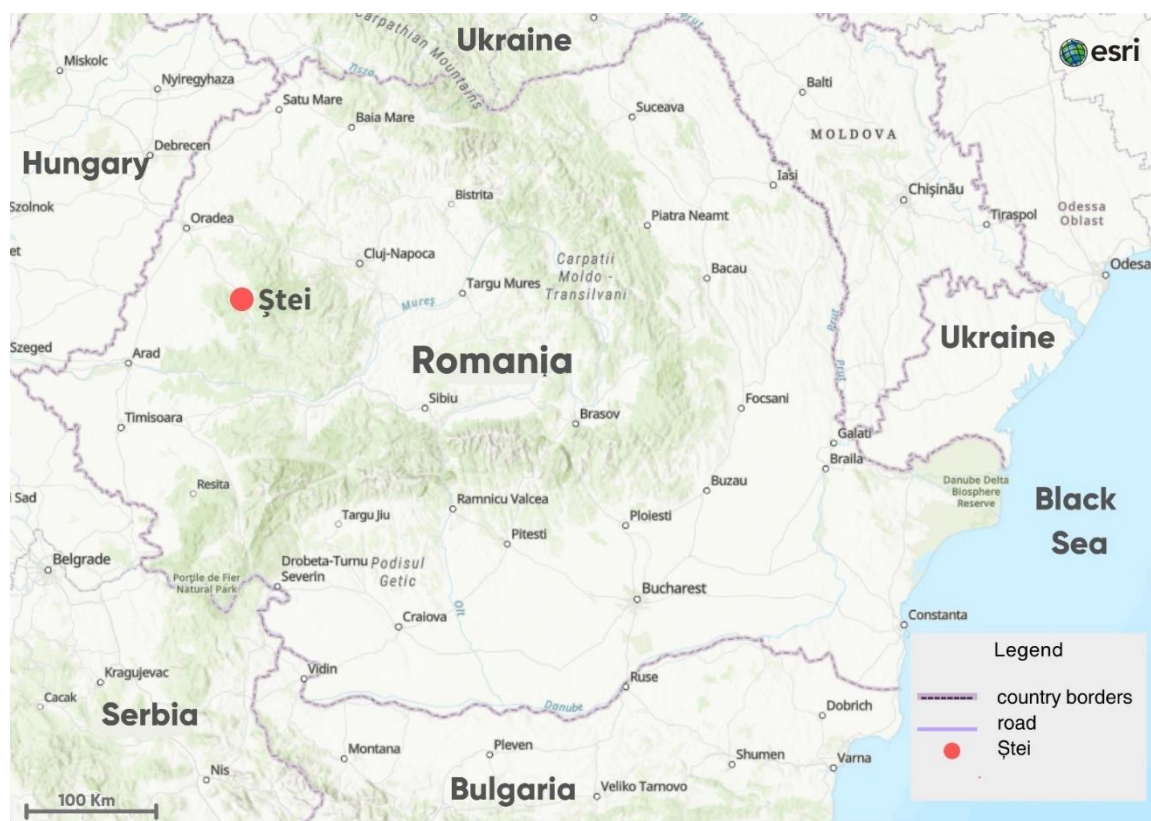
²⁸ *Mineriade* is a Romanian term describing the marches of the miners from the Jiu Valley on Bucharest, where they interfered with Romanian political life by expressing their opposition to democratic and market reforms and their support for the neo communist regime in the 1990s. The most violent “*mineriadă*” was the one on June 13–15, 1990, when thousands of miners suppressed a student demonstration and vandalised the headquarters of opposition parties. For his alleged involvement in those events, the President of Romania at that time, Ion Iliescu, is currently under criminal investigation.

3. Ștei-Băița mining area, Transylvania Province, Romania

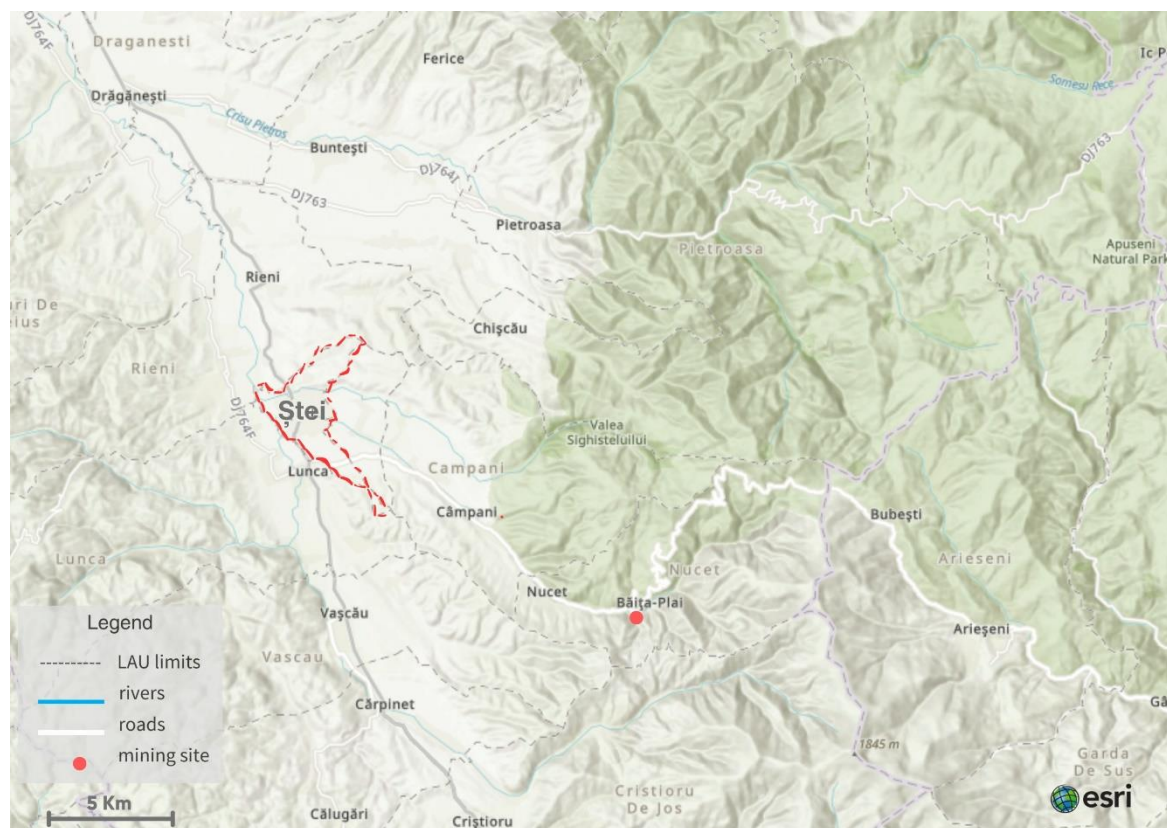
3.1. Current geographical and social context

Ștei is a Romanian town in Bihor County, Transylvania, part of the historic Crisana region and the Northwest Development Region (Map 2). The first written mention of the village of Ștei dates from 1580 when the village belonged to the Kingdom of Hungary and appeared under the name of Skei, Stejj, or Stej. At the end of the First World War, the Austro-Hungarian Empire disappeared, and the commune joined Great Romania through the Treaty of Trianon. It became a city in 1952, after the Soviets began mining uranium from the Băița mine.

MAP 5. TOWN OF ȘTEI ON ROMANIAN TERRITORY



MAP 6. ȘTEI-BĂIȚA MINING AREA, BIHOR COUNTY, ROMANIA



Located on the upper course of the Crișul Negru River, between the Apuseni Mountains to the east and the Codru Mountains to the west, Ștei is 79 km southeast of Oradea, the capital city of the county. For a long time, the town was named Dr. Petru Groza, after the Romanian communist prime minister during the Soviet occupation (Nemeș, 2013). It was only in 1996, a few years after the fall of communism, when the town returned to its original name. Several sources claim that during the Soviet occupation, Ștei had approx. 17,000 inhabitants, a figure that we have not been able to confirm from an official source, the available Romanian Statistics Institute data referring exclusively to the Romanian resident population at the time, and not at all to the Soviet military presence. According to the 2021 census, Ștei has a population of 5,398 inhabitants, registering a decrease of almost 50% compared to the late 90s, when the uranium mine was closed.

Like most of the coal mines in Jiu Valley, the uranium mine near Ștei closed in 1997, but unlike the Jiu Valley, where so far little progress has been made in territorial reconversion, Ștei has a high employment rate (70%), a good absorption rate of European funding, and is making progress in the valorisation of cultural heritage. Hence the hypothesis that, beyond the performance of the local public administration in transition management, there are still other factors contributing to the decision to emigrate from post-mining territories.

3.2. Quest for uranium in USSR and the "satellite states"

For four years, the US had enjoyed an absolute monopoly on atomic weapons, however Moscow intended to change this state of affairs, with Stalin developing his own nuclear program. As for the uranium reserves required for the Soviet program, the quantities were far too small in Central Asia and the Baltic Sea area for the needs of the Soviet military. Because of this, in 1945, more than 60 teams were sent on geological expeditions to search for uranium ore in countries under Soviet influence after World War II (Popa, 2014).

"Satellite" states of the U.S.S.R. they had played an important role in providing "strategic materials" for the early development of the Soviet nuclear industry. After the discovery or large-scale mining of uranium deposits in Bulgaria, Czechoslovakia, East Germany and Romania, joint ventures were formed with these countries under the auspices of the NKVD, which was the ministry responsible for organizing uranium mining, both in the U.S.S.R. and outside its borders (Popa, 2014). To these, the war captures were added, in the amount of 35 tons of metallic uranium of Belgian origin, confiscated from the territory of East Germany.

The political and scientific leaders of the Soviet atomic project were under pressure from Stalin who had set them a plan of 100 atomic bombs per year. The material and organizational effort of the Soviet economy was enormous, in 1948 alone no less than 62 factories and atomic facilities relevant to the atomic project were built, with 200 thousand workers and 2200 engineers and technicians. On August 26, 1949, the first experimental Soviet atomic bomb was detonated in a special test site, located 170 km from the city of Semipalatinsk, in Kazakhstan (Popa, 2014).

Băița-Ștei mining area, where Romania's most important uranium deposit was located, is a territory in the Apuseni Mountains, Bihor County, and is part of the North-West development region of Romania. Archival documents show that mining activity in this area dates back to the Middle Ages, but intensive exploitation of the uranium deposit began after 1950 (Zajzon et al., 2015). The uranium deposit in the Băița quarry was discovered in 1935 - 1936 by students from the Faculty of Geology of the University of Cluj-Napoca, during field work, and the first collected samples were sent for analysis and measurements to laboratories in Vienna and Cluj-Napoca. Having information about the uranium resources on the territory of Romania, the army of Nazi Germany made efforts during the Second World War to precisely

locate the deposit, without success until the withdrawal from Romania when it was the turn of the Soviets to search for the same ore (Cosma et al., 2013).

At the end of World War II, the Soviets began an extensive armaments program after the military leadership concluded that the Germans had been technically superior on the battlefield, but especially after the US use of atomic weapons to bomb Japan. Frightened by the power of the new American weapons, Stalin ordered in August 1945 the formation of a special committee to coordinate the Soviet atomic project. Immediately after this time, in order to develop their own nuclear program, the Russians began to look in particular for uranium resources in the countries that came under the influence of the USSR after the war (Popa, 2014). The uranium they sought was an essential resource to be able to develop both uranium reactors to produce cheaper energy and uranium-based atomic bombs for the military. Russian geologists from the Institute of Geological Sciences of the Academy of Sciences of the USSR - charged with the search for vital raw material for the Soviet military industry, explored the area of the Western Carpathians between 1946 and 1949 when they found the Baita-Steii deposit which immediately became a military objective of major importance in supporting the Soviet nuclear program (Bardan-Eftenie, 2008). Subsequent mining of the ore in western Romania proved that neither the Germans nor the Russians were mistaken about the strategic importance of the Ștei-Băița area which, by all measurements, was actually the largest surface uranium deposit in the world (Petrescu et al., 2019).

The Soviets became the beneficiaries of this uranium deposit because, after the war, Romania signed the Armistice Convention with the United Nations by which it was obliged to pay war reparations to the USSR. The states of Central and Eastern Europe that were forced to pay war reparations to the USSR were those that had, as Axis allies, military actions on the territory of the Soviet Union. The amount of the debt was set at 300 million dollars that had to be paid in a maximum of six years. On account of this obligation, the Soviets created several joint Soviet-Romanian economic companies (joint ventures) called "SOVROM", with different objects of activity: mining, transport, petro-chemical industry, car construction, insurance, etc. The joint company established to extract the uranium deposit from Ștei-Băița was called "Sovromcuarțit" (Băncilă, 2016). Through the new company, the Soviets controlled the economic operations at Băița-Ștei and transported approximately 17,000 tons of uranium ore to the USSR from 1952 to 1964 for war reparations (Petrescu et al., 2019). The uranium ore was transported to Sillamäe in Estonia (USSR) where it was processed for nuclear activities in the local processing plant. In the

factory in Sillamäe, local uranium ore but also that brought from Romania, Poland, Czechoslovakia, Bulgaria, Hungary and East Germany was processed at that time. The Estonian city was militarized, almost completely closed and did not appear on the map of the Soviet Union due to strategic-military nuclear activity (Maremäe, 2004).

3.3. Built from nothing to serve the Stalinist nuclear project

After the Russians militarized the Băița area for the exploitation of the uranium deposit, they looked for a place nearby where they could build housing for the Romanian workers who ensured the extraction from the mine, as well as for the Soviet administration and the officers who ensured that the ore went entirely to the USSR. Thus, in just 4 years, a completely new city was built for approximately 10,000 inhabitants, near the village of Ștei, which had only 200 houses at the time the works began. Dozens of residential blocks and barracks, an administrative palace, five theatres, three dance floors, two schools (one in Romanian and one in Russian), medical clinics, a sports complex, restaurants and shops were erected. Also, a Băița-Ștei railway line was built, which was used both for the transport of ore and for the mobility of workers²⁹.

The construction plans of the city of Ștei were made in Moscow on a model that met the needs of "closed", partially militarized cities that served secret nuclear projects. The new city of Ștei was designed and developed according to plans that targeted several localities involved in Soviet nuclear activities such as Sillamäe (Estonia), Zheleznogorsk (Russia, Krasnoyarsk Region), Seversk (Russia, Tomsk Region) and Ozyorsk (Russia, Chelyabinsk Region). The roots of the unitary construction of workers' towns serving secret Soviet nuclear projects lie in the plans drawn up in 1945 by the USSR Defense Committee headed by Stalin. Thus, the Stalinist committee designated a General Administration as the executive body responsible for all aspects necessary for the production of the atomic bomb: geological, construction works (including architecture and urban planning), industrial facilities, the exploitation of uranium ore and the transport of this ore (Sultson, 2021).

²⁹ Based on interviews conducted in Ștei, February 2023

Box 5. WESTERN INFLUENCE ON SOVIET ARCHITECTS

- During the first period of industrialization of the Soviet Union (1920-1930), the construction of 87 new urban settlements near existing cities was planned. The expansion of some localities with new neighbourhoods and the building of new cities was necessary to house almost 7 million workers in productive industrial or mining units, such as those in Baku, Magnitogorsk or Kharkiv (Crawford, 2022).
- The towns were inspired by garden-city projects in Western Europe, Russian architects being aware of paternalistic visions. Until they decided upon a distinct model that respected the Soviet ideology, elements found in English garden cities, the neighbourhoods of Weimar, Germany or settlements in the oil extraction territories of the USA were used in the construction of the new workers' cities.
- Standardization and multi-storey constructions were reached, not without spatial and social innovation, however, thanks to the very short deadlines, the low costs they were required to fit into and the lack of diversified construction materials.
- Ideologically, the Soviet socialist city had to ensure maximum, equal comfort for all the population in order to eliminate the contrast between luxury and poverty (Crawford, 2022).

In addition to the functional role, these cities were also designed to demonstrate the advantages of the socialist system over the capitalist worker model through compositional unity, facades that maintained the illusion of luxury, courtyards, parks and inspirational sculptures. In Ştei, for example, there were different degrees of access to the common public spaces built for Romanian workers and the Russian elite consisting of military and administrative officials. Lenin Street, one of the town's main thoroughfares, was off-limits to locals and exclusively open to Russian speakers (Nemeş, 2013). From a rural town with 545 inhabitants, Ştei reached 5,847 inhabitants in just six years, with a population increase of almost 1,000% from 1952 to 1956. The inhabitants of the new town located 10 kilometres from the uranium mine, they received salaries above the Romanian average, but they were employed without knowing what risks they were exposed to, given the radioactivity of the mined ore.

Up to this day, the town of Ştei has a spectacular Soviet urban aspect, in neo-classical style, with both the buildings where the Soviet administration operated, the radial street model and

the residential blocks laid out in the form of a grid network preserved. Moreover, the preservation of this Soviet architecture included the city of Ștei in the ATRIUM network - a cultural route of cities that preserve the architecture of the totalitarian regimes of the 20th century in the urban memory of Europe ³⁰ (Leech, 2019).

3.4. Departure of the Russians and the post-1989 decline

The transport of uranium from Baița-Ștei to the USSR was interrupted in 1965 when the company "Sovromcuartit" was dissolved. The uranium mine also operated under the 100% administration of the Romanian state and the extracted ore was used for civil purposes, especially for the nuclear fuel production program for the nuclear-electric reactor at Cernavodă (Romania). The Băița-Ștei area kept its upward trend of demographic evolution until the fall of communism (1989) when the extractive industry went into decline in Romania. In 1992, a historical maximum number of 10,414 inhabitants of the city of Ștei was statistically recorded, increasing by 34% compared to 1977. But the end of the model of the communist planned economy also meant the restructuring of the mining activity in Baița-Ștei, which first entered into a process efficiency and later restructuring and closure in 1999. The city of Ștei lost over 40% of its population from 1992 to 2011. Having a mono-industrial city profile, this loss of population is directly related to the reduction in the number of employees of the Ștei mining company. From 5,500 employees in 1990, the company reached 1,900 employees in 1995, and only 450 employees in 2000 (Nemeș, 2013).

4. Lessons learnt from the previous energy transitions

- The analysis of the three territories through the prism of their evolution in the history of Europe, shows us how decisive is the geographical position, natural resources and connectivity in the development of a region and, at the same time, how it exposes the territory to foreign invasions or to other forms through which local assets will be captured by an external power. The more attractive a territory, the more exposed to risks.
- The rapid transformation of a rural area into mining towns included the settlement of foreign people and the total disruption of the previous societies and activities.

³⁰ <https://www.atriumroute.eu/>

- We also note that if between two belligerent parties it is expected that one will hunt the natural resources or the material assets of the other, there are still situations in which the workforce is the most coveted asset, see the generous offers that Nazi Germany made to the miners from Belgium.
- The historical context shows us the power of innovation and the modernization of technology; the emergence of new technologies used in mining lead to a greater production capacity, from this deriving the need for a greater workforce, reconfiguring migratory flows and, finally, changing the social fabric of the heavily industrialized areas.
- Migration is not always a factor of increasing individual resilience; the individual who goes to another country in the hope of acquiring more well-being may end up a prisoner of an ill-informed decision. The experience of industrialization, regardless of the geographical region, shows us that labour recruitment strategies were too many times deceptive and, often, the workers were tempted by the mining companies, in order to relocate, with the promise that they will live comfortably, yet those promises were not always fulfilled. Such situations have generated tensions between the immigrant population and the native population.
- If it was known from the beginning of the 50s that the Belgian mines would close in a few years (the proof being the protest of the Belgian industrialists against the capping of production and wages), it remains difficult to explain why recruitment strategies and promotion campaigns worked until the very last moment.
- The miners, even transformed into national heroes in certain eras and under certain regimes, have always had weak decision-making power and a low level of individual resilience. The low education limited their options for reconversion, the hard-working conditions harmed their health and reduced their life expectancy, therefore their well-being depending on so many levels on the goodwill of the employer.
- The social organization at the Bois-du-Luc mine stands out in a positive sense, offering the workers an optimal climate for family and community life, i.e. community resilience. At Bois-du-Luc, measures were taken to provide the workers with conditions for good personal hygiene, warmth in the dwellings and their compartmentalization to favour a harmonious family life starting in 1838, some fifty years before the norms of housing to be regulated by law in Western Europe. The paternalistic vision of Bois-du-Luc is inspired

by the even grander model of Grand-Hornu, but the innovative character of the residential complexes built is undeniable. However, the two examples are often overlooked in the scientific literature.

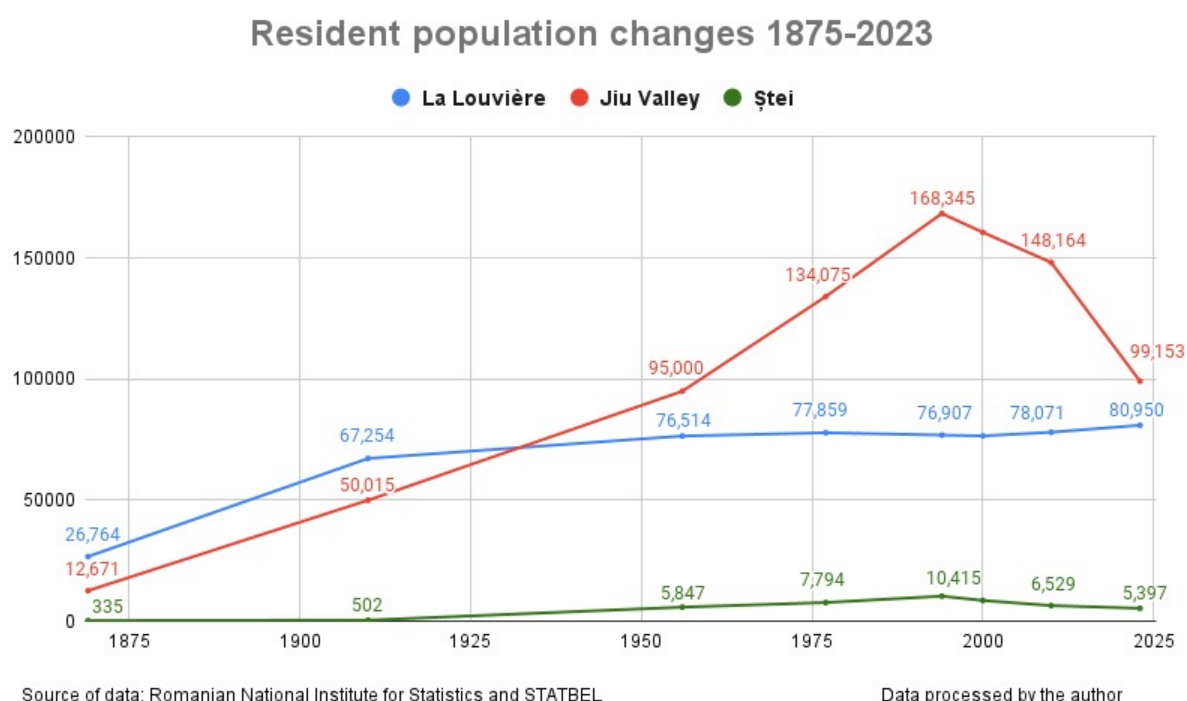
- The working-class neighbourhoods in the East, built to accommodate the immigrant workforce, followed the same principles as in the West, popularized by the English theorist Ebenezer Howard, however, the execution differed greatly. The Russians skimmed on the quality of the materials but kept their attention to details and ideological symbolism. Instead, the Romanian communists built with very cheap materials across the entire Jiu Valley and without any concern for aesthetic sense, therefore housing stock in Jiu Valley is difficult to valorise. Worse than that, the model was replicated in many other Romanian towns.
- Stei, on the other hand, due to the nature of the architecture and the preservation of 90% of the city as imagined by Stalin's architects, has the opportunity to capitalize on its past, by joining the ATRIUM network.
- From the emergence of the European Coal and Steel Community founded in 1951, which imposed a supra-state structure meant to mitigate asperities, we learned that to offer more justice for all, it may mean less justice for some, see the capping of both production of coal as well as the salary level, which has important negative consequences especially on the miners in Belgium.
- The history of European coal, as told by our case studies, shows the resilience of the mining sector; not of the miners, nor of the mining communities, but of the extractive activity as purpose of a territory. Despite changes in the political and geopolitical balance, the lack of local labour, whenever the economy or the ideology of the state demanded, the mining basin had to deliver, at any cost.

PART IV: Comparative analyses of case studies

1. Outlook on the transition in the three studied cases

Analysing the three case studies simultaneously, allowed us to explore the importance of individual resilience and personal decisions in building community resilience and valuing territorial assets. Territorial resilience can only be born from collective action, therefore the consequences of mine closure on the demography of a place have a considerable impact on the success of the transition. All three mining regions have gone through the shock of closure, massive layoffs and are still searching for a new identity, however, while Jiu Valley has lost nearly 70,000 inhabitants and Ştei has halved its population since the mid-90s, La Louvière has constantly had about the same number of inhabitants, even registering a slow but steady increase in the last decade (Figure 3).

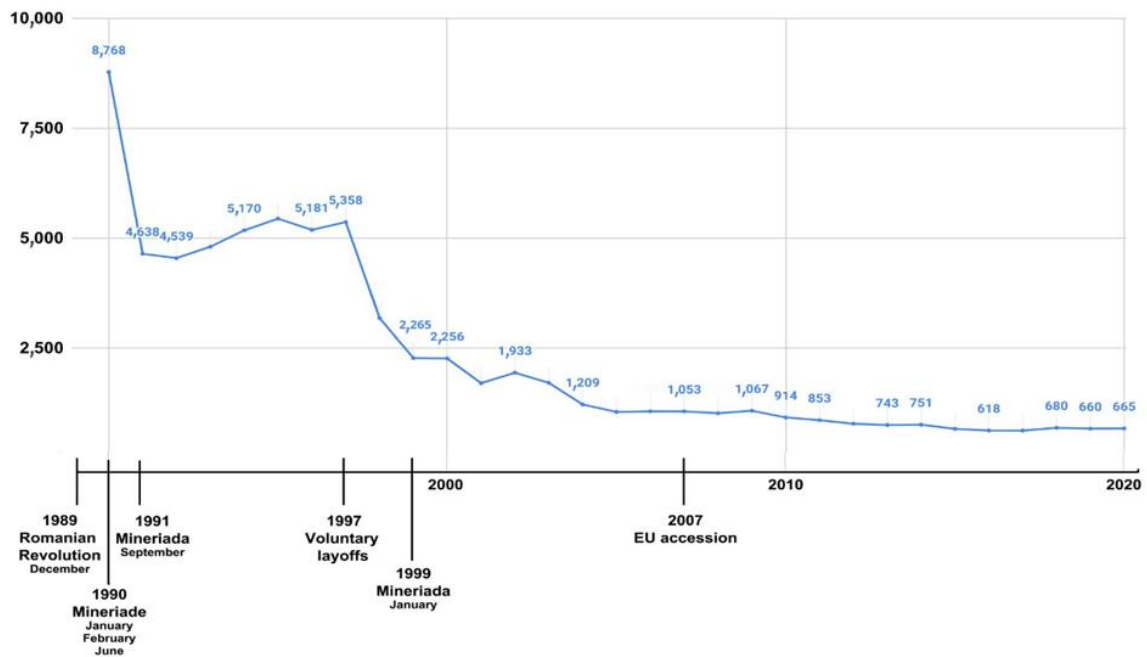
FIGURE 3. COMPARISON OF RESIDENT POPULATION CHANGES



The drastic decrease in the population of Jiu Valley is primarily explained by the very bad image that the territory acquired in the 90s due to the violent protest movements of the

miners transformed by their union leaders into an organ of repression on the orders of the neo-communist power from Bucharest (Kideckel, 2001). The following figure shows that the Jiu Valley had already lost its attractiveness since 1990, the year of the first "mineriadă", with fewer and fewer newcomers settling in the region.

FIGURE 4. NUMBER OF PERSONS SETTLING IN JIU VALLEY FROM 1990 TO 2020 SOURCE OF DATA: ROMANIAN NATIONAL INSTITUTE OF STATISTICS, AUTHORS' ELABORATION



The closure of the coal mines in the Jiu Valley started in 1997 when a program of voluntary downsizing was launched³¹. Thousands of people have been persuaded to accept voluntary layoffs, offering them up to 22 compensatory salaries, depending on their seniority. Since 1997, thirteen out of seventeen mines have ceased to operate, and the number of mining employees has fallen from 45,000 in the early 1990s to less than 4,000 in 2019. As the mines closed, other economic agents fell one after the other, as in the 'domino effect', and that was the beginning of an economic and social decline from which the community has not yet recovered. However, even if the economic contraction of the mining towns of Jiu Valley was severe, for the first twenty years after the closure their demographic decline was just following the national trend. After 2014, the year in which all the restrictions on the EU labour market for Romanians and Bulgarians were lifted, the decrease was steep and occurred while

³¹ See Law No. 216/1997 for the approval of Government Ordinance No. 22/1997 on protection measures granted to personnel in the mining industry and the activities of geological prospecting and exploration.

the closure of the last four mines was repeatedly postponed, as a consequence and the transition to other economic activities being delayed.

In the last forty years, this community has undergone structural changes generated by three intertwined transitions: a) from oil and gas back to coal; b) from socialism to capitalism; and c) transition from coal, or *just transition*. All these transformational processes are of exogenous origin, with the differences that: the first brought economic and demographic growth to the region (“the boom”); the second caused social disruption (“the bust”: the region has been in continuous shrinkage since the late 1990s when mine closures began); and the third has the potential to produce the bounce back and maybe a bounce forward (“recovery” and “renewal”), if the local community manages to access the funding lines set out in the just transition framework for sustainable development projects. By local community we mean all local actors – authorities, former and current miners, other professional groups, nongovernmental organisations, academics, media outlets, and virtually everyone who can be called a *stakeholder* in the just transition and should be part of the decision-making process.

Regarding the consolidation of a stable population in La Louvière, the explanation is not that the Center did not lose population following deindustrialization (starting with mining in the 70s and continuing a decade later with the steel and ceramics industries), but that the migratory balance was the more often positive (except for the years of the COVID-19 pandemic), combined with the higher birth rate among ethnic minorities with a tradition of having large families. In the extensive interview he gave us in May 2022, the mayor of the municipality of La Louvière, Jacques Gobert, recalled the moment when the eleven municipalities in the Center merged, this being the inflection point where the greatly expanded borders were drawn for La Louvière with a high population and density. The testimony also states some social assistance measures implemented in the years of deindustrialization, contributing to the creation of an intra-community support system capable of increasing the individual resilience of Louvierois who were then in vulnerable situations. Even in distress, people had reasons to stay.

“Before the merger, there were 11 unevenly developed municipalities, some offering better services than others. What happened in 1977 was that the political leaders of the day took the better service offer and extended it to the entire population. I will take an example, in the

locality where I come from, which is Strépy-Bracquegnies, at that time there was the institution that was not yet called CPAS, but CAP, the Public Assistance Commission. And the CAP of my municipality already at that time offered hot meals and medical care at home, which did not exist in many other municipalities. In 1977, the then president of CPAS took the model for the social plan of this municipality and extended it to the entire territory. Regarding the service offer, we can say that the merger has brought many advantages to the citizens.”
(Jacques Gobert, Mayor of La Louvière)

Box 6. HISTORICAL REMINDER OF THE MERGER

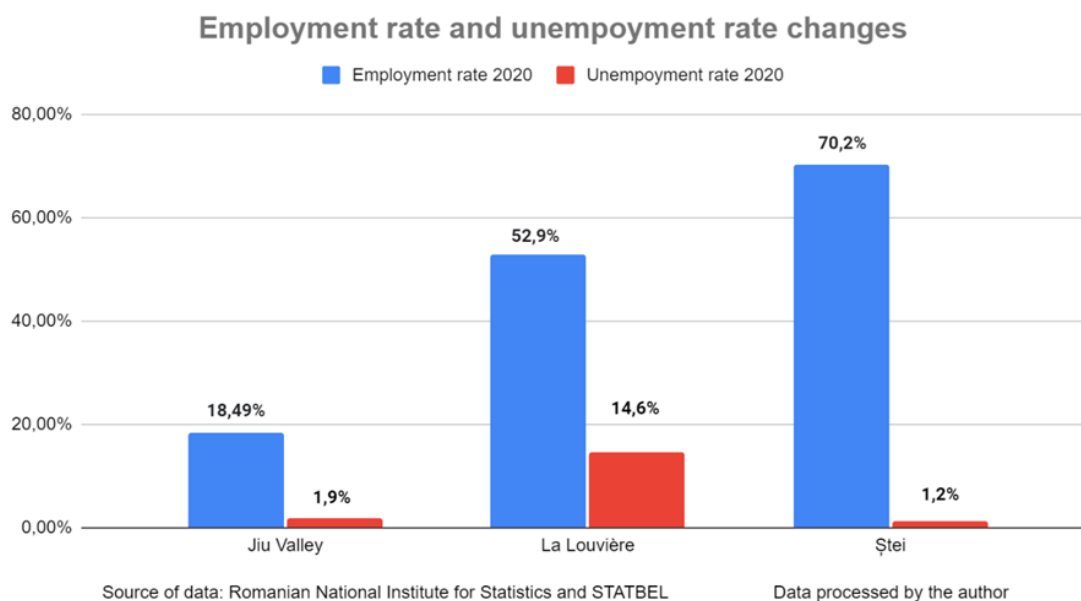
- In 1976, La Louvière had 23,052 inhabitants. A year later, a process of administrative reorganization of Belgium began, through merger, leading to the reduction of the number of municipalities from 2,359 to 596.
- Today's La Louvière was formed by the merger of the communes of La Louvière, Houdeng-Goegnies, Houdeng-Aimeries, Strépy-Bracquegnies, Besonrieux, Haine-Saint-Paul, Haine-Saint-Pierre, Saint-Vaast, Trivières, Maurage and Boussoit.
- In 1977, the total population exceeded 77,000 inhabitants in 1977. The obstacles to the homogenization of the community were multiple, starting from the very ancient origin of the territorial borders that inevitably structured the space and distribution of the population.
- Moreover, residents often perceived the merger as a threat to their community's survival, with the sense of defeat lingering for a long time.
- Still, those who opposed the greatest resistance were the local elected officials who suddenly lost their social status and access to resources (Schmitz, 2000).

According to the mayor of the city of La Louvière, although the administrative borders between the old communes have been erased, a genuine feeling of belonging to the big city has not been created even after forty years. *"The merger of the municipalities in 1976 is still not digested by everyone. We cannot speak of crowd synergy or a well-defined identity. I do not hesitate to say that from an economic point of view, from the point of view of urban development and modernization, it was profitable for all communes to unite, but there are still some nostalgic people who felt more "at home" in the old administrative organization .*

Here we are in the centre, in an urban environment, but if you go 2 square kilometres further, you will find yourself in the countryside. It's quite a special city because you cross the city, you cross the countryside, you find a small village. When the city is big, there is inevitably a distance between the citizens and the administration. On the other hand, the territory of the town is actually quite small, it has only 64 square kilometres and a population of 81,000 inhabitants. We have a density of 1,250 inhabitants per square km, when the average in Wallonia is around 250. You can imagine that the consequences of a high population density are significant on mobility, on parking, on social cohesion, on the offer of services, etc.”
 (Jacques Gobert, Mayor of La Louvière)

Unlike La Louvière which has a high unemployment rate (14%), in Jiu Valley it is very low (1.9%), but the employment rate is also at a low level (18.49%), the difference representing residents who benefit from different forms of social assistance (Fig. below).

FIGURE 5. COMPARISON IN EMPLOYMENT AND UNEMPLOYMENT RATE



In contrast to the low productivity in Jiu Valley, the town of Ştei, in the Northwestern region of Romania, has a 70% employability among the population of working age, and one might say that a successful transition was already completed. Our survey revealed that a good part of the employees (23 %) has their jobs in other cities, therefore the low rate of unemployment is not due to the career options that Stei offers, but to the fact that many Steians commute to work, the more often in Oradea, in the county capital (79 km away).

"Many people in our town commute, especially since many companies decided to provide free transportation in order to ensure their workforce. People leave early in the morning and come in the evening, so they lose about four hours on the road every day. That's why I have hopes that if an industrial park is opened and investors will come, these people will prefer to take a job in Ștei, happy that they no longer have to make such a long commute." (M.B., retired mining engineer)

However, the situation is not unusual, 62% of the employees domiciled in La Louvière are having a job in another commune, whilst 63.5% of those who work in La Louvière commute from another commune³².

For all the three analysed territories, mine closure was a disruptive event that caused economic and social crises with lasting effects. Even if in Louviere the mine closed in 1973, in Stei in 1997, and Jiu Valley did not complete the process of closing all mines, the three regions encountered problems and challenges in managing the transition, however, the options for reconversion are largely determined by geographical and cultural limitations. Therefore, while the challenges of mining communities are similar, regardless of geography, the strengths can vary significantly.

For many years, the main concern in La Louvière was soil decontamination and Jacques Gobert, the mayor of La Louvière since 2006 explained the hardships: *"The traces of heavy industrialization still affect our city today because we have a lot of polluted land in the La Louvière area and every time we have a project, the first question we ask ourselves, the first concern we have, is what will end up in the ground. Therefore, it was necessary to mobilize significant resources to clean up the pollution. Moreover, in the whole region there were problems caused by the collapse of some galleries, and the underground waters came to the surface. There were extensive flooded areas throughout the mining basin."* (Jacques Gobert, Mayor of La Louvière)

Another problem, affecting not only the development of tourism but also the attraction of potential investors, is the negative image of the region abroad. Post-mining regions are associated with industrial decline and in the perception of those who look at these places from the outside, an image has been built a priori that conveys degradation, shortcomings

³² Fiche communale

and resentment. The discussion we had with Laurent Cannizzaro, manager of "Centrissime" Maison de Tourisme du Parc des Canaux et Châteaux, confirms this hypothesis: *"In 2001, we created the concept of a tourism house that did not exist before, and from that moment we started working to change the image that the people had about of the region. It took us several years to see a change in the perception, however, despite the improvements, there are still people who have this quite negative image of the city or of the region as a whole"*

An impediment in the diversification of the local economy of La Louvière is the lack of a university that would be an anchor institution for the region in the process of territorial reconversion. *"Generally, around a university there is an ecosystem consisting of research laboratories and business centres, acting synergistically with professional training. Also, the closer the university, the easier the access to higher education. From here, we have to take the train to Mons, to Brussels, to Namur, to Liège, which means distance, we clearly see that the greater the distance, the fewer young people in a city pursue higher education. The level of higher education is much higher in cities where there are universities than in those where there are none."* (Jacques Gobert, Mayor of La Louvière)

Regarding the educational infrastructure, Jiu Valley is a privileged territory, in Petroșani there is still the university that has trained dozens of generations of mining specialists, with three faculties (Faculty of Mines; Faculty of Mechanical and Electrical Engineering; Faculty of Sciences), research laboratories, a campus with five dormitories and an accommodation capacity of 600 places, canteens, gymnasium and library. Researchers from the University of Petroșani were involved in the collection of data for the preparation of the reports on which the EU legislation for the just transition is based. However, this territorial asset is not fully exploited. In the absence of a clear vision regarding future economic activities, the University still does not have educational programs adapted to the requirements of a new purpose of the territory, therefore the future of its graduates is shrouded in great uncertainty. This situation leads us to the main challenge that this mining community has faced since the end of the 90s: the institutional blockages that delay the transition, each day of delay diminishing even more the individual resilience of the young locals who do not have a professional horizon upon completing their studies. Post-mining development options in Jiu Valley are also diminished by the poor road and rail connectivity of this depression with the capital Bucharest (330 km: 5h driving; 6h30 by train) but also with other important cities of Romania.

The poor connectivity is even more damaging for Ştei, disconnected from the railway transport network in 2021 by the abolition of the railway station and the Oradea-Beiuş-Vaşcău railway line put into use in 1887, when the region was part of the Austro-Hungarian Empire. This line, with a length of 116 km, was very important for students and commuter workers from the south of Bihor County and may endanger the plans of the current administration, which has a number of 22 lots available for companies that would decide to operate in the Industrial Park of the city of Ştei. Another major challenge after the mine closure, with direct consequences on the demography of the town of Ştei, was the disconnection from the central heating system, causing many locals to move elsewhere. The current administration is counting on geothermal resources from now on, as mayor Iulian Balaj told us: *"In 2022, we obtained a license to exploit geothermal water, which we will use in balneology and for heating public buildings."*

The geothermal waters are therefore major strengths in defining the new purpose of the territory in Ştei, not only solving the heating problem, but also creating premises for the development of spa tourism. Another axis of development is that of cultural tourism, favoured nowadays by the inclusion of the town of Ştei in the European cultural route of cities with totalitarian architecture³³. *"The membership in ATRIUM will be a platform for visibility of the town of Ştei, and the honour we were given, to host the session of the General Assembly in Ştei this year, it is a major impulse towards boosting cultural tourism. Ştei aims to become a sustainable, smart, green European city, by integrating its dissonant totalitarian cultural heritage, and adapting it to contemporary lifestyle."* (Iulian Balaj, Mayor of Ştei)

The authorities in Jiu Valley are also hoping for the development of tourism, and in this regard the strengths of the territory are the mountain landscape and the industrial heritage. The mayor of Petrosani is of the opinion, however, that economic diversification should be aimed at, taking advantage of the European funds allocated to Jiu Valley to facilitate the transition. *"For the next seven years, our area will benefit from 180 million euros through the Just Transition Fund, most of the sums being intended for SMEs and for the creation of new jobs. The own contribution of the companies that will access these European funds will be between 20% and 35% maximum."* (Tiberiu Iacob Ridzi, Mayor of Petroşani)

³³ <https://www.atriumroute.eu/>

Quantifying the strengths and weaknesses points in Jiu Valley, inevitably leads to the issue of the administrative division of the territory into six municipalities, this division making it difficult to implement coherent projects for the benefit of the entire mining community. Periodically, the option of a merger or a conurbation is discussed again, without concrete results so far. We asked the mayor of La Louvière to highlight the benefits of the merger in attracting European funding and investors: *"Through the merger, La Louvière became the fifth city in Wallonia, and this has qualified us for certain European funding lines. We know that Europe also determines its aid according to the socio-economic reality of a region and, in particular, of cities. That's how we were able to realize bigger projects. Small communities, individually, would not have had the power to do it. Having a big city allows you to have a lot more leverage, so yes, that's definitely a big added value."* (Jacques Gobert, Mayor of La Louvière)

2. In-depth look at the just transition in the Jiu Valley*³⁴

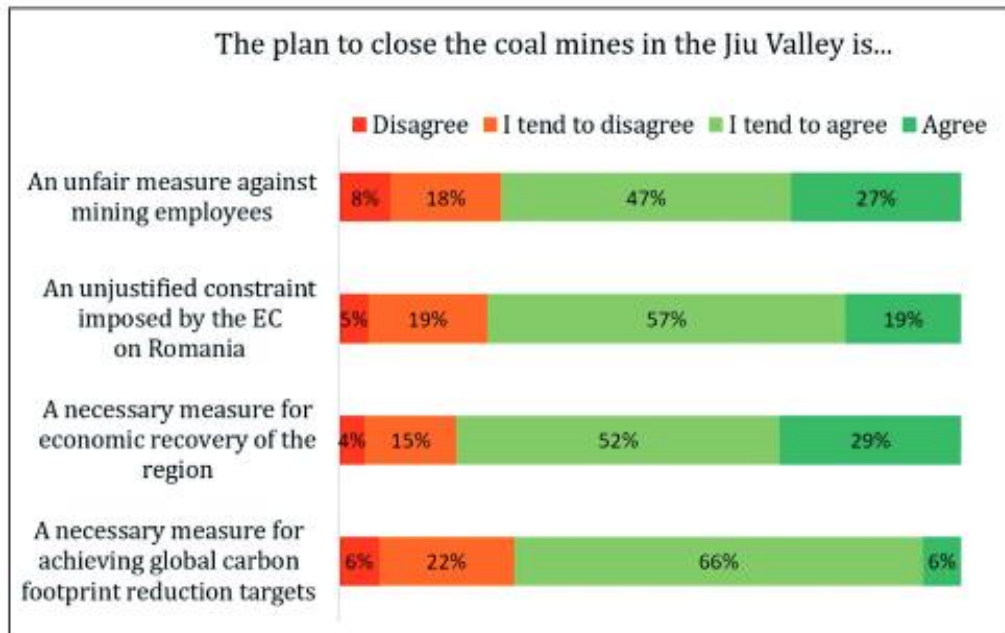
2.1. Perceptions and beliefs about the mine closure

The online questionnaire was the first step in collecting data and, as some of the participants stated in the later stages of this research, many of them did not have a clear opinion at the time as to why the mines needed to be closed. In the absence of complete and unbiased information, many respondents chose options that they were not necessarily sure about but seemed plausible. Not having much certainty, the vast majority avoided the "Disagree" option, most often choosing "I tend to disagree" (Figure 6). We find it conclusive that for the participants in this study, however, it was just as plausible that the mine closure plan is an unfair measure against mining employees (47% tend to agree and 27% agree), but at the same time, a necessity for the economic recovery of the region (52% tend to agree and 29% agree). Although only 6% of survey participants fully agree with the option of closing coal mines as a necessary measure for achieving the global carbon footprint reduction targets, 66% of respondents tend to agree that it would be beneficial. The apparently contradictory responses highlight the difference between necessity and fairness. Some actions are

³⁴ This section was published in 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. doi: <https://doi.org/10.2478/mgr-2022-0017>

considered necessary, considering general environmental and economic reasons, but unfair due to poor accompanying measures at local and personal levels.

FIGURE 6. OPINIONS REGARDING MINE CLOSURE. SOURCE: AUTHORS' SURVEY



Given that the deadline for closing two of the coal mines had already been exceeded, we wanted to find out how much favourability there is among the respondents regarding the delay. We found that a total of 47% of respondents do not think that the mines should have been closed, therefore, almost half are in favour of the delay, while 37% think that the closure process should have ended by now, and 16% do not have a clear opinion. A deeper analysis of this result, broken down into specific stakeholder groups (current employees in mining, mining retirees, and others), indicates that they have a discordant agenda. Predictably, most of those currently employed in mining (77%) answered that the mines should not have been closed, while the participants in the study belonging to other professional groups are equally divided between those who believe that the process of mine closure should have ended (38%), and those who oppose the closure (38%). This split highlights the point of view of mining retirees, a group of stakeholders who know the system as well as current employees but who, unlike them, are no longer dependent on the income obtained in the extractive industry. As seen in Figure 7, almost half of the surveyed retirees believe the mines should have been closed already and only 39% are in favour of the delay.

FIGURE 7. DIFFERENCES IN THE ATTITUDES OF STAKEHOLDERS TO THE MINES CLOSURE PROCESS. SOURCE: AUTHORS' SURVEY

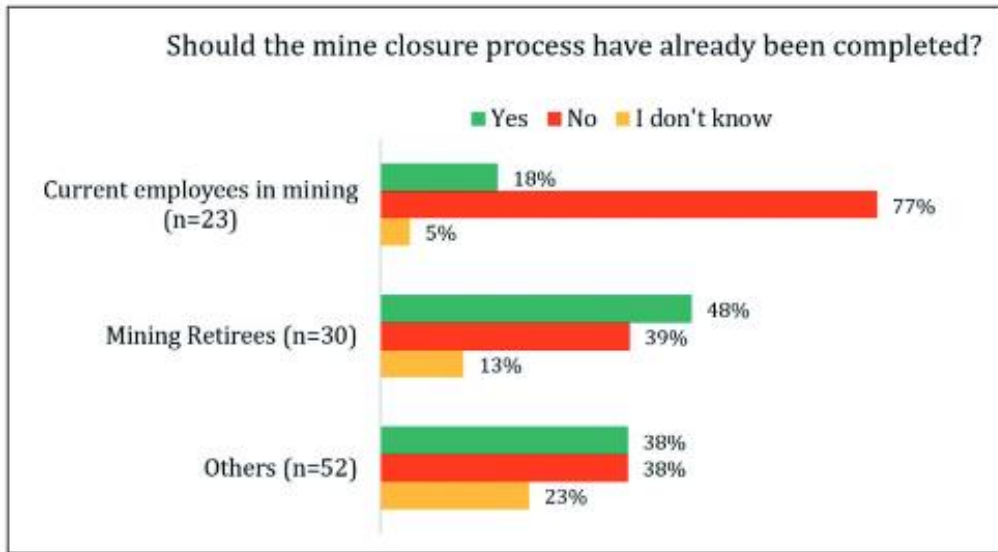
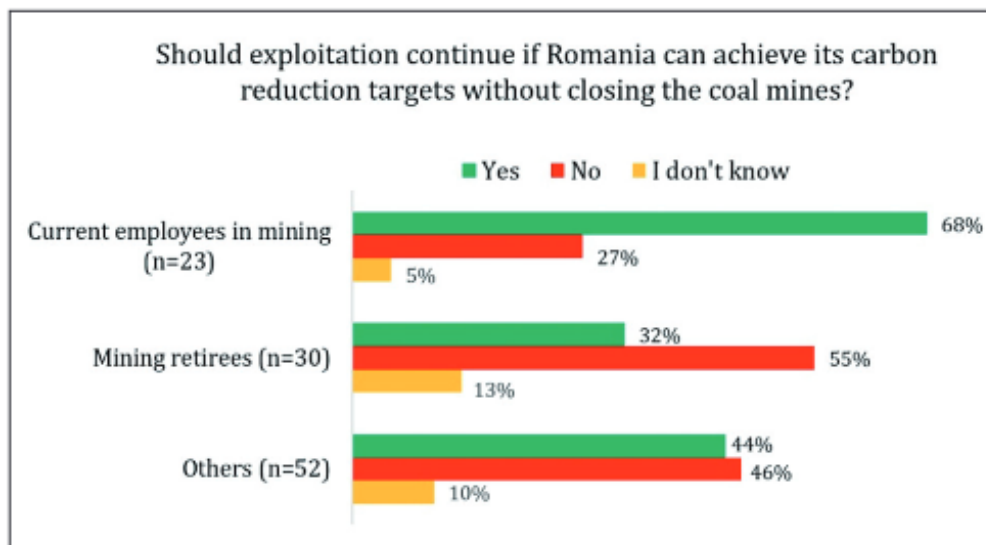


FIGURE 8. DIFFERENCES IN THE ATTITUDES OF STAKEHOLDERS TO THE POTENTIAL FUTURE OF COAL MINING. SOURCE: AUTHORS' SURVEY



Whether or not they agreed with the closure, the explanations given by the retired miners for slowing down the transition converge in the same direction: delaying the closure is a form of social protection in the absence of a reconversion plan. The following excerpts from interviews with stakeholders support these statements: *“The deadline had to be met, as in Germany. They closed the last coal mine in 2018, according to the plan. Most likely, the company wants a gradual decrease in the number of employees in mining and there are delays because no alternatives have been created in time. By postponing the closure, more and more*

people will retire, and the problem will resolve itself. The company, the authorities, no longer must worry about professional conversion programs.” (Cornel, retired mining engineer)

“It is a good thing they didn't close them! Other jobs should be created first and only then can we close the chapter called “mining”. Where would the laid-off people go if the mines closed in 2018? They would be unemployed today”. (Ovidiu, retired mining engineer)

“I am almost 38 years old now, in three more years, I would already have the necessary seniority in underground work that would allow me to retire at 45. Obviously, this is the option that suits me the most and I hope that the union will be able to postpone mine closures at least until 2030.” (Marian, a current employee in mining)

The different views of former and current miners were even more evident when we discussed the rather low share of coal in Romania's energy mix (between 10% and 20% of daily energy production, according to Transelectrica⁵) and Romania's ability to achieve carbon footprint reduction targets without having to shut down coal mines. In this situation, 46% of all respondents say that the exploitation of coal mines in the Jiu Valley should continue, compared to 45% who say that mining should stop anyway. Once again, the split into groups stresses that former miners are more in favour of closure than the other groups (see Fig. 7). Being aware of the outdated technology and the production and distribution chain deficiencies, 55% of surveyed retirees believe that mining should stop regardless. At the same time, 68% of currently active miners believe that mining should continue.

Valeriu, a former mining engineer, explained: *“A depleted field is now being exploited in a market that does not need this expensive energy. No matter how painful it may be, we cannot remain miners just because we were miners “from father to son”. Today, more stone is extracted than coal, but we fool each other that something can be restructured. We must understand that mining has no longer a future in Jiu Valley, and we should make use of all the European funding available to us.”*

The accompanying measures that should be taken before the actual closure of the mines to mitigate the shock to the community have been the subject of deep reflection at all research stages. With the chaotic layoffs of the late 1990s in mind, research participants are convinced that mines should not be closed before other jobs are created (50% agree; 20% tend to agree) and by no means before establishing the subsequent land use (35% agree; 38% tend to agree)

(Fig. 8). Vocational retraining programs must be started only when the new economic profile is clear, aiming to qualify workers for the jobs that will be available in the post-mining stage, in order not to repeat what happened in the 90's, when consulting companies organised qualification courses in trades that were not sought in the area.

Loredana, a local journalist investigating the previous closures, declared: *“Regarding professional reconversion, it is true that some courses were organised but with insignificant outcomes. Mining engineers followed specialisation courses as mine managers for closures, but very few were hired, and cooking classes were organised for miners. Five out of five hundred, at most, succeeded in changing their profession.”*

Takeaways from an ongoing decision-making process

In theory, locals in many regions will say they support the energy transition, but when facing the negative perceived consequences, some will choose to preserve the current status quo, especially in coal mining communities. Like other post-mining areas in the past, Jiu Valley is marked by a strong social memory, remembering the golden age of mining communities during the dictatorship that shaped their identity and put the area in a positive light. Why should they speed up mine closures, especially when very few horizons are opened for their home Valley, and the climate agenda seems far from their remote Transylvanian towns? Only the retiree miners have a clearer view of the issue of maintaining coal mining. Even if some local assets could be harnessed, however, the transition does not have much public acceptance, mainly due to delays in getting started. Moreover, the lack of influential and dependable active agents does not play in favour of a just transition. Beyond that, the more time lost, the less opportunity there is for recovery and renewal.

3. Social capital analysis

The investigation of social capital, this central driver of territorial resilience, was an essential part of our research and we chose, first, to examine the population pyramid because it shows us the current profile of the community but also allows future projections regarding the available workforce or the pressure on the social security budget, etc. Secondly, stakeholder mapping in the formula proposed by us, i.e. based on the criteria of influence, trust, and the attitude towards the transition, provides a fairly

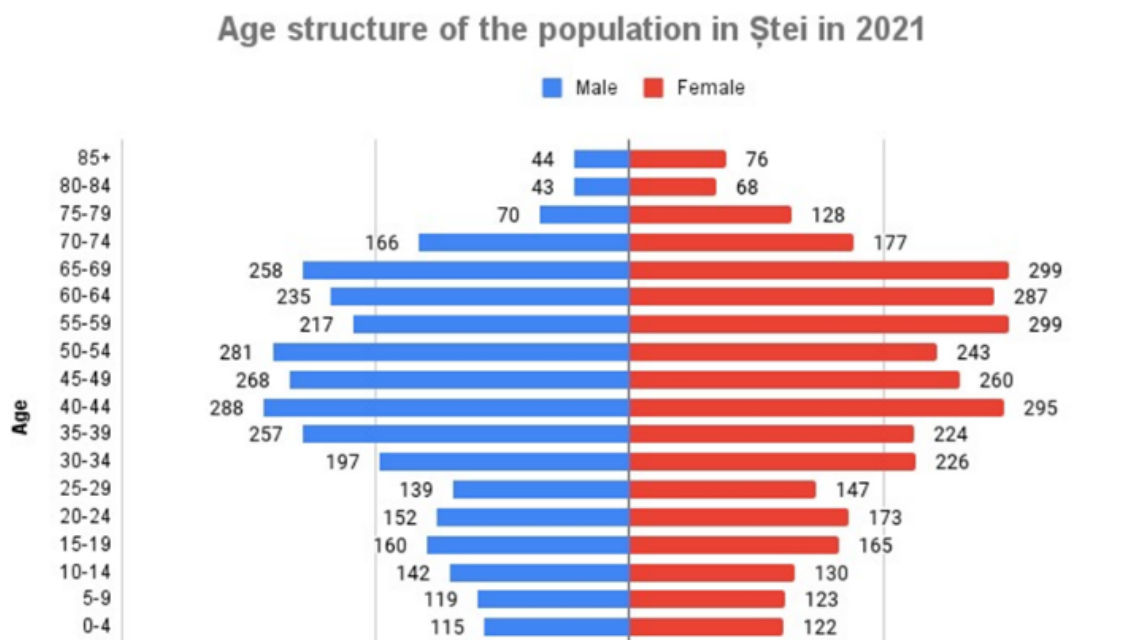
accurate picture of the power relations between the stakeholders and indicates who exercises the greatest influence over the outcome of the transition.

3.1. Population pyramid and dependency ratio

Population data for La Louvière, Jiu Valley and Ştei show that the birth rate is declining in all three post-mining communities, but their population pyramids are at different stages.

For Ştei (Figure 9) and Jiu Valley (Figure 10) we obtained constrictive population pyramids, characterized by their beehive-like shape, which is convex in the middle, narrowing towards younger and older age groups. These pyramids correspond to a stage 5 in the demographic transition, that of natural decline, and depict an aging and declining population. La Louvière (Figure 11) has a rather stationary pyramid of stage 4, the stage of low fluctuations, where the age groups are of comparable size, decreasing towards the older groups.

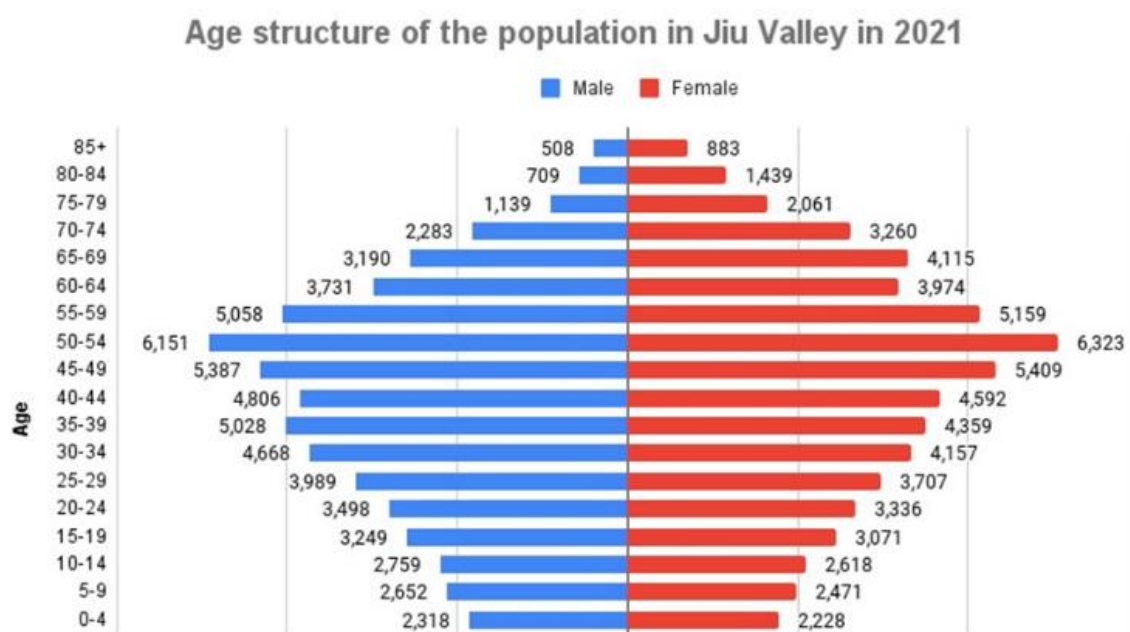
FIGURE 9. *POPULATION PYRAMID, ŞTEI, 2021*



Source of data: National Institute of Statistics

Data processed by the authors

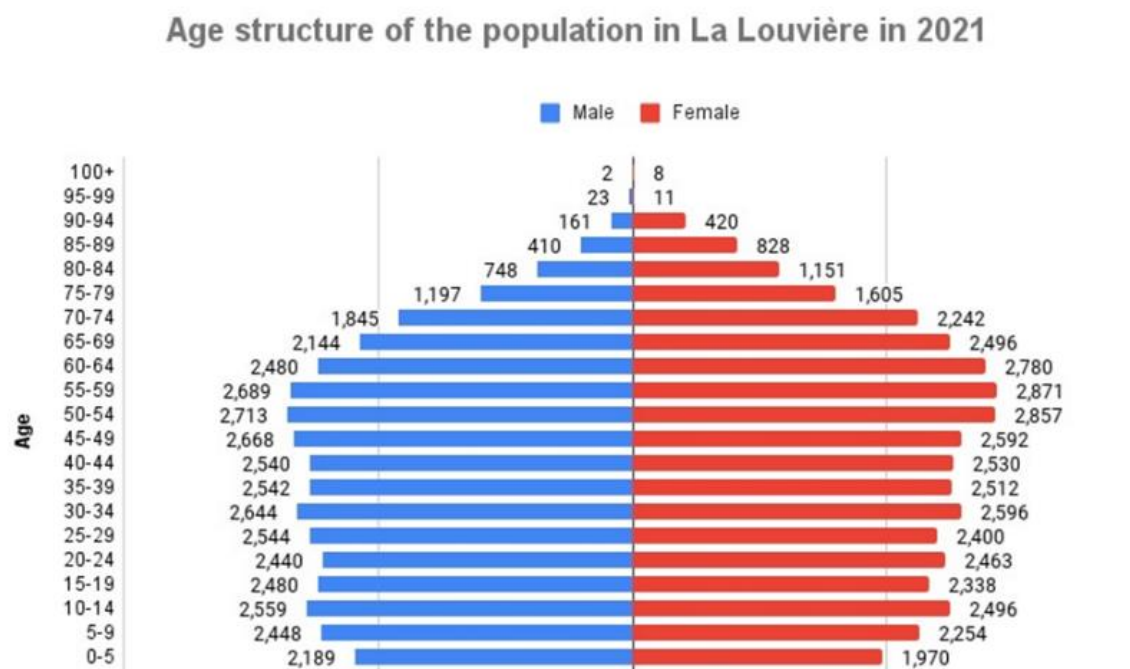
FIGURE 10. *POPULATION PYRAMID, JIU VALLEY, 2021*



Source of data: National Institute of Statistics

Data processed by the authors

FIGURE 11. *POPULATION PYRAMID, LA LOUVIÈRE, 2021*



Source of data: Statbel

Data processed by the authors

"Dependency ratio" is the indicator that shows the ratio between productive population segments and those unemployed who, in theory, should benefit from different forms of social protection. The standard calculation formula operates with three age groups: one working age group (15-64 years) and two dependent groups, the group of children (0-14 years) and the group of older people (65+ years). Using the following formula, $100 \times (\text{Population 0-14} + \text{Population 65+}) / \text{Population 15-64}$, we obtained the dependency ratio of the three analysed territories.

TABLE 7. DEPENDENCY RATIO IN THE ANALYSED TERRITORIES, BASED ON AGE. SOURCE OF DATA: STATISTICI.IN SSE.RO (ROMANIAN INSTITUTE FOR STATISTICS). OWN PRODUCTION.

Age group	La Louvière	Jiu Valley	Ştei
0-14	13,916 (17,2 %)	21,366 (17,1 %)	751 (11,4 %)
65+	15,291 (18,9 %)	19,947 (16 %)	1,329 (20,2 %)
15-64	51,679 (63,9 %)	83,332 (66 %)	4,513 (68,5 %)
Total population	80,886	124,645	6,593
Dependency ratio	56	50	46

The results indicate the number of presumed economically dependent persons per hundred inhabitants, from each analysed territory. We appreciate that the value is very high in each mining basin, the burden pressing more heavily on the shoulders of the productive population segments in La Louvière, where their share in the total population is lower than in the other two communities.

However, in post-mining towns where many inhabitants have benefited from early retirement, the productive population is significantly lower than the working age group, which is traditionally used to calculate the dependency ratio. We decided to replace the working-age population figure with that of employed people, assuming that the employment rate is a more accurate indicator of a region's productivity, and the formula applied like this revealed different realities.

TABLE 8. DEPENDENCY RATIO IN THE ANALYSED TERRITORIES, BASED ON EMPLOYABILITY RATE. SOURCE OF DATA: STATISTICI.INSE.RO (ROMANIAN INSTITUTE FOR STATISTICS). OWN PRODUCTION.

	La Louvière	Jiu Valley	Ștei
Total population	80,886	124,645	6,593
Employability rate	52,9 %	18,49 %	70,2 %
Productive population	42,788	23,046	4,628
Dependent population	38,098	101,599	1,965
Dependency ratio	89	440	42

If in Ștei the dependency ratio is a little lower (42 compared to 46), indicating that some people have remained active in the labour market even after 65 years, in La Louvière the difference is significant (89 compared to 56), while in Jiu Valley, the difference is very large (440 compared to 50), i.e. for every 100 employed people, there are 440 unemployed people (recipients of pensions, allowances and other forms of social assistance).

3.2. Stakeholder mapping

This method of analysing the collaboration between local actors and their positioning in relation to just transition was first tested in the Jiu Valley, during the public consultations on the new development strategy in the spring of 2021, and later replicated in the other two case studies. It will be noticed that the stakeholders differ from one region to another, due to the differences in territorial administrative organization, as well as due to the different stage of elaboration/implementation of the post-mining development strategy.

Based on the idea that awareness and preparedness play a pivotal role in the outcome of the just transition, we considered it important to find out who are the most trusted and the most influential stakeholders in the Jiu Valley, thus identifying who can inform and shape public opinion. In a ranking of trust, the European Commission is leading, followed by local NGOs and academics (see Table 9). In contrast, authorities, and the media, both national and local, are credited with a significantly lower level of trust. The participants in the semi-structured interviews and focus groups justified this result by mentioning the financial dependence of the media institutions on the authorities, the companies in the energy sector and even on trade unions. In these circumstances, the objectivity of public communication on the just transition is severely affected and the community is thus deprived of the basic means to

increase resilience. Besides, 73% of the locals who participated in this survey believe that the media should better explain the Green Deal and its consequences for the Jiu Valley. Furthermore, 65% say they expect the media to monitor how the authorities will assist those who lose their jobs, and 50% of respondents call for more debates on this topic. In fact, at all stages of this action research, the subjects invoked the need to have more data to be better prepared for the closure than they were in the 1990s. The credibility of a stakeholder, although virtuous, loses its importance if it is not accompanied by influence upon the transition process. The survey revealed that those local stakeholders (particularly local NGOs) perceived as credible are not necessarily considered influential, which raises questions about who dominated the decision-making process.

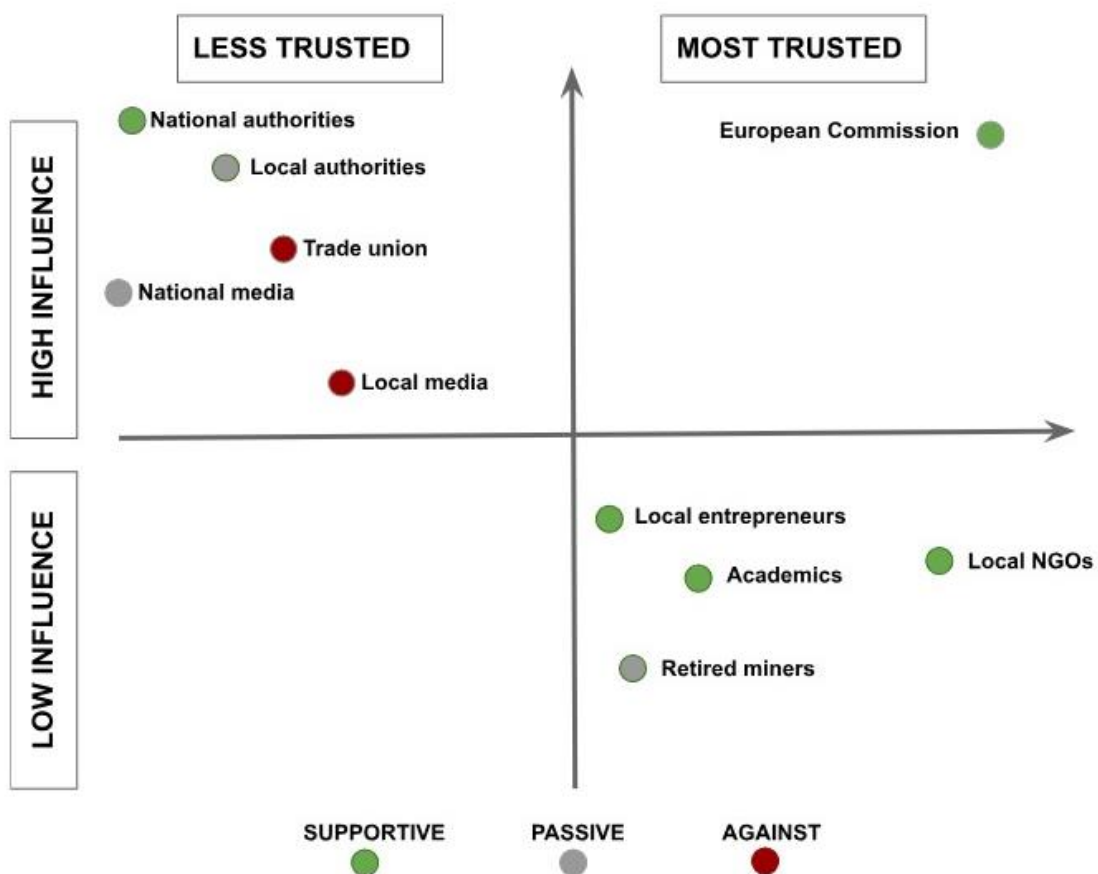
Table 9 summarises perceptions of each stakeholder's ability to influence the transition process. National media and trade unions are perceived as the most influential actors in the just transition in the Jiu Valley, followed by local media, national authorities, local authorities and European Commission, while local NGOs and academics score significantly less. In producing a mapping that informs the role played so far by each of the stakeholders in the Jiu Valley in the just transition, we chose to group them on the criteria of perceived influence, credibility, and attitude towards the transition from coal.

TABLE 9. LEVELS OF TRUST AND INFLUENCED AS PERCEIVED BY THE OTHER STAKEHOLDERS, AUTHOR'S SURVEY

Level of trust		Level of influence	
Actors	%	Actors	%
European Commission	68	National media	79
Local NGOs	65	Trade union	76
Academics	54	Local media	72
Local media	34	National authorities	69
Local authorities	33	Local authorities	61
Trade union	32	European Commission	58
National media	29	Local NGOs	29
National authorities	21	Academics	21

Their positioning on the map (see Figure 12) is primarily based on the results obtained in the survey, but in the interview and focus group stages, two sub-groups of stakeholders stood out and we consider it more appropriate to treat them individually: a) former miners – whom we found the best-informed stakeholder, knowing the industry well, from the inside, but also freed from the relationship of subordination with the union that represents the current miners; and b) local entrepreneurs – although in small numbers and with different positions, difficult to put in a single frame, they are the category of stakeholders with great potential to influence the outcome of the transition if they could create more jobs. Their positioning was conducted after individual discussions and after debating all the results within the focus group.

FIGURE 12. JIU VALLEY STAKEHOLDER MAPPING



Among the stakeholders in the Jiu Valley, we identified actors who support the transition and who have already shown the agency to be actively involved in awareness and preparedness,

such as representatives of the 21 nongovernmental organisations from “*Valea Jiului Implicată*” coalition, local entrepreneurs, professors and researchers at Petroșani University. As shown in the chart above, however, they have little influence on the transition process. Despite their elevated level of influence, national authorities have no credibility in this matter. The Romanian government is indeed an international signatory to greenhouse gas emission reduction agreements, but it communicates almost nothing domestically. In this regard, political instability in Bucharest must be signalled as a factor altering the credibility and delaying the transition. Since 2015, when the Paris Agreement was adopted, and until the end of 2021, Romania had seven prime ministers with different priorities in the governing act. The local administration, the holder responsible for transition management, has had so far, a passive but very detrimental attitude because leaving things in an area of ambiguity and not exercising arbitration during stakeholder consultations, has favoured those who slow down the transition. By placing the European Commission remarkably high on the scale of trust and influence over the transition in the Jiu Valley, the survey respondents showed that confusion persists regarding who is doing what in just transition. EC allocates budgets and sets the framework, while strategies are made and implemented locally. Local and regional authorities are credited with less influence, although technically, they are the most powerful in this specific situation.

A special category of stakeholders is the former miners, now retired, who proved to be the best-informed actors in the Jiu Valley at all stages of our methodology. Knowing from within the system dysfunctions, the forms of pressure exerted by unions on employees, the community and governments, mining retirees are the first to understand why a structural change in societal practices is needed. They play no role in preparing or managing the transition, however. Participants in our study identified the labour union as the incumbent actor who intentionally slows down the transition, as Mihail, a former miner, explained: "I have no qualms about saying that unions have always been a brake on the development of the region. They controlled many workers and blackmailed politicians for years. This is how they manage to postpone the closure of the mines, and the post-mining development strategy is long overdue. I am safe, I already have a good pension, but my children have no future here. We have to find solutions for them, but we are still postponing the start."

The mapping of stakeholders emphasises that, among the strong actors, the local community trusts only the European Commission, but the EC has so far seemed distant and ignorant of the local context. Other powerful actors are unreliable, especially because of corruption, leading to the difficulty of coagulating around a common vision for the territory. Unlike the spectrum, some new actors, such as NGOs and retired miners, have gained the trust of the community, however, they should be recognised and empowered in managing the transition.

Even if the mines' closure dates back fifty years, La Louvière is marked by this past activity, which gave birth to the town and is still looking for a way to bounce back. La Louvière is in full process of implementing the development strategy « *La Louvière 2050, Projet de ville* », approved by the municipal council in September 2021. From the analysis of the strategy and from the data collected through the interviews with key informants, we notice that the decisions have been taken by mobilizing a large number of local stakeholders, covering a large diversity of social categories. The citizens of the commune were involved in creating new visions of the territory through "*continuous and structured action*" around three strategic objectives proposed by a steering committee.

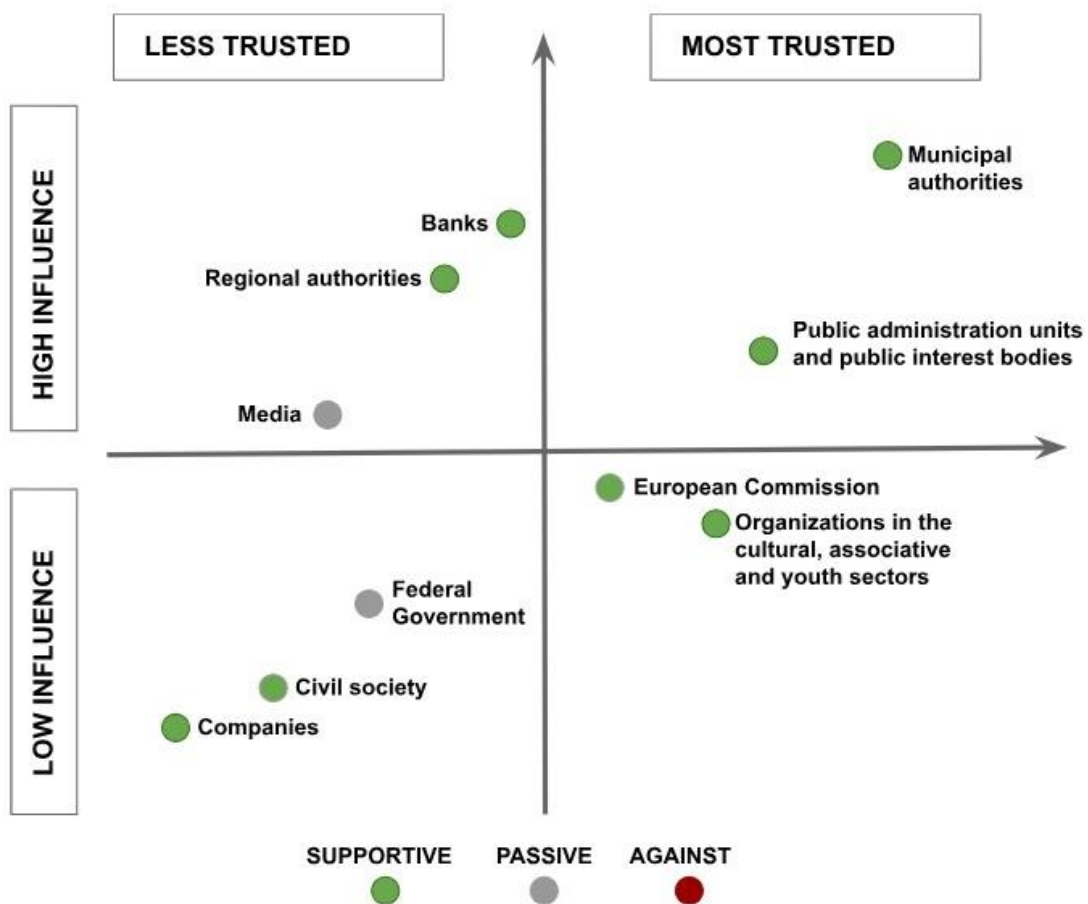
Several working meetings took place in the framework of thematic workshops, calling on the expertise of stakeholders with competencies in specific fields: economy, environment, agriculture, education, health, territorial planning and development, creative industries, agriculture. Among them, a series of project *ambassadors*³⁵ were chosen who undertook to support the implementation of the strategy, primarily by animating public debates and creating awareness in the environments in which they are influential. The stakeholder consultations were exercises of successful participatory democracy, with wide participation that allowed the harmonization of agendas, the strategy obtaining a high degree of public acceptance.

Analysing the decision-making process in La Louvière, we identified the following stakeholders:

³⁵ Local and regional public figures concerned with the sustainable future of the city, promoters of the development strategy

1. Public administration units / public interest bodies (Régie communale autonome « Devlop », Agricultural Research Center (CRA-W), Walloon Energy Commission (CWAPE), Universities, Public service housing company, etc.);
2. Local authorities (municipalities, intermunicipal authorities and CPAS - public centre of social action);
3. Regional authorities;
4. Federal Government;
5. Organizations in the cultural, associative and youth sectors ;
6. Companies;
7. Banks;
8. Civil society (the citizens of La Louvière are informed and involved in the development of the strategy through continuous and structured action);
9. European Commission.

FIGURE 13. LA LOUVIERE STAKEHOLDER MAPPING



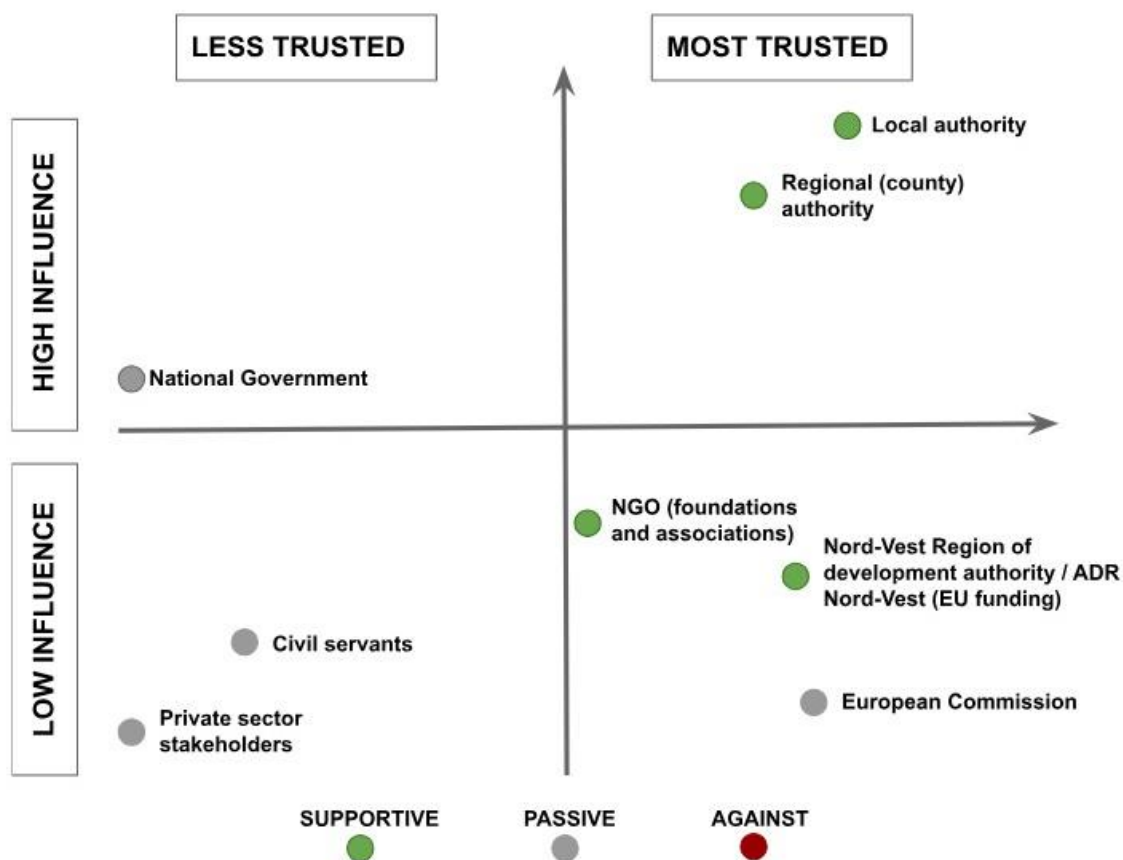
Our analysis did not identify any stakeholders opposing the transition. Of course, fifty years after the mine closure and about forty years after the closing of steel industry, the labour conflicts died down, and the population resigned themselves to the idea of transition. It is also the merit of the ambassadors, these key opinion leaders of the community who constantly fuelled the public debate. At the same time, it is a proof of the trust that the community has in the local and regional public authorities, while also showing a reasonably high degree of understanding among the population on the need for ecological, economic and social transition.

Although considered supporters of the transition and rated highly influential due to the economic contribution they can bring to the area, especially through the creation of new jobs, companies and banks enjoy less trust, often being suspected of pursuing the opportunity to profit in the just transition rather than the achievement of social and spatial justice goals.

The development strategy of the city of Stei, which is currently being implemented, reflects the vision of the local public authority that undertook its elaboration and implementation. The vision for Stei is derived from the strategy of the Northwest development region and harmonized with the national plans. The strategy was approved in October 2021, and the stakeholders involved in the decision on the future purpose of the territory were:

1. Local authority;
2. Regional (county) authority;
3. Civil servants;
4. Private sector stakeholders;
5. NGOs;
6. European Commission;
7. ADR Nord-Vest (Agency for Regional Development).

FIGURE 14. ŞTEI STAKEHOLDER MAPPING



The initiative mostly belonged to the local public administration, which presented its proposals in public debates, an attribute of small communities being that everyone knows everyone, communication is less formal, and the locals express their opinion freely. In Ştei, the City Hall is the stakeholder with the highest trust rate, the profile of the incumbent mayor, who was a mining engineer laid off from the uranium mine, is a major contributor to community bonding. Adding the good reputation of the regional authorities (the County Council), we get a picture in which the majority of stakeholders voluntarily subordinate themselves to the local and regional authorities, considering that *"they know better than us, the ordinary locals, what needs to be done for the community"*, as Florica R., an employee of a food factory in town, told us. ARD Nord Vest, the agency that approves financing from European funds in the region, also has a high level of trust, but not of influence, the stakeholders in Ştei being aware that the money comes if the projects proposed by the local community meet the sustainability criteria.

Ștei follows the example of Jiu Valley in terms of trust and expectations from the national authority, the Romanian Government being perceived as passive in the transition to the green economy, the citizens not relying on solutions coming from Bucharest. *"Recently, a guy native from our area was appointed Minister of European Funds, so now we have the guarantee that someone from Bucharest knows where Ștei is on the map of Romania. However, I have doubts that his predecessors even knew where our town is located."* (Ovidiu F., local entrepreneur)

The European Commission is perceived as being passive in the transition process, the feeling of the locals being that the EU is too detached from the outcome of the transition at the local level. *"They made rules for the functioning of the financing mechanisms and then washed their hands of other responsibilities, passing them on to the local level. We are lucky that our mayor understands how these mechanisms work and he is concerned that we take advantage of all the opportunities, but in other areas, not far from us, they have neither skill nor good faith."* (Raul S., high school teacher)

Comparing the three stakeholder maps, we find that the just transition is met with resistance only in areas where there are still active mines and where new economic activities have not yet been started to replace mining, i.e. in Jiu Valley. A very high degree of compliance on the part of the stakeholders is observed in La Louvière, and we see this in close connection with the distance in time from the mine closure, past conflicts being overcome and the community as a whole focusing on finding optimal reconversion solutions. Consultations between stakeholders took place in all three territories, however we notice that the development strategy advances only where the local public authority is highly trusted and their projects benefit from wide public acceptance, i.e. in La Louvière and Ștei.

The list of stakeholders differs between case studies, depending on the national and local context. However, we can highlight some key learnings. In the three case studies, national or regional authorities are perceived to have huge influence but are not trusted. They allegedly abandoned the miners and the local population. The media suffers from the suspicion that it is too close to power. The European Commission is more reliable, but the perception of its influences depends on the case studies: high in Jiu Valley, low in Ștei and moderate in La Louvière, depending on the EU agenda and the demographic and political weights of the community. Residents of the three mining areas attribute little influence on local

entrepreneurs and private companies. They are more confident in some NGOs, even if they admit that the relationship with them is sometimes difficult, the activists putting heavy pressure on the regional economy.

This stakeholder mapping sheds light on the social capital deficiencies of territories and helps to understand the situation and focal point for strengthening territorial resilience.

Insights from this section

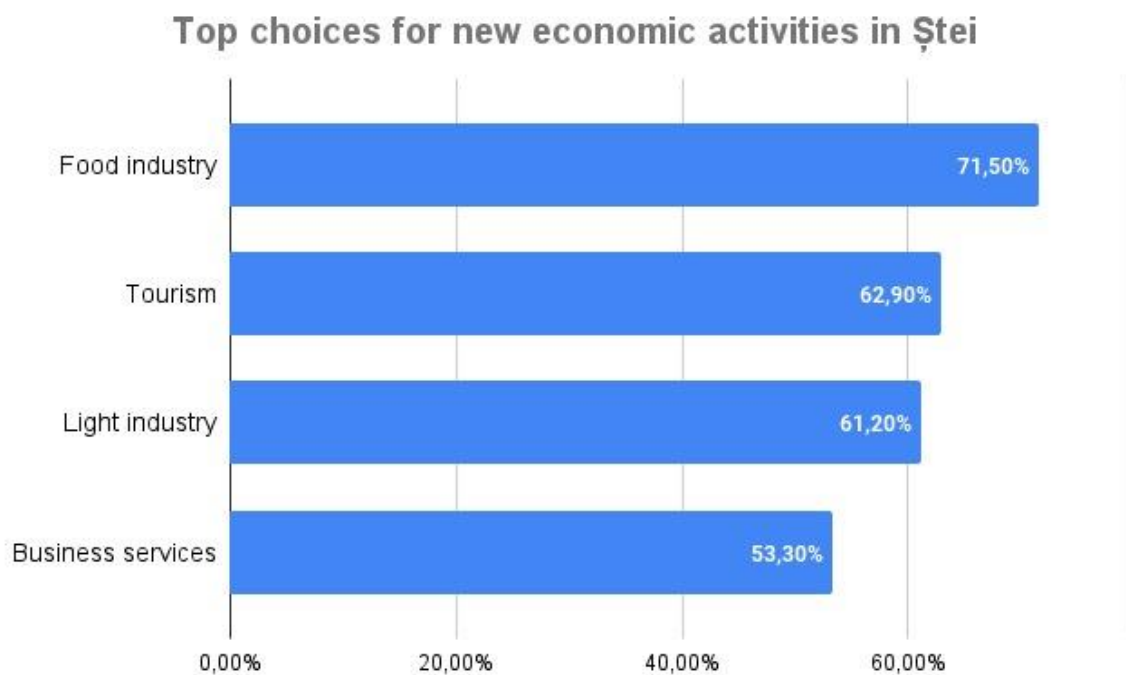
- Jiu Valley is losing population at an alarming rate, those who remain in the area representing mostly an inactive segment on the labour market, however, stakeholders have not proven so far that they have a common vision on the new purpose of the territory, but rather each is trying to reach its own goal. Their behaviour shapes the transition on the pattern of *"differentiated responsibility"* (Stevis & Felli, 2015), protecting as much as possible the approximately 4,000 employees in mining, while young people emigrate, and the region stagnates in underdevelopment despite the huge opportunities for European funding.
- La Louvière is in a more optimistic scenario regarding demographic projections, with a current increase of about 350 inhabitants per year. The dominant stakeholder is the local public administration from which all the others have high expectations to manage the transition successfully. However, looking at this great trust shown to the municipality from another angle, we might also consider that the other actors, such as civil society, for example, have a rather low engagement, willingly stepping aside and preferring to let the outcome at the discretion of the administration.
- Ştei capitalizes on the status of a small town through close relations between local actors and direct dialogue with the mayor's office, the dominant actor in this case as well. The projects with European funding started by the local administration meet wide public acceptance, however, they have not produced yet the effects capable of turning young high school graduates from the path of emigration. Therefore, at Ştei we are witnessing a race against time to create jobs before losing the workforce that could lead the transition to success.

4. New purpose of the territory: vision of the locals

The development strategies of the post-mining towns under analysis are known to a greater or lesser extent to the locals. In Ştei, where the community is very small, and the mayor is one of *"theirs"*, a former engineer at the Uranium mine, the close relations between the citizens

and the administration are perceptible. Town hall meetings take place regularly, and citizens have the opportunity to get first-hand information from the mayor and his administrative team. In proportion to 69%, the participants in our survey considered themselves well and fairly well informed about the development plans. Regarding the economic activities compatible with the profile of their community, 71.5% see a high and very high potential for further development of the food industry (already a main pillar in the local economy), 62.9% believe that the region can rely on tourism (spa and cultural), 61.2% see a high potential for development through light industry, such as textile and footwear manufacturing, and 53.3% see a viable option in business services (accounting, translation services, IT, etc.).

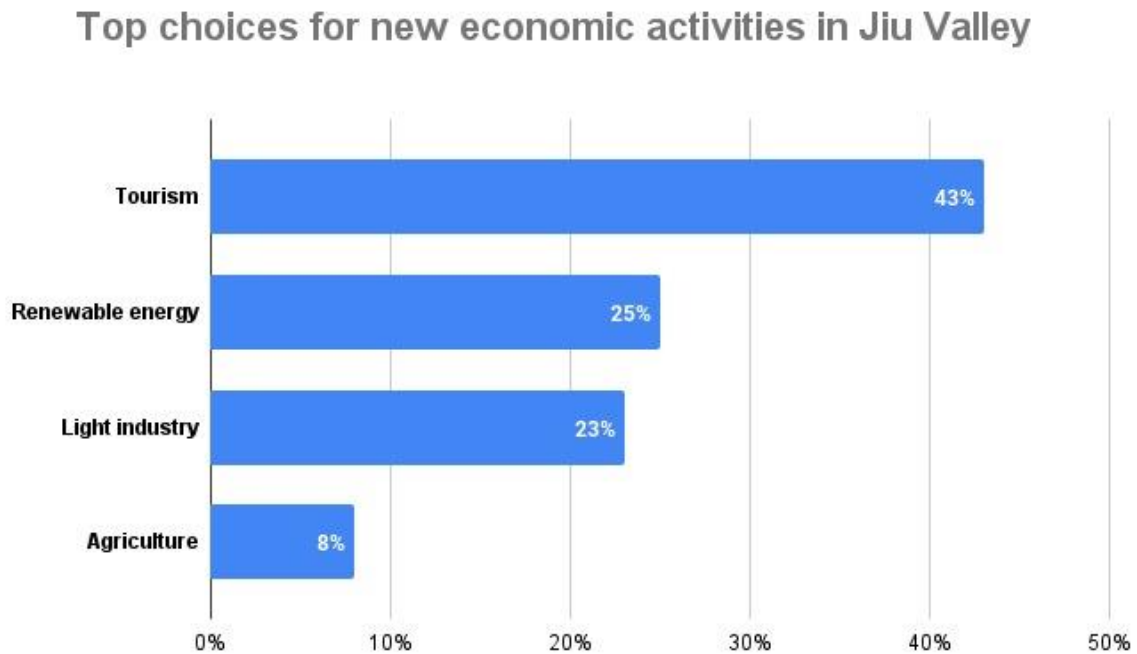
FIGURE 15. TOP CHOICES FOR NEW ECONOMIC ACTIVITIES IN ȘTEI



In Jiu Valley, the local residents' interest in the transition is high, however, the awareness is not, mainly due to the fact that no firm decisions have yet been made regarding the economic activities that will completely replace mining after the year 2032. In the meantime, people try to preserve their confidence and gladly participate in stakeholder consultations and debates about their greener future in the valley. Participants in our survey believe that Jiu Valley should focus mainly on tourism, 43% of them considering that there is high and very high development potential. 25% of them would agree with the idea of reorientation towards

renewable energy, 23% believe that light industry is compatible with the profile of the community, and only 8% consider that agriculture would be a winning bet.

FIGURE 16. TOP CHOICES FOR NEW ECONOMIC ACTIVITIES IN JIU VALLEY

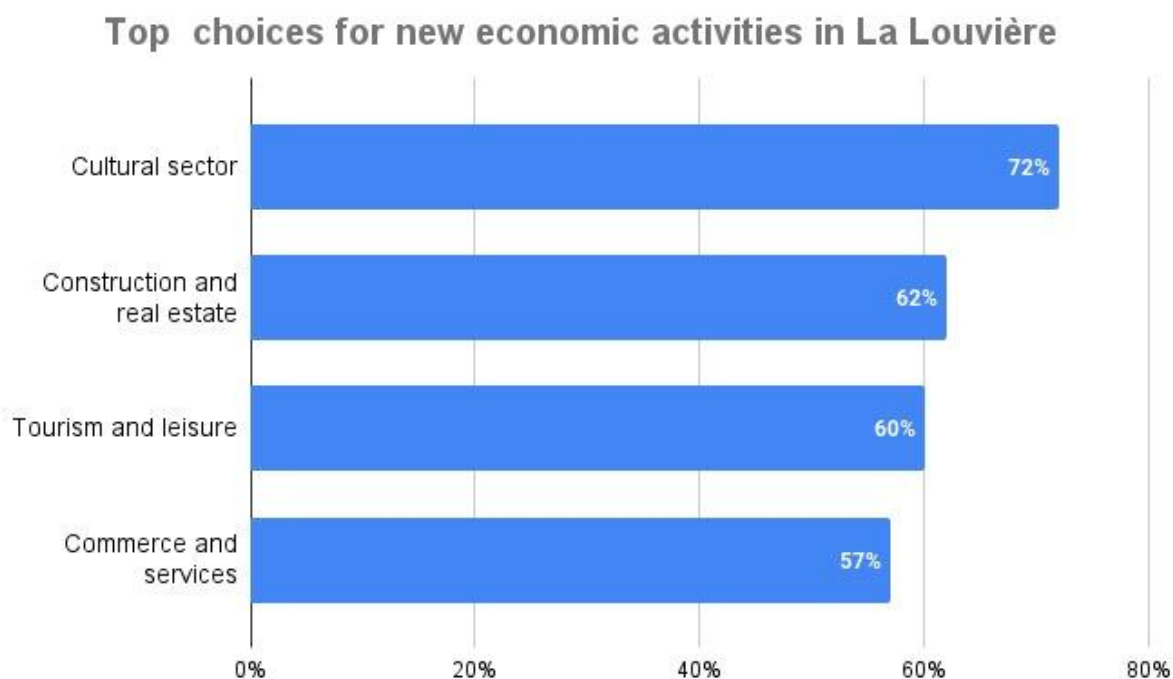


Radu, an NGO activist, pointed out: *"There are a lot of opportunities for agrotourism, equestrian tourism and more, but the authorities need to set the framework for these projects and put them into a comprehensive, integrated strategy. Otherwise, they will remain just some ideas that locals discuss when they meet for a beer."* In addition, Florentina, a high school teacher, suggested: *"Consultants have come to ask us what sustainable development projects can be done, but in my opinion, all these discussions are nothing but empty words on a lot of European money, without any real effects on our lives. A small group of people will earn again millions of euros claiming to have provided us with consultancy and retraining, but we remain just as poor, and the Jiu Valley will continue to be an underdeveloped region."*

In La Louvière, only 20% of the respondents to the survey say that they have good or very good knowledge of the development strategy being implemented on the horizon of 2050, despite an outdoor campaign visible on all the main arteries of the city. 72% of respondents see a high and very high potential for the development of the cultural sector, while 63% have favourable and very favourable opinions regarding the development of tourism and leisure activities. For 62%, investments in construction and real estate would be viable solutions in

creating new jobs, and 57% see a possible axis of development through commerce and services.

FIGURE 17. TOP CHOICES FOR NEW ECONOMIC ACTIVITIES IN LA LOUVIÈRE



By consulting the citizens regarding the areas that require priority attention in order to gain more individual and community resilience, their top choices offer a snapshot of the stage of these transitioning territories towards green economy.

TABLE 10. COMMUNITY ISSUES THAT REQUIRE PRIORITY ATTENTION, ACCORDING TO OUR SURVEYS

Territory	Priority I	Priority II	Priority III	Priority IV
La Louvière	Citizen safety	More jobs	Professional training	Better healthcare system
Jiu Valley	New purpose of the territory	Awareness campaign	More jobs	Professional training
Ștei	Railway connection	More jobs	Tourist accommodation infrastructure	Professional training

Our surveys highlight that in all three former mining basins people expect new investments that will create more jobs and they also denounce the lack of professional qualification opportunities. Regarding the specificities of each community, the concern of the Louvierois for the safety of the citizen stands out. For the residents of Jiu Valley, every day that passes without having a clear horizon for them after the complete phase-out of coal, adds to the number of emigrants from the region. The locals of Ştei feel the disconnection from the railway as a big defeat and hope for the re-opening of the station, the poor connectivity being a disadvantage in the perspective of attracting new investments.

5. Transition management

A major difference identified between the three territories is in the management of the transition. Governance structures vary a lot, from broad participation in Jiu Valley (participants in the decision-making process: County Council, Local Councils, activists, academics), to a clear separation of responsibilities in La Louviere (the City Hall does the management, but IDEA attracts investors), while in Ştei the responsibility is assumed exclusively by the local authority.

The City Hall of Ştei has its own projects, coordinated with the County Council, mostly financed from European funds. The local public administration works with consulting firms specialized in the absorption of European funds. Once the grants are obtained, the implementation is entrusted to an internal project management team, with the mayor personally supervising the execution stage. *"We did not consider it profitable to hire our specialists in the city hall to absorb European funds. It is preferable to work with consulting firms because consulting expenses are included in the financing budget, therefore the firm is co-interested in writing a successful project."* (Iulian Balaj, mayor of Ştei)

In Jiu Valley, a new governance structure was established - "Jiu Valley Development Agency" - an entity that brings together the representatives of the Hunedoara County Council, of the six town halls from the valley (Petrosani, Petrila, Lupeni, Uricani, Aninoasa, Vulcan), the University of Petroşani and four non-governmental organizations. The association has status as an implementation body of the Transition Strategy for the Jiu Valley (developed by PwC), the objective being to help applicants from all environments

(public authorities, private environment, associative environment) to identify the right financing lines for the targeted projects. The projects must meet sustainability criteria and prove their integrative nature, i.e. their applicability in all six cities of the Jiu Valley. Representatives of civil society obtained the right to participate in the governance together with of the local and regional public authority is a European first, a recognition obtained by the activists from Jiu Valley due to their engagement in the future of the region. *"This format is accepted specifically for the Jiu Valley and is a European first. We managed to associate and establish the only coalition of apolitical NGOs in European mining areas, we gradually grew to 21 associations and responded positively, through active and unpaid participation, to all possible invitations received for consultations or involvement - consultations on strategies, county plans for just transition, cooperation with entities from other European mining areas or consultations with the European Commission".* (Mihai Danciu, NGO representative in the Integrated Territorial Development Association "Valea Jiului")

In La Louvière, economic diversification is the task of an inter-municipal association, IDEA, bringing together 27 municipalities from the post-mining regions of Center and Mons-Borinage, an area with over 540,000 inhabitants. IDEA has 322 employees, specialized in landscaping, energy and water management, and among its attributions there are activities such as: a) attracting investors and setting up assistance; b) territorial zoning and the delimitation of economic activity zones; c) urban regeneration; d) assistance in project development and project management, etc. The presidency of IDEA is currently held by the mayor of La Louvière, Jacques Gobert, who explained how this association of local mayors and specialists contributes to the economic development of Hainaut province.

"At the beginning, IDEA did not have an economic vocation, but it was created by all the town halls in the region who had the same problem and who said to themselves "if we don't do anything to pump the water, we will all be drowned". From there it evolved into the economic dimension, and IDEA became, for all the municipalities in the region, the economic arm. They are the ones who buy land, who equip the land for zoning and set up businesses. Today in the territory of La Louvière, there are 7 zones and around 4,000 jobs have already been created with the support of IDEA and we have become multi-sectoral,

the economic activity is increasingly diversified. We have oriented a good part of our zoning on logistics, due to the positioning of the waterway, the highway and the railway.”
(Jacques Gobert, Mayor of La Louvière)

6. Individual resilience and the migration option

The case study in Jiu Valley allowed us to delve into the universe full of confusion and uncertainty of a population that lives a feeling of total abandonment by the authorities and that recognizes itself as vulnerable to the changes ahead.

More than four in ten (42%) of the participants in this study believe the community is vulnerable and 41% say it is very vulnerable, although most are convinced that the Jiu Valley has considerable potential for revitalisation through sustainable development projects (37.5% - remarkably high; 35.5% - high). Their pessimism is justified by the lack of information and awareness of actions on decarbonisation at the local level, as well as by the lack of assistance programs for those who will be affected by the dismissals that could follow. Trying to determine, during the focus group discussions, if the missing information is a problem of bad communication or rather unavailable data, it turned out that both explanations were valid. Communication from leadership to the community as well as from the community to local leadership was limited, public policies are still being developed and a clear timetable for the implementation of the transition has not existed for a long time, therefore nothing clear could have been reported by the media, the survey reinforcing these findings.

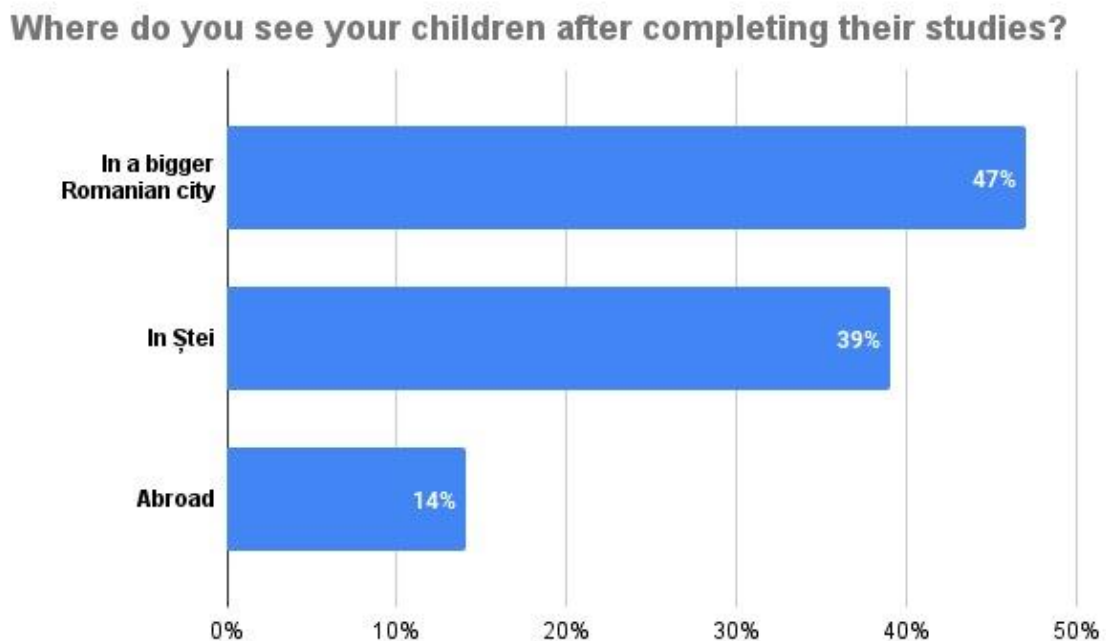
To the multiple-choice question *“What kind of assistance has been provided to mining employees so far?”*, 61% said they were unaware of any assistance program, while 40% said that the only option considered would be early retirement. About 8% believe that there could be financial incentives for those who want to become entrepreneurs, and 6% say they have heard about the option of relocating to a region where there is a shortage of labour. In the absence of a horizon of any kind, the population of Jiu Valley (having a cumulative population of over 168,000 at the end of the 90s) fell below 100,000 inhabitants, and the contraction seems unstoppable.

During Transitions Lab workshops, students from the University of Liege and those from the University of Petroșani discussed professional options after graduation. The willingness of

young Romanians to go to work abroad after completing their studies, accepting jobs far below their level of education, was surprising for some Belgian colleagues. Young people who still work in mining and who will be laid off sometime before the year 2032 also see their future working abroad. Dorian, a 21-year-old miner whom we met 350 meters underground, during his shift, spoke to us about his plans: *“ When the Vulcan mine closes, I will get my professional driver's license and retrain as a truck driver. I will do pan-European transport, like so many other Romanians.”*

The low individual resilience at home determines many young people from Jiu Valley to emigrate, often convinced by their parents, who told them from a young age that they have no future in the valley. We have also identified this narrative among the local residents of Ștei. Although 61% declare themselves satisfied or very satisfied with the quality of their lives, many of them would still like something better for their children. 70% of the survey participants in Ștei are parents, and 61% of them answered that they would like their children to leave Ștei after finishing their studies, preferably for a big city in Romania (47%) or to live abroad (14%). We also note that at the time of the survey, 38% of the respondents from Ștei had gone themselves through at least one episode of migration (internal or external), and 30% had a first-degree relative working abroad.

FIGURE 18. WHERE DO YOU SEE YOUR CHILDREN AFTER COMPLETING THEIR STUDIES?



The town of Ștei is in a paradoxical situation in which, by offering high-performing secondary education (especially at the "Avram Iancu" National College), it practically prepares its best educated young people for migration. The high schools in Ștei attract students from the southern area of Bihor County, however without being able to offer them either the prospect of tertiary education or attractive jobs. *"Every year, over 90% of our high school graduates choose to continue their studies in a university, therefore, they leave the town immediately after graduation. Every year we experience the same feeling of satisfaction that we have raised good students, mixed with hopelessness that these bright young people will not remain in our community and there is little chance that they will ever return."* (Cristian Andru, director of "Avram Iancu" National College, from Ștei).

In La Louvière, where 54% of respondents say they are satisfied with their quality of life, despite the fact that the unemployment rate is considerably higher than in the other two territories, the option of migration is also taken into consideration, when a person in distress can no longer find resources to recover. However, 53.3% say that they still see their future in La Louvière, and the motivations vary from advanced age and the lack of courage to start life over elsewhere, to the attachment to people and places in their hometown.

These findings are important in the early assessment of territorial resilience, providing clues on the self-perceived ability to recover of the respondents, as well as on their willingness to stay with the community in times of crisis, instead of seeking to acquire more individual resilience relying on mobility. Two components of individual resilience make a notable difference in La Louvière (where the population is growing) compared to Jiu Valley and Ștei (depopulating): a) the support system, incorporating the quality of personal relationships as well as assistance from the state to go through distress, and b) the sense of place, generating a feeling of belonging. These two factors create premises for collective action, strengthening community resilience, while mobility could be a lifeline for the individual, yet diminishing territorial assets, due to the loss of workforce. The Ștei paradox reveals that a good level of education is not always a component of individual resilience, but in some cases is the incentive for mobility. Confident in their knowledge, eager to learn even more, most of the young people from Ștei choose the migration

option, also strongly motivated by the narrative of those around them saying that they have no future at home.

7. External image assessment

As we mentioned in the methodological chapter, the base of perceptions considered in the analysis is made up of comments expressed by travellers on Google Maps and TripAdvisor. Some reviews contained valuable remarks for more than one dimension of landscape evaluation - natural framework, cultural heritage, aesthetically well-feeling, as defined by Antrop (2000). The reviews on the natural framework refer to the landscape and relief, those included in the cultural heritage evaluated the valorisation of the social, historical, cultural, industrial past, while the comments referring to the anthropic landscape, accommodation conditions, service and human interaction are included as reviews evaluating the aesthetically well-feeling of a destination. In these cases, the comment was accounted for each section separately, depending on the favourability shown on each value - positive, rather positive, rather negative, negative. For a better understanding of the infographic, we specify that the percentage represents the rate of the sum of all analysed comments.

All the three territories analysed have positive and rather positive favourability when it comes to natural framework and cultural heritage, but the anthropic components, the organization, the quality of services (counted as values of aesthetically well-feeling) are often the subject of negative reviews. Obviously, some territories are richer in tourist attractions than others, the principle we followed to give relevance to our selection was to have a comparable weight of reviews on each value of the landscape and thus obtain evidence of the strengths and weaknesses, as they are perceived by visitors.

Jiu Valley

In our analysis, we included opinions that refer to the ten most reviewed attractions in Jiu Valley on Google Maps and TripAdvisor: two mountain resorts - Parâng and Straja, two natural attractions - Bolii Cave and Banita Gorges, two museums - Mining Museum

and Petrila Colliery, the three most reviewed hotels - Petroșani, La Belle Epoque and Rusu, the most reviewed restaurant – Via Vinoteca.

Although very few reviews have been written about Petrila Colliery so far, we chose to include this attraction because it is the very first project for the conversion of a mining exploitation in Romania and we consider that any feedback is important to evaluate the attractiveness of the industrial heritage.

TABLE 11. MOST VISITED PLACES IN JIU VALLEY, ACCORDING TO GOOGLE MAPS AND TRIPADVISOR

Ctr.	Location	Reviews on Google Maps	Photos on Google Maps	Rating on Google Maps	Reviews on TripAdvisor	Photos on Tripadvisor	Rating on Tripadvisor
1.	Parâng mountain resort	1582	6072	4,7	7	10	4,5
2.	Bolii Cave	2558	13226	4,7	28	130	4,5
3.	Petrila Colliery	40	224	4,4	-	-	-
3.	Petroșani Mining Museum	289	714	4,2	-	-	-
5.	Straja Resort	7004	27966	4,3	-	-	-
6.	Baniței Gorges	1748	6520	4,8	4	31	4,5
7.	Hotel Petroșani	708	520	3,5	13	6	2,5
8.	La Belle Epoque Hotel & Restaurant	1049	1047	4,6	29	14	4,0
9.	Hotel Rusu	1685	3466	4,4	48	77	3,5
10.	Via Vinoteca Restaurant	645	232	4,2	44	14	3,5

Of the sixty reviews analysed, 26 opinions referred to the natural setting, 25 to cultural heritage and 33 to aesthetically well-feeling (Table below). In several reviews, the positive or rather positive considerations regarding the landscape, the ski slopes or the unique cave are followed by a "however" introducing various shortcomings in the arrangement, organization or quality of the services. Most frequently, people complained about the parking lots which are either too expensive (Straja), either they were not cleared of snow (Straja), or they did not exist (Banita Gorges).

"The resort is really great (...) the views are incredible; food is actually really good. The only issue I have is that, at the paid parking lot, they literally have no properly arranged parking

spots, it's basically every man for himself, you even pay money for this if you can believe it, oh and they could....remove the snow from the parking places? Ski rental equipment is very affordable, and the people are really polite. Would recommend it 10/10.” (F C Cougar, on Google Maps)

”The slope is absolutely gorgeous. You have various places where you can go, the slope is long, and the snow is generally very good. The price of the ski pass does not seem excessive to me. One of the best slopes in the country! The only minus is that the parking lot is not cleared by anyone, although you pay for it.” (Olah Antonio, on Google Maps)

TABLE 12. REVIEWS SORTED BY LANDSCAPE VALUES, JIU VALLEY

Landscape values:	Negative perception	Rather negative perception	Rather positive perception	Positive perception
Natural framework	0	0	12	14
Cultural heritage	0	1	12	12
Aesthetically well-feeling	3	14	10	6
Total number of reviews used in the analysis: 60				

Bolii Cave and Banitei Gorges impress with their uniqueness, and the reviews abound in superlatives on Google Maps and Tripadvisor, where visitors have published a total of almost 20,000 photos of the two attractions. Complaining about the lack of signs, many users provide precise information to guide those who will come after them.

”Breathtaking landscape shaped by a river in a former cave. Exploring the gorges during cold and rainy season requires waterproof boots, as the visitors must cross the river several times. During summertime, a pair of slippers or water sandals should be ok. The canyon is really spectacular, the photos can help you get an idea. We visited the place in July 2022, during a period of drought, when the flow of the river was low, and the water rarely passed above the ankles. A few tourists were exploring the trail barefoot, some others in flip-flops. I used some sandals, and it was more than ok. The water temperature was pleasant, somewhere around 25°C (while it was around 34°C outside). Although it is probably one of the most spectacular tourist attractions in Hunedoara, there is no sign in the area that visitors are welcome. There are no other facilities, such as toilet, coffee shop or restaurant.

The entrance fee to the national park is 5 lei and can be paid by SMS.” (Juzzumbo, on Tripadvisor)

”They are located on DN66 (E79) road at about 10 km from Petrosani towards Hateg. When reaching the abandoned gas station, turn right and follow the stone road till its end. There is no parking area available and also there are no signs you reached the destination. Just follow the small stream. You will pass over a wooden bridge and walk on a concrete path to discover the amazing gorge. The stream is not deep, when we first entered it was about ankle high and towards the end of the gorges will get knee high.” (Viorel Iosub, on Tripadvisor)

The mining museum in Petrosani and Petrila Colliery are for most of the visitors interesting discoveries about which they share almost eminently positive and rather positive impressions.

”We were very impressed with this museum. To be honest, we actually arrived here because it was raining outside, and we wanted to block time to get to the Banitei canyon. We liked it very much, the lady there was very kind and helpful. The museum felt very well maintained and has a good number of tools from the mines as well as information on their history. I think it's a good lesson about that place and that particular industry. We definitely recommend it!” (Cătălin Prata, on Google Maps)

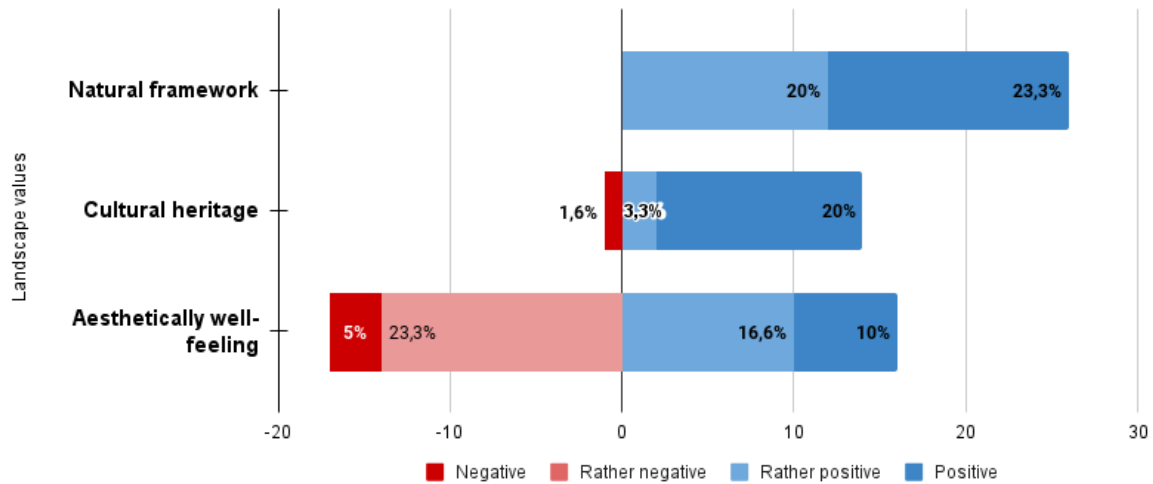
”People from Planeta Petrila did an amazing job. Thanks to them the future generations will have access to something that otherwise would've disappeared completely.” (Gabriel S., on Google Maps)

”A very nice museum about the mining accident's rescuers' efforts. There are several items from mining equipment to respiratory equipment for the rescue team that went down in the coal mine after explosions or other accidents.” (Rudolf Hanzelik, on Google Maps)

The only two negative opinions regarding the cultural and industrial heritage refer to the opening hours of Petrila Colliery, the users engaging in an exchange of remarks from which it is understood that the project is managed by an NGO with limited resources and, ideally,

the visits should be announced in advance to avoid the situation where the travellers do not find anyone to meet them.

FIGURE 19. EXTERNAL IMAGE ASSESSMENT, JIU VALLEY



Regarding accommodation conditions, facilities and the quality of services, the perception is considerably more negative than regarding the other aspects of the landscape in the Jiu Valley. Of the 33 reviews that refer to aesthetically well-feeling, 23.3% are rather negative, 5% are negative, compared to 16.6% rather positive and 10% positive. Travelers do not vehemently complain about shortcomings related to equipment, design, but many report with disappointment situations in which they were cheated on the bill, met with inappropriate behaviour by the staff or when the food was not up to expectations.

“Beautiful place with awful service! The server (...) was absolutely not motivated, mixed-up part of the order and didn’t bring the other part at all. We had to remind several times and send things back. Our change never came back - I thought tip should be voluntary but she just decided to keep it. Pity because the place is beautiful and nicely decorated.” (Talisman_77140, on Tripadvisor)

“We booked it on booking.com. Nice and well furnished, I may recommend. (...) The room price on their price list was 215 lei. They charged us 235. When we asked why we

pay more than their price list, they explained that the 20 lei is the margin of booking.com. Not serious!” (JurajSucha, on Tripadvisor)

”The waitress got our order wrong; she brought us two portions of spaghetti carbonara instead of Bolognese. I received a Transylvanian Tochitura, which was more like a tomato soup. Then she forgot to bring us the fresh oranges. We asked the colleague who brought us only one although we had asked for two. The second fresh was left waiting for another 15 minutes. After we paid, they "forgot" to bring us the rest. It's a pity for the carefully chosen decoration, the staff is of the lowest kind.” (Jan Mauer, on Google)

”Had a lovely lunch in the restaurant, food was absolutely delicious. A big minus for the waiting time and the waiter who needs to learn to smile a bit more. He was so unfriendly although it was not a busy day, we were very nice with him so he wouldn't have any reason not to be a bit welcoming.” (Nicole P., on Tripadvisor)

FIGURE 20. FIFTY MOST USED WORDS IN REVIEWS ABOUT JIU VALLEY



La Louvière

In the analysis of the perception about the landscape in Louviere, we included all the attractions mentioned in the development strategy currently being implemented.

TABLE 13. MOST VISITED PLACES IN LA LOUVIÈRE, ACCORDING TO GOOGLE MAPS AND TRIPADVISOR

Ctr.	Location	Reviews on Google Maps	Photos on Google Maps	Rating on Google Maps	Reviews on TripAdvisor	Photos on TripAdvisor	Rating on TripAdvisor
1.	Bois-du-Luc mining site & museum	283	819	4,3	76	76	4,0
2.	The hydraulic lifts of the Canal du Center (UNESCO)	38	114	4,4	61	71	4,5
3.	Historic Center Canal	337	411	4,4	73	91	4,5
4.	Strépy-Thieu funicular lift - tourist site	2654	6942	4,5	249	199	4,5
5.	Keramis-Center of Ceramics	357	1057	4,4	66	43	4,5
6.	Royal Museum of Mariemont	555	1886	4,4	142	336	4,5
7.	Carnival and Mask Museum	524	2903	4,3	113	62	4,5
8.	Clairefontaine estate	725	572	4,0	21	13	3,5
9.	Seneffe Castle	1703	6389	4,4	177	225	4,0
10.	Le Point d'Eau aquatic center	1977	143	4,1	-	-	-

From the total of 60 reviews subjected to analysis, 15 referred to the natural setting, 21 to the cultural heritage and 44 report on aesthetically well-feeling. A distinct characteristic of this case study compared to the other two is that the anthropic landscape stands out more than the relief and even than the cultural heritage, from the travellers' admiration for the arrangement of the canals, for example, it results in an added aesthetic well-feeling. 19 reviews address two or even three dimensions of the landscape, and 5 of them present contrasting perceptions between values.

TABLE 14. REVIEWS SORTED BY LANDSCAPE VALUES, LA LOUVIÈRE

Landscape values:	Negative perception	Rather negative perception	Rather positive perception	Positive perception
Natural framework	0	0	0	15
Cultural heritage	0	0	1	20
Aesthetically well-feeling	3	9	11	21
Total number of reviews used in the analysis: 60				

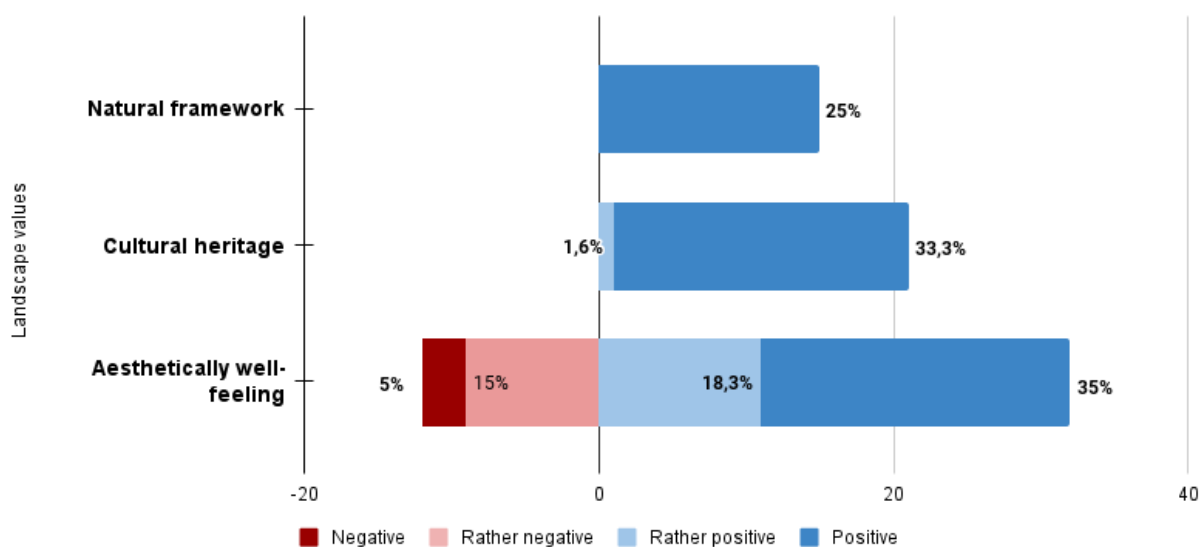
"Canal with rural banks, ideal site for cycle tourism... well laid out trails... calm... very beautiful region. Locks in operation and always interesting to see. Anglers adorn the bucolic landscape... restaurants and brasseries to land there... the Guinguette, the Mill Reach or the restaurant of the Aulne Abbey... go... on the track!" (Bindels Chloe, on Google Maps)

"Very surprising, very beautiful setting, the boat lift was an impressive experience." (Catherine Balcaen, on Google Maps)

"Outstanding view of Hydraulic Engineering from the early 20th century! The trip was very well organised and moderately priced. The weather was unusually warm for Belgium, so the trip along the canal was very pleasant and relaxing. The explanation of the machine house was at the right level of detail for most visitors. Traversing the boat lift was a wonderful experience, not to be missed." (Mwhysall, on Tripadvisor)

"I have visited on many occasions, even a favourite stop during my cycle rides. This was the first time I visited the 8th floor (8 Euro and 6.50 Euro for pensioners) and found the cinema which explained in English, French and Dutch the history and construction stages of the lift. Also, there was a set of rooms with brief histories of different elements of Belgium history. We enjoyed a cake and drink in the cafe and looked out over a clear sunny Belgium summers day. We then dropped to the 5th floor to look through the panoramic windows. Well worth a visit, if not just to be amazed by the sheer size and engineering marvel." (iceman_icestreet, on Tripadvisor)

FIGURE 21. EXTERNAL IMAGE ASSESSMENT, LA LOUVIÈRE



25% of the analysed reviews reflect an unanimously positive perception of the natural setting in La Louvière. Among those who referred to one of the many thematic museums, 33% have positive opinions, and 1.6% rather positive.

“Standing at one of the cradles of industrialization. Both impressive and sinister. There is an entire city for the miners next to the facility.” (Helge R, on Tripadvisor)

“A very good tour in English, history and lots of details about the history of the area. We had a 2-hour guided tour, the buildings have been preserved and lots of informative detail in each zone. We walked through the mine, housing, social areas, schools etc getting detailed information throughout. This place is worth a visit, see history and understand how vital this place was for Belgium at that time.” (MaryKateFinNI19, on Tripadvisor)

“We visited with a group of 20, the guide was fluent in English (and Dutch) and was extremely good. He not only talked about the obvious things to see (well worth the visit) but gave a lot of historical background info about the social conditions of the miners and their families. Everyone was absolutely pleased with the quality of the visit. Take 1 1/2 hrs at least, but worth every minute. If you are on your own, I would advise an audio guided tour.” (jacques47188644, on Tripadvisor)

“Excellent museum on the Carnival in the world, the carnival in Wallonia and the carnival of Binche. Lots of Masks from different countries and regions. Efficient staff, responding

to customer requests and knowing their museum inside out. Shopping could be better. Parking on the square or in the free car parks in the city.” (Barbaix Marie-Noelle, on Google Maps)

“Very beautiful domain, the castle as well as the park are very well maintained, a beautiful walk for lovers and/or family, an animal area will delight the little ones. The permanent exhibition of the goldsmith's museum is an asset. The ephemeral chocolate museum takes us on a journey to the heart of the jungle, the playful route brings its attraction.” (Murielle Singery, on Tripadvisor)

The rather negative perceptions and the negative ones are exclusively from the point of view of aesthetically well-feeling, and they generally refer to a) the price of tickets to certain attractions; b) dirtiness of certain parks and playgrounds; c) services and facilities at the aquatic centre (in some days).

“Huge and impressive. On the other hand, €8 per person per visit for a 30-minute film and a machine room is a bit expensive. However, we had the chance to see a barge go by.” (Jean-Michel Laval, on Google Maps)

“Park not very well maintained, small dog prohibited but then you pay 16€ for two adults and two children to go to the space full of games and grass where it is dirty. Duck droppings everywhere wondering where to put your towel on the floor, we can at least clean up. In July no ice cream at the bar and after you arrive at the bar at 6:30 p.m. it is already closed. Damage. On the other hand, the campsite is very well maintained and quiet.” (Steph, on Google Maps)

“Ideal place to spend time with family or friends. Quality infrastructure, various slides and swimming pools for children or adults! The only downsides are that during our slide from the red slide we sometimes felt the separation joints of the slides which is really unpleasant. The hair dryer is not suitable for small children because it is too high. Otherwise overall cleanliness is at the rendezvous and the cafeteria is sufficiently equipped so that non-swimmers can wait for their loved ones to finish swimming.” (Weasel Prod, on Google Maps)

"Disappointed, far too many people and especially the hot tub did not work the water temperature was not as hot as the previous times but the price has not been reduced and they do not report that the hot water pools and a bubble doesn't really work, too bad."
(corinne andre, on Google Maps)

FIGURE 22. FIFTY MOST USED WORDS IN REVIEWS ABOUT LA LOUVIÈRE



Ștei

The perception of the landscape in Ștei and its surroundings is based on the ten most reviewed attractions in the city and from a radius of 30 km around the city.

TABLE 15. MOST VISITED PLACES IN ȘTEI AND SURROUNDINGS, ACCORDING TO GOOGLE MAPS AND TRIPADVISOR

Ctr.	Location	Reviews on Google Maps	Photos on Google Maps	Rating on Google Maps	Reviews on TripAdvisor	Photos on TripAdvisor	Rating on TripAdvisor
1.	Bears Cave	9158	9776	4,7	86	107	4,5
2.	Vîrtop Ski Slope	3065	5762	4,3	-	-	-
3.	Piatra Grăitoare Ski Slope	1054	2115	4,4	3	20	5,0
4.	Groapa Ruginoasa designated area	1396	5303	4,8	17	30	4,5
5.	Via ferrata Pietrele Negre	104	600	4,6	16	22	5,0
6.	Izbuc Orthodox Monastery	1371	4854	4,8	-	-	-
7.	La Fluturi Ethnographic Museum	823	3915	4,7	1	1	2,0
8.	Restaurant Pensiunea Premier	396	173	4,6	-	-	-
9.	Le Dessert Café	70	83	4,9	-	-	-
10.	The Ritual by the Micle's	79	62	4,8	-	-	-

Of the sixty reviews that we considered relevant to our research, forty-four referred to aesthetic well-being, the natural setting was described in forty-one occasions, and cultural heritage was referred to five times.

TABLE 16. TRAVELER'S PERCEPTIONS ABOUT THE LANDSCAPE IN ȘTEI AND SURROUNDINGS SORTED BY VALUE AND FAVOURABILITY

Landscape values:	Negative perception	Rather negative perception	Rather positive perception	Positive perception
Natural framework	0	0	15	26
Cultural heritage	0	0	0	5
Aesthetically well-feeling	10	21	3	10
Total number of reviews used in the analysis: 60				

However, many reviews delivered relevant content for all dimensions of our analysis, addressing both the natural landscape and the cultural one, as well as the general well-being

of the traveller provided by the cleanliness of the places, the quality of the gastronomy and the service, etc. Twenty-eight reviews addressed the natural framework and aesthetically well-feeling in the same comment. When assigning to each comment a positioning on the Likert scale of perception (*positive, rather positive, rather negative and negative*), it turned out that in twenty situations the users expressed contrasting perceptions in the same comment: referring to the natural landscape the perceptions were totally *positive* or *rather positive*, but regarding aesthetically well-feeling the reactions were *rather negative* and *negative*.

"Beautiful canyon, woe to savage tourists. The views are spectacular. Because the hike up is quite short, many people visit this place and spoil the pristine nature. For me it is infuriating to see so many wet wipes and tap in the forest near the marked path. I am all for free visiting natural attractions, but in some cases, there should be a fee and rangers monitoring people and making sure they behave." (Octav P , on Tripadvisor)

"The view is spectacular, it's worth the hike. The first part of the trail when going up (last part when coming down) is a little technical but everyone can do it, you just need to be extra careful. Not giving it 5 stars because up there it could have been a little cleaner on the sides (a lot of used paper tissues between the trees, thrown on the ground) and also some benches would have been great just to catch your breath for five minutes." (Florin Blaj, on Google Maps)

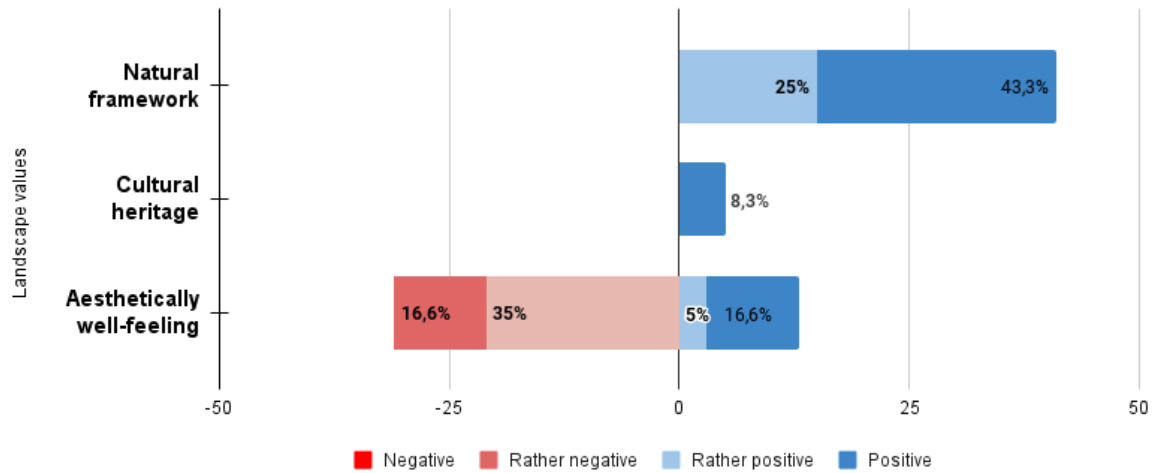
"The view is amazing. The climb takes approx. 30 min from the road. The first part is harder, but taking in consideration that the climb is really short it is worth it. Take time and enjoy the nature. Stop taking photos for a few minutes and just watch. Respect nature also. The nearby forest is full of toilet paper." (Marius, on Google Maps)

"Magnificent cave to visit. Downside: a big lack of signs to indicate the direction of the site." (Nono, on Google Maps)

"We visited this cave in August 2018. The cave is amazing so many beautiful rock formations. The temperature in the cave is 10 degrees all year round. The tour guide speaks only in Romanian which is a downside of this visit probably will be great if they will have like an audio tour for the foreigners. There is space for parking at the bottom of the mountain we paid 10 lei which is around £2 for whole day. After visiting we went for a meal there is a few traditional

restaurants close to where we parked the car. We went to a restaurant called Laura which had a nice traditional food using local products.” (Ioana P, on Tripadvisor)

FIGURE 23. EXTERNAL IMAGE ASSESSMENT, ŞTEI



Two attractions have collected reviews that can be classified as cultural heritage, the Orthodox Monastery of Izbuc and the Ethnographic Museum "La fluturi", a private initiative of a local. If the museum is often visited by foreign travellers who find the objective on social networks, the visitors to the monastery are Romanian pilgrims who sometimes include other objectives in their trip to the area.

“Interesting private ethnographic museum, unique in its kind in Romania, located in the village of Chişcău (County of Bihor). It contains more than 2000 objects (ceramics, sculptures, rare stamps, coins, paintings, clothes and more) typical of Romanian culture and traditions. Definitely worth the detour!” (Ary Bala, on Google Maps)

“Dream museum. A must see. And for once a site to visit for free. I highly recommend.” (Philippe Zanuttini, on Google Maps)

“ At Izbuc Monastery we found grace, peace, tranquility, blessing, all in one place, in a wonderful place!!! It was my first time, and I was deeply impressed by this place. They have relics of Saint Nectarie from Aegina, of the great martyr Saint George and there is spring water with healing properties. We will be back soon!” (Emilia Jitaru, on Google Maps)

“After about an hour from the Bears' Cave, which we went to on this wonderful and sunny Saturday, an amazing day for hiking. It is about 50 kilometres to the Monastery, on a road,

which could be better, taking into account that the Izbuc Monastery is a place very sought after by pilgrims, for the peace of mind it offers you, for the famous healing spring water, unique in Europe, for the Miracle-Working Icon and for the beauty of the 3 churches, for the beauty of nature that surrounds this monastery. Everything is very welcoming, Holy Fathers, help you with advice and an encouraging word. I left there with gratitude in my heart and peace of mind. I will come back in the summer again to see that amazing spring and all the wonders that this Monastery offers you. God Bless !” (Dorin Cadar, on Google Maps)

An intriguing situation is highlighted by reading the reviews about the Vârtop resort, where tourists have very different vacation experiences, depending on the slope they went to, these two having different administrators.

”Very nice slope for spring skiing (Piatra Grăitoare). There is a parking lot, toilet and ski lift tickets available for purchasing, but sadly not much else since everything seems to have closed for the season. The snow was terrific, the slope very well prepared for tourists and in the morning (11 am) the ski lift started for 4 people. Throughout the day, more people came but overall was a very pleasant experience, without having to wait in line or constantly watch over the shoulder for other skiers. The prices are decent (55 lei for 6 lifts). I recommend packing food if you come here during the spring. Highly recommend.” (Catinca Ogrutan, on Google Maps)

”Piatra Grăitoare it's not Austria, but as close as possible. Nice slope, new chair lift, maintained. On the way down, it almost stops (recommended also for beginners). Garbage bins everywhere, people stand civilized in line... a little different than on Vârtop Slope. Difference of 500 meters distance but the difference of civilization...I can't measure it.” (Pataki Gyozo-Bela, on Google Maps)

” Parking tax is high (20 RON), but it is never cleaned, it is covered in thick ice, so watch out when walking to and from the car, unless you want broken bones. The same goes for the path from the parking. This kind of disrespect for the tourists is appalling, hence the 3-star penalty. The slopes themselves are ok...ish, but you need different passes/tickets for the two ski lifts that are otherwise close to each other. The personnel selling tickets are unfriendly and/or annoyed by literally anything, their attitude is like "why are you bothering me?". The two ski lifts serve different slopes that are practically right next to each other and delimited by a fence! This primitive rivalry is laughable. 10 years have passed since I've been here last time, nothing

seems to have changed in the meanwhile. On the bright side, the ski instructors seemed friendly, helpful, and enjoyed working with kids. I don't think I will come back here in the near future.” (Claudiu Balogh, on Google Maps)

Since Ștei is located on the European road E79, business travelers consider it the optimal place for a stopover, possibly even to spend the night, that is why we have included some hotels and restaurants in this analysis. With very few exceptions, the reviews regarding the quality of the food are positive and rather positive, although the service could be improved in certain places.

”Really good food at The Ritual, excellent service, good coffee and a really nice, clean, modern place. Totally recommend it when you are in Stei or you pass by and you need a refreshing drink, it is easy to find.” (s k, on Google Maps)

”Premier is located in Ștei, a good place to stop on the way to Oradea or Deva. Clean rooms, well equipped and good cuisine.” (Călin Anton, on Google Maps)

” Amazing coffee in a quiet neighborhood. The owner spoke great English and was very attentive. Great cakes and Italian coffee.” (Martin Vegner, on Google Maps)

FIGURE 24. FIFTY MOST USED WORDS IN REVIEWS ABOUT ȘTEI



This analysis method highlighted the importance of understanding the traveller's perspective to improve the destination and drew attention to the wealth of data available today on social networks. The analysis could use web scraping techniques, but the representativeness of the sample must be examined. In all three cases studied, we find the same tendency to emphasize natural and cultural sites, monuments and attractions (primary product), while services (secondary product) are in many places neglected, as well as organizational and social contexts.

8. *Ex-ante* assessment grid of territorial resilience (TRI)

Reiterating the need to anticipate the resilience of a territory prior to the implementation of the transition, we filled the assessment grid for the three cases, in line with our own reflection on the studied territorial resilience. The three territories are rich from a natural and cultural point of view, however, reaching the development potential is still endangered by different social and administrative contexts.

TABLE 17. TRI ASSESSMENT GRID FOR JIU VALLEY

Social capital	
Problematic collective action due to stakeholders' divergent interests and poor preparation for the impact	
Territorial assets	
Geographic position: Hunedoara County, West Region, the second most developed region in Romania Gateway to Retezat National Park, surrounded by Natura 2000 sites and national parks (2,500m) Crossed by the Jiu River	
Connectivity: Located outside the roads of national and European interest DN 66 connects the region with Târgu-Jiu (South), Hunedoara and Deva (North) and to the A1 highway DN 66A crosses the region from East to West DN 7A connects Petroșani and Petrila to the Parâng massif and the Transalpina ski area	
Infrastructure: Single-lane, mountain and sub-mountain roads Difficult transport of goods with large and heavy machinery Railway traffic only N-S direction, obsolete infrastructure (since Habsburg Empire) Ski area of over 30 km - Straja resort, Parâng-Petroșani resort and Pasul Vâlcan area	
Natural resources: Coal ; Forestry	
Climate: Temperate continental, hilly, with 190 days without frost Region often threatened by heavy rains (ex. historic floods in 2020)	
Cultural capital: Five Dacian fortresses (UNESCO heritage), located in the vicinity Industrial heritage/Mining museums Ethnographic museums	
External image: Positive reviews about the natural setting and the cultural heritage Negative reactions for poor connectivity, inadequate facilities, service, general appearance of cities	
Demography: Dependency ratio - 400% Major imbalance between productive and economically dependent population Massive demographic decline, from 168,000 inhabitants in 1998 to 99,000 in 2021 Low birth rate	
Employability: 18.5% of working-age population has a job; 1.9% unemployment rate	
Workforce: 60% of population aged 40+ most of them "young retirees" Little interest for re-entering the workforce 20-29 age group poorly represented (9.76%)	
New purpose of the territory	
Development axis: tourism, agrifood industry and green energy (according to the strategy adopted in 2021) Strong sustainability objectives, yet no concrete measures taken so far	
Transition management	
Transition is managed by the "Association for Integrated Territorial Development Valea Jiului", non-governmental body including all six town halls, the County Council, Petrosani University and four local NGOs	
Re-skilling capacity	
45 educational institutions of different levels (preschool, primary, secondary, high school, vocational, tertiary and higher) University of Petrosani has the infrastructure to become an anchoring institution for the region	

TABLE 18. TRI ASSESSMENT GRID FOR ȘTEI

Social capital
Close relationships, specific to small communities, yet community resilience is severely affected by emigration
Territorial assets
<p>Geographic position: Beiuș Depression, bordered to the East by the Western Carpathians, extensive karst relief surfaces</p> <p style="padding-left: 40px;">North-West Development Region of Romania, in the South-East part of Bihor County</p> <p style="padding-left: 40px;">80 km away from the municipality of Oradea, the county seat</p> <p style="padding-left: 40px;">Near Apuseni Natural Park and Codru Moma Mountains (Natura 2000 site)</p>
<p>Connectivity: Crossed by DN76 connecting the municipalities of Oradea and Deva, and by DN75 towards Câmpani</p> <p style="padding-left: 40px;">Crossed by E79 (connecting Miskolc from Hungary and Thessaloniki from Greece), yet this is not a highway</p> <p style="padding-left: 40px;">Disconnected from railway transport after the suspension of the Oradea-Vașcău railway</p>
<p>Infrastructure: No internal public transport system, daily trips are made by foot or by private means</p> <p style="padding-left: 40px;">Close to attractions such as: Bears Cave, Arieseni Mountain Resort, Vârtop Ski Slope, Iz buc Monastery</p>
<p>Natural resources: Uranium and other rare metals, geothermal waters, caves, hydrographic network</p>
<p>Climate: Continental with Mediterranean influences coming from the Southwest</p> <p style="padding-left: 40px;">Specific to a depression area, continental polar air masses enter in winter</p>
<p>Cultural capital: Urban heritage with Soviet totalitarian type architecture preserved over 90%</p>
<p>External image: Destination perceived as a suitable place for a stopover when driving to Deva or Oradea</p> <p style="padding-left: 40px;">Favourable ratings for food and atmosphere in cafes and restaurants</p>
<p>Demography: Population of Ștei was 5,898 people at the last Romanian census in 2021</p> <p style="padding-left: 40px;">Ștei lost about 2,220 inhabitants in the last decade and a half compared to the late 90s</p>
<p>Employability: Unemployment rate is 1,20% whilst employment rate is 70%</p> <p style="padding-left: 40px;">Yet, much of the population commutes to larger urban centres nearby</p>
<p>Workforce: Age group 20-29 is poorly represented, 9.3% of the total population</p>
New purpose of the territory
<p>Energy efficiency by developing the ability to use geothermal waters is an important direction of development</p> <p>Strong sustainability objective, in the course of implementation</p>
Transition management
<p>Management is ensured by the mayor</p> <p>A team of project managers supervises the implementation of sustainable development projects</p>
Re-skilling capacity
<p>Ștei has a school for primary and secondary education and two high schools (one theoretical, the other technological)</p> <p>Limited options for professional training for adults</p>

TABLE 19. TRI ASSESSMENT GRID LA LOUVIÈRE

Social capital
<p>Relatively well-informed stakeholders and involved in the design of the long-term development strategy</p> <p>Local authorities enjoy large capital of trust; expected to find the best sustainable solutions for the city</p>
Territorial assets
<p>Geographic position: Formed by the merger of eleven smaller municipalities</p> <p style="padding-left: 40px;">Located in the centre of Belgium, in the Wallonia region, Hainaut province.</p> <p style="padding-left: 40px;">Part of the former coal basin of the Centre region</p> <p style="padding-left: 40px;">Between Charleroi and Mons, about 42 kilometres south of Brussels</p>
<p>Connectivity: Very well connected by rail and road to all major cities</p> <p style="padding-left: 40px;">Connected by river through the Canal du Centre with the river Meuse and Escaut</p> <p style="padding-left: 40px;">Brussels South Charleroi Airport is only 20 kilometres away</p>
<p>Infrastructure: Close to a network of motorways connecting Belgium, France, the Netherlands and Germany.</p> <p style="padding-left: 40px;">Crossed by the E42, connecting the cargo port of Dunkerque with Aschaffenburg in Bavaria</p> <p style="padding-left: 40px;">Crossed by the E19, connecting the European capitals Amsterdam, Brussels and Paris</p>
<p>Natural resources: Coal, forests, farmland, natural hydrography</p>
<p>Climate: Temperate oceanic climate with an average annual temperature of 10.5 degrees Celsius</p>
<p>Cultural capital: History marked by coal mining during the Industrial Revolution</p> <p style="padding-left: 40px;">Coal also favoured the development of other industries, such as steel or the ceramic industry</p> <p style="padding-left: 40px;">UNESCO heritage sites: Canal du Centre and its boat lifts, Bois-du-Luc mining museum</p>
<p>External image: Industrial heritage and canals attract the most visitors</p> <p style="padding-left: 40px;">Positive reactions from tourists who are passionate about engineering and history</p>
<p>Demography: Total population of 80,992 inhabitants (January 2022)</p> <p style="padding-left: 40px;">Stable annual growth of approx. 350 inhabitants in the last decade</p> <p style="padding-left: 40px;">Projections show 10% growth by 2035</p> <p style="padding-left: 40px;">Largest ethnic mix in Belgium, 17.1% of residents having another nationality</p>
<p>Employability: Employment rate of 52.9%</p> <p style="padding-left: 40px;">Unemployment rate of 13.4%, higher than the rest of Belgium</p>
<p>Workforce: Relatively low level of education, 16% of people aged 18+ have a higher education degree (24.4% in Wallonia)</p> <p style="padding-left: 40px;">17.4% primary school diploma, 5.5% no diploma</p>
New purpose of the territory
<p>Residential projects for the employed population in the large urban agglomerations nearby</p> <p>Ecological transition and circular economy, at the core of the development strategy</p> <p>Strong sustainability strategy, aiming at valorising connectivity and cultural heritage</p>
Transition management
<p>The City Hall manages the transition; IDEA in charge for attracting new investments</p> <p>IDEA (association between public authorities, specialists, NGOs) is the economic arm of the local public administration</p>
Re-skilling capacity
<p>47 schools, 1 higher education institution : La Haute École Louvain en Hainaut (Hainaut/HELHa)</p> <p>Insufficient higher education options: 640 places for 1,240 potential students</p>

The use of this assessment grid as an early warning tool of weaknesses and identification of strengths allows a better performance of risk management in the pre-shock stage and can be decisive for preparedness and awareness. The accurate estimation of available resources and potential vulnerabilities lays the foundations for a successful transition.

9. Strengths and weaknesses for territorial resilience

Synthesizing what we learned from the experience of the three case studies, Table 20 lists the factors strengthening and those weakening the territorial resilience.

TABLE 20. STRENGTHS AND WEAKNESSES FOR TERRITORIAL RESILIENCE

Territorial resilience	
Strengths	Weaknesses
<ul style="list-style-type: none"> • good connectivity • natural resources • recognized cultural/industrial heritage • attractive tourist destinations • access to development funds • engaged civil society • development strategy synergistic with that of the region/country • available workforce • re-skilling and up-skilling capacity • leaders with a vision for the community 	<ul style="list-style-type: none"> • poor connectivity • exposure to natural hazards • negative external image • underdeveloped transport infrastructure • poor social capital • lack of a long-term vision • unstable geopolitical context • demographic decline • decoupling from research and innovation

DISCUSSION

Territorial resilience is a very broad concept, compressing a series of dynamics between a) individual and community; b) community and territory; and c) territory and external drivers. In these multiple codependent relationships, a wide variety of scenarios are possible, and a territory can be for a while a pole of prosperity, and in a decade or two may reach a poverty threshold that forces the inhabitants to choose emigration as their last resort for strengthening individual resilience, as we learn from Jiu Valley case study. In the early stages of this research, the idea that the community resilience of shrinking cities is undermined by intra-European mobility seemed valid. However, it is still up for debate whether the size of the population is really decisive in the strength of community resilience. Although La Louvière became the fifth city of Wallonia after merger, in terms of population, with a very high density, this has not yet brought advantages to counterbalance the misfortune of being the Belgian territory with the highest unemployment rate, where the population has a state of health more precarious than in the rest of the country.

Yet, despite all the shortcomings, the population of the city of La Louvière does not decrease, emigration does not exceed immigration, and the birth rate is significantly higher than in the analysed territories in Romania. We believe that these differences open the discussion about the sense of place and the feeling of belonging, indispensable in the construction of individual resilience. A sense of place and a sense of identity foster attachment, and the degree of attachment determines the level of engagement in the future of your community, whilst community values can only be born from interpersonal relationships based on mutual trust. Stakeholder mapping showcased how complicated harmonising divergent points of view may be, especially in a society crushed by a decades-long crisis of confidence, such as the Romanian one. The transition from socialism to capitalism intertwined with deindustrialization represented a devastating combo for many Romanians who, at the time, had a limited understanding of democratic mechanisms and the laws of the free market. However, the primary characteristic of the brutal transition that began in the 90s is that it is not over yet.

Given that terms such as "*participatory democracy*" and "*the right to the City*" (Lefebvre, 1968) have been revitalized and are at the core of the European framework for territorial reconversion, this willingness of Romanians from all social strata to break away from their native places deserves a careful analysis because their flight from the hardships at home inevitably leads to an underperformance of collective action in this vast territory in a terrible need of reconversion. On the other hand, growing up in a dysfunctional post-socialist town, with an architecture still keeping alive the memory of the totalitarian regime that had altered the local identity and the authenticity of the relationships between citizens, escaping this unwanted past may become the highest aspiration. When freedom of movement is indisputably the icing on the cake in the Maastricht Treaty and European citizenship is the ace up the sleeve for many residents of peripheral post-industrial regions, the idea of sacrificing personal interest for the community good is too reminiscent of the dictatorship from which these people have barely freed themselves. In the articulation between spatial and social, the individual and the place mutually influence each other, enhancing or, on the contrary, diminishing each other's scope. Both being equally important for a sustainable development, however, the one who has the upper hand is the individual. Possessor of free will and freedom of movement - at least within the borders of the European Union - the individual always has the option to break the joint by abandoning the place and moving somewhere else.

European Union has an uneven geographical development and yet, if we look at the three case studies discussed in this thesis, we see repeating patterns of economic growth around an industry creating enrichment and social progress, followed by rapid decline, job losses, high unemployment and deep decay of territories losing population, function and purpose. Considering that industrial cities in Western Europe faced their own decay in the 70s and the 80s, the years of the "*silent revolution*" when the prosperity achieved during "*les trente glorieuses*" came to an end (Fourastié, 2011), it is curious that there are still so many unanswered questions regarding the capacity of post-industrial territories to recover from the socio-economic disruptions caused by deindustrialization. In countries of Central and Eastern Europe, the demise of traditional industries began in the 90s, after the fall of the Iron Curtain, but the closing of the mines and the abandonment of steel

production had the same overwhelming social impact as in the western countries twenty years earlier.

Considering the theoretical framework presented at the end of the specialized literature review, the case studies emphasize that the degree of individual resilience determines the choice to stay or leave a place in transition, i.e. individuals engage in collective action that will strengthen community resilience, or they choose mobility to obtain more self-resilience. This explains why the post-mining territories in Romania are depopulating while La Louvière is gaining more and more population. Community resilience, viewed as an evolving process, sets its perspective for growth in the pre-shock stage, before the actual mine closure, when risk management is done. Networking and bonding between stakeholders should take place at this stage, from here subsequently deriving adequate awareness, agency and public acceptance and in this regard, none of the analysed territories had an optimal start. The delays in the implementation of the transitions in all three territories have their origin primarily in the faulty risk management before closures, where not enough attention was paid to the quality of the relations between the stakeholders, this decisively impacting the social capital.

At the founding of these mining communities, the interest of the extractive industry was at the centre of the organization of cities and society, surpassing in importance all other activities and shaping them. As we have seen in all three case studies, the concern for coal, uranium or steel production transcends local and national territorial boundaries. Therefore, local authorities have had to satisfy requests from the state, pursuing their own agenda, or the international market, paying little attention to the local territories that fuel the economy. With the closure of the mines, local and regional authorities face huge concerns, from multiple points of view: social, economic, environmental, cultural and political. The region has to bounce back while facing several severe handicaps.

From a territorial point of view, we emphasize the problems of soil pollution and soil stability, the unattractive image of mining areas and the search for new leaders and horizons. Moreover, cities that have been planned for mining, should now develop new structures and equipment to give the chance for reconversion. Moreover, mining has given rise to a very specific pattern of population, which often faces health problems, poor

education levels and has to endure the immense disappointment of going from hero of the nation to zero. The case studies highlighted the importance of vertical and horizontal communication. Many people we have met still do not know why the mines should cease their activities, nor do they know the possible prospects for the territories because, in many cases, they do not have a clear idea of the strengths and constraints of the territories they inhabit. Therefore, an action-research approach seems particularly suitable to strengthen territorial intelligence and to further develop intelligent solutions, adapted to the territory.

When it comes to adaptive capacity, it is greatly influenced by the volume of territorial assets. Reconversions and economic models that are possible in La Louvière, thanks to connectivity and proximity to important European cities, have very limited potential in Jiu Valley or Ştei, both disconnected from major transport routes. Despite the important natural resources, the two territories in Romania have poor infrastructure and are increasingly deficient in the workforce - perhaps the most important territorial asset, these shortcomings being likely to demotivate potential investors.

The history of these mining basins has highlighted how diverse is the range of external drivers influencing the resilience of a territory, regardless of its endogenous potential. All our case studies are facing today a rather negative external image, being constantly associated with decay, this being an impediment in tourism development. The climate is an important territorial asset in each of the analysed territories: temperate continental with favourable conditions several months a year for skiing in Jiu Valley and near Ştei, and temperate oceanic, suitable for agriculture and all-season outdoor activities, in La Louvière. However, when, due to climate change, snowfall decreases even at high altitudes and droughts are more frequent in areas that we knew were humid, the authorities cannot afford to ignore this external driver when designing territorial development plans.

Finally, the research allows us to formulate several recommendations for the different stakeholders to lead the community and the territory to more resilience.

Recommendations for civil society

- The success of the just transition depends on the degree of individual resilience and the level of commitment to the future of the community. It is then vital to develop any activities that strengthen this commitment.
- If the community does not have concrete plans related to the subsequent use of territory and strategies to achieve the objectives, then the territory loses its function.
- It is natural for stakeholders to have different points of view and divergent interests since each age group and professional category needs specific accompanying measures to prosper. For an accurate and inclusive inventory of the community's needs, it is essential that all points of view should be expressed, however they need to be prioritized afterwards deciding upon the greater good.
- Civil society needs its own self-regulation mechanisms to ensure that one professional category or a certain age group is not hostage to the interests of another.

Recommendations for local public administration

- The just transition offers the mayors significant decision-making power and calls them to respond courageously and creatively to the long-term needs of the community. Here are some pre-conditions to guide the transition successfully: a) knowing into detail the profile of the community they lead, b) mapping with great accuracy the available resources; c) always having an attentive eye on new innovative technologies.
- Based on this information and understandings, the administration has the ability to: a) mediate consultations between stakeholders, and b) formulate precise requirements from consulting companies in the elaboration of a territorial development strategy.
- For a deeper and unbiased understanding of issues that are difficult to fit into a pattern and for the effort of co-constructing information, it might be preferable that the collection and treatment of data be done through action-research methods, by independent researchers with transdisciplinary expertise, rather than consulting firms.

- Analysing best practice models is useful, but copying and pasting them in other geographies and cultures is not recommended. The more appropriate principle would be "*adopt, adapt and improve*", thus adapting any model to the specific needs of your community.

Recommendations for researchers

- The research in the field of just transition has a deep transdisciplinary character and guarantees a permanent inter scalar journey, sometimes delving deep into a narrow niche of a problem specific to a certain community, and then immediately rising back into the broad sphere of planetary climate urgency.
- The mind must therefore be trained for real-time contextualization, since you are dealing with economic indicators, demographic data, geographical boundaries, cultural sensitivities and, often, psychological traumas.
- For a good understanding of places in need of territorial conversions, a multisensory experience is revealing, so it is preferable to embrace empirical research methods that take you as close as possible to the subject.
- Bearing in mind that the just transition is not only the transition from one economic model to another, but a transition to other societal practices and, in this endeavour, the need for know-how is more important than the need for financing.
- Having a good education is a privilege and sharing it with citizens should be a duty. Action research methods allow an easy transfer of knowledge to society and can achieve the pivotal objective of the just transition framework, that of co-creating solutions together with citizens.

Recommendations for the European Commission

- The current financing framework for the just transition does not guarantee that in the negotiations between the stakeholders the best informed or those who pursue the community good will prevail.

- The EC allocates budgets but does not offer know-how or arbitration at the local level, leaving the responsibility for the outcome of the transition entirely on the shoulders of the local community. By doing this, the CE actually leaves a lot of room for the "simulation" of democracy, the consultations being organized apparently correctly, and yet many citizens not having the means or the skill to plead their cause in front of the more influential stakeholders.
- In the just transition management, the European Commission lacks an economic arm tasked with a) accurate mapping of social and economic disparities at the EU level, based on independent research and not on reporting by EU member states; b) the development of a coordinated strategy at the EU level that guarantees more complementarity in economic diversification and less competition for the same resources; c) attracting investments and directing them more equitably to the EU regions, mitigating the already existing disparities.

Limitations of this study

This research on territorial resilience of post-mining regions examined in three different places encountered several difficulties that are important to list:

1. Flawed data regarding the population of Romania

The flawed collection of data about the Romanian population posed problems in different stages of this study, especially when data from official sources did not coincide with each other. We started this research in 2020, with data on the population of Romania from the previous census, organized in 2011. The data were obviously obsolete, considering that from 2014 all the restrictions for Romanian citizens on the EU labour market were lifted, and Eurostat statistics already indicated at that time an unusually high mobility of Romanians.

At the level of the Jiu Valley microregion, there are no statistical data that treat the mining community as a whole, therefore our data processing assumed the collection of data from each locality, later summed up. We used the domicile data provided annually by the local

public authorities; however, it is difficult to assess their accuracy since many of those who live abroad have not officially announced their change of residence outside Romania. On this dataset, the total population of Jiu Valley was 132,000 in 2020.

Under the pressure of a European Commission regulation introduced on November 21, 2018³⁶, Romania was obliged to organize a Population and Housing Census³⁷, in 2021, to deliver updated information to Eurostat, the only supra-national institution disseminating contextual information on a regional or sub-regional scale, corresponding to the territorial divisions NUTS 1 to NUTS 3 (Deville & Breuer, 2008). According to the census, the total population of Jiu Valley would have decreased at 99,153 in the meantime. However, calculating the data provided by the analysis department of Romanian National Institute for Statistics INSSE for the population pyramid, we got a total population of 124,645. We referred to this figure in the dependency ratio calculation, since this was the only source providing data on the gender distribution in Romania, allowing comparative analysis with the La Louvière case study.

2. Limited travel access for field research and face-to-face interviews in 2020 and 2021

The limitation of mobility during the COVID-19 pandemic prevented us in the first stage of this research to meet face to face with the study participants and to obtain gender balance for interviews and focus groups. On the other hand, it was a period of great availability to communicate via online platforms and we were fortunate to obtain very consistent testimonies that later guided us in the preparation of the action research methods that we performed when it was possible to travel again.

3. Opportunistic research in Jiu Valley, adapting the methodology according to unfolding of events

As we have already mentioned in the Research design chapter, the research sought to capitalize on the author's connections with her native places in Romania and her rich

³⁶ See: <https://eur-lex.europa.eu/legal-content/en/TXT/HTML/?uri=CELEX%3A32018R1799>

³⁷ See: <https://legislatie.just.ro/Public/DetaliiDocumentAfis/228883>

experience as a journalist, intentionally conducting opportunistic research (Riemer, 1977) in Romanian territories. Sometimes we chose to reorganize our work plan spontaneously, in order not to miss the opportunity for some very relevant observations in the field, thus failing to prepare question guides and samples that would have correspondence in all three case studies and that would have allowed even more complex comparative analyses.

4. Sampling of survey respondents not precisely defined

In Jiu Valley and Ștei, the surveys were applied online, using the snowball method, starting from several key informants who directed the survey to other well-informed people on the development strategies for the coming years. In La Louvière, we benefited from the support of thirty students who surveyed locals from all the neighbourhoods, yet without targeting a specific sampling. The respondents from Romania were more familiar with the topic, therefore more prepared to give consistent answers, while many of the participants from La Louvière had not previously reflected on the subjects we were discussing. However, it would be misleading to conclude that the residents of Jiu Valley are more informed or more engaged than the residents of La Louvière in the future of their community. We emphasize once more that in Jiu Valley we did a purposive sampling, selecting participants who were directly involved in the coal phase-out process, while the respondents in La Louvière were random, aiming only at a fair territorial coverage.

CONCLUSION

Perhaps the most important contribution of this thesis is that it is showcasing that the territorial resilience can be inventoried before the stress occurs. It is also stressing the need for coordination between the accompanying measures and the specific needs of the territories and often, the greatest need is for vision and know-how. The same territory can be converted in different ways, however, the vision for the new purpose of the territory may be considered sustainable only if it fits the demographic profile; from the point of view of the just transition, the well-being of the stable population should be prioritized.

A difficult challenge is that of the stigma that these territories often carry, associated for a long time with economic decline and social degradation. Addressing this issue with honesty is important for tourism development strategies, but also for attracting new investment or new inhabitants. In the digital era, promotion is easier than ever, yet reputation of a place can also be ruined more easily than ever. The analysis of the image that social media reveals about a destination informs generously about the perception that visitors have about a certain territory. A sharp comparison between their perception and that of the locals, may bring beneficial adjustments of the tourism development strategy.

During this project, co-producing information with locals and revisiting the research questions at various stages of the analysis, better informed each time, provided the subtlety and context needed for understanding the challenges that may arise when European directives encounter local realities. Interviews and focus groups also helped the community to consider other political, spatial, and temporal levels of the transition. It has been emphasised that, if individual solutions can be found, it is essential to reflect collectively on the future, especially out of concern for the younger generations.

By comparing the local realities that we have deepened with theoretical concepts and examples of good practices described in the specialized literature, we have identified several factors that, if not addressed early, could weaken territorial resilience regardless of the assets or the volume of financing. Firstly, a delayed risk management reduces the chances of a successful transition. Where there is too little awareness and preparedness, the community cannot allocate the necessary resources to go through the shock, as was found in Jiu Valley, and the shrinkage is prolonged. The lack of a clear horizon of what will happen next

accelerates the pace of emigration and depopulation. Consequently, this would reflect negatively on the recovery stage, which, the longer it lasts, the lower the chances of renewal. Secondly, if communication is deficient in both ways, from the authorities to the population, as well as from the population to the leadership, it results in a feeling of underrepresentation of citizens in the public discourse with a strong demobilizing effect, exacerbating the perception that everyone has abandoned them : politicians, mass media and the rest of Romanian society. Third, the vacuum of reliable information, the traumatic experience of previous transitions, or mistrust of leadership can turn most locals into passive spectators who do not consider themselves capable of changing their fate. These situations are harmful because they lead to an underutilization of resources, whether tangible or intangible, and little agency to act. When delayed risk management is combined with weak agency, timely action is unlikely to be taken, a prerequisite for both building community resilience and the success of just transition. Fourth, collective action can prove problematic if stakeholders continue to have different and sometimes conflicting interests. We believe that this shortcoming also originates in poor preparedness for impact, as risk management would also involve forging stronger collaborative relationships.

The cases studied highlight some shortcomings in the implementation of the just transition, including the problem of governance and mistrust towards local and national authorities, difficulties in orchestrating individual agendas to launch a collective action for the future of the region and, last but not least, insufficient information. In addition, the research profiled different actors and highlighted the challenges to be addressed and the roles to contribute to the just transition. We found in all three territories people who are strongly attached to the region, determined to create a more sustainable future for their community, with or without European funding, but they do not always have enough influence to give the transition a socio-ecological character, which it would be just for both people and nature.

For a post-mining community, being resilient is not just an adaptation to absorb shock but requires a structural transformation of the economy and society. This transformation process is only possible by manifesting a level of agency that may be missing in a post-socialist system where citizens have not yet acquired a culture of debate, everyone feels secure enough to openly expresses their point of view. However, regardless of geography and historical past, the population needs adequate information, considering the local specifics, and the information must be disseminated by image vectors considered by the community to be

reliable. In our humble opinion, this research complements official initiatives, and our findings could be useful if issues such as increasing adaptive capacity, agency and the need to act in time, were to be addressed.

Last but not least, we reiterate that there are both geographical and especially cultural limits for the reconversion of post-mining territories, the latter of which can only be overcome by increasing the level of education and innovation and by better connectivity of the territory.

When it comes to territorial resilience, this thesis argues that there are no standard solutions, only customized and culturally appropriate measures, therefore, to obtain a real change of "*habitus*", the transformational processes should be implemented with a great deal of cultural sensitivity and increased attention to the uneven geographical development of the European Union. Otherwise, the transition may not bring more social and spatial justice, but even more inequality.

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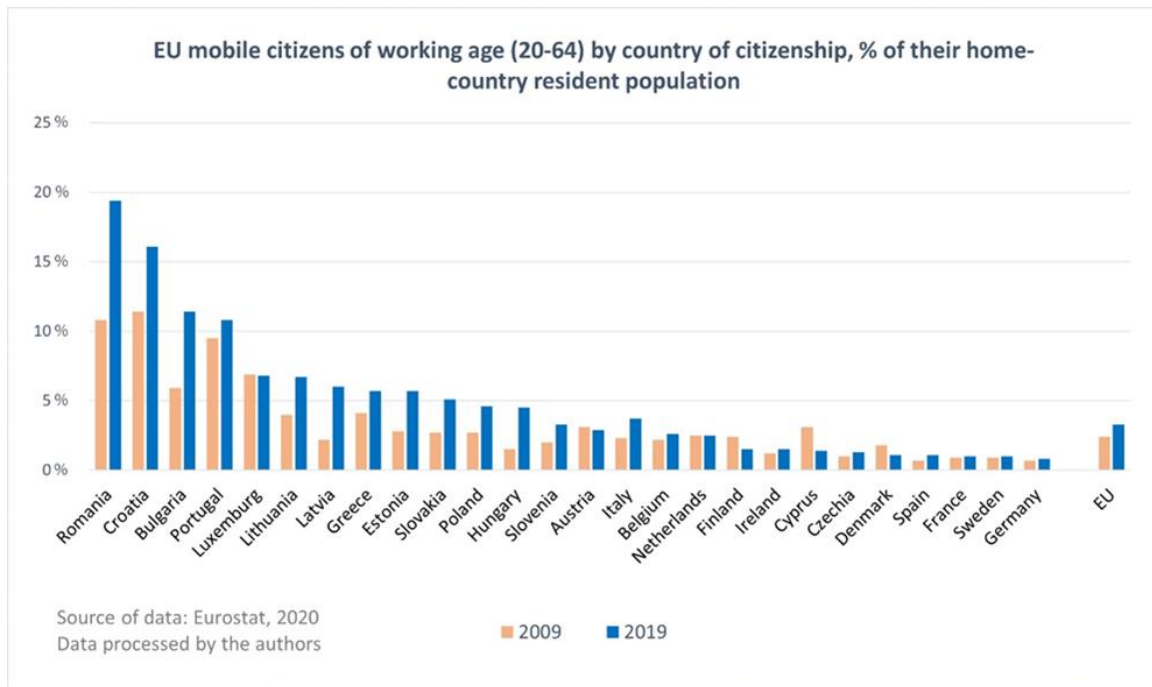
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Appendix 1. Just Transition Fund allocations for Member States

<u>Member state</u>	<u>Total allocations in EUR million</u>	<u>Member States' share from total</u>
<u>Poland</u>	<u>3 500</u>	<u>20,00 %</u>
<u>Germany</u>	<u>2 254</u>	<u>12,88 %</u>
<u>Romania</u>	<u>1 947</u>	<u>11,12 %</u>
<u>Czechia</u>	<u>1 493</u>	<u>8,53 %</u>
<u>Bulgaria</u>	<u>1 178</u>	<u>6,73 %</u>
<u>Italy</u>	<u>937</u>	<u>5,35 %</u>
<u>France</u>	<u>937</u>	<u>5,35 %</u>
<u>Spain</u>	<u>790</u>	<u>4,52 %</u>
<u>Greece</u>	<u>755</u>	<u>4,31 %</u>
<u>Netherlands</u>	<u>567</u>	<u>3,24 %</u>
<u>Finland</u>	<u>424</u>	<u>2,42 %</u>
<u>Slovakia</u>	<u>418</u>	<u>2,39 %</u>
<u>Estonia</u>	<u>322</u>	<u>1,84 %</u>
<u>Lithuania</u>	<u>249</u>	<u>1,42 %</u>
<u>Hungary</u>	<u>237</u>	<u>1,36 %</u>
<u>Slovenia</u>	<u>235</u>	<u>1,34 %</u>
<u>Portugal</u>	<u>204</u>	<u>1,16 %</u>
<u>Latvia</u>	<u>174</u>	<u>1,00 %</u>
<u>Croatia</u>	<u>169</u>	<u>0,97 %</u>
<u>Belgium</u>	<u>166</u>	<u>0,95 %</u>
<u>Sweden</u>	<u>142</u>	<u>0,81 %</u>
<u>Austria</u>	<u>124</u>	<u>0,71 %</u>
<u>Cyprus</u>	<u>92</u>	<u>0,53 %</u>
<u>Denmark</u>	<u>81</u>	<u>0,46 %</u>
<u>Ireland</u>	<u>77</u>	<u>0,44 %</u>
<u>Malta</u>	<u>21</u>	<u>0,12 %</u>
<u>Luxembourg</u>	<u>8</u>	<u>0,05 %</u>
<u>EU 27</u>	<u>17 500</u>	<u>100,00 %</u>

Source: Official Journal of the European Union

Appendix 2. Mobility among EU citizens of working age



Appendix 3. Risk and protective factors for the community of Jiu Valley in the transition to the green economy

1. Which category of study participants do you belong to?

- Employed in the mining sector or in a sector dependent on mining in Jiu Valley
- Representative of the local authorities in Jiu Valley
- Representative of the Government of Romania
- MEP
- European civil servant
- Independent consultant
- Researcher
- Representative of an NGO
- Journalist
- Other...

2. How do you assess the plan to close the coal mines in Jiu Valley in the coming years?

Answers:

1. A necessary measure to achieve environmental protection objectives

2. A necessary measure for the economic recovery of the region
3. A compulsion unjustifiably imposed by the European Commission on Romania
4. An unfair measure towards mining employees

Intensity:

1. Totally agree
2. I tend to agree
3. I tend to disagree
4. Totally disagree

3. Do you think that the process of mine closure in Jiu Valley should have been completed by now?

Answers:

- Yes
- No
- I do not know

3b. How do you explain this delay?

Long answer:

4. If Romania can achieve the objective of reducing carbon emissions assumed at the national level without closing the mines, do you think that the exploitations in Jiu Valley should continue their activity?

- Yes
- No
- I don't know
- Other...

5. From your point of view, how high is the revitalization potential of Jiu Valley through the implementation of sustainable development projects?

- Very high
- High
- Low
- Very low

5b. Justify the answer at the previous question

Long answer:

6. In your opinion, how vulnerable is the population of Jiu Valley in the transition to the green economy?

- Very vulnerable
- Vulnerable
- Not so vulnerable
- Not at all vulnerable

6b. Why?

Long answer:

1. Who can facilitate a just transition for employees in mining and related sectors? Assign a coefficient from 1 to 6 to the following actors, depending on the influence they can have on the process, where 6 means the greatest influence:

1. National authorities
2. Local authorities
3. Unions
4. The European Commission
5. Non-governmental organizations
6. The regional and national university environment

8. Which are the most reliable sources of information regarding the implementation of the Green Deal in the Jiu Valley? Rate the following sources from 1 to 8, with 8 being the most reliable source:

1. The Government of Romania
2. Local authorities
3. Central mass media from Romania
4. Local media from Jiu Valley

5. The European Commission
6. Non-governmental organizations active in the Jiu Valley
7. Romanian academics
8. Online sources

9. What type of assistance has been provided so far to employees in mining and related sectors in view of mine closure?

- Detailed information on the stages of the transition
- Counselling and access to professional conversion programs
- Early retirement option
- Incentives for those who want to become entrepreneurs
- The option of relocating to areas where the labour laid off from mining would be needed
- I am not aware of any employee assistance programs already in place
- Other...

10. What do you think the role of the media should be in the transition to the green economy?

- To better explain what the Green Deal means and what are the consequences of implementing its provisions in Romania
- To organize debates with the participation of all parties involved in the management of the transition
- Track how central and local authorities are acting to protect those who will lose their jobs
- The media must play no other role than an observer of the transition
- Other...

11. What do you think the role of trade unions should be in the transition to the green economy?

- To oppose at all costs the closure of the mines
- To negotiate with employers and authorities' compensation for the employees who will be laid off
- To be the authorities' partners in the mine closure process

- To assist mining employees in career conversion throughout the transition
- Other...

12. What do you think the order of priorities should be in the transition to the green economy in the Jiu Valley? Assign a value from 1 to 5 to each answer, where 1 represents the highest priority:

1. Decontamination of the environment in the areas where coal was extracted
2. Establishing post-mining land use objectives
3. Informing the population about the transition stages
4. Attracting investment to create new jobs
5. Integration of mining employees into professional conversion programs

13. How do you assess the measures taken so far by the central and local authorities in managing the transition to the green economy in the Jiu Valley?

- Very good
- Good
- Satisfying
- Bad
- Very bad
- Other...

14. In your opinion, what should be the economic specifics of the post-mining Jiu Valley?

- Touristic area
- Agricultural area
- Area with activities in light industry
- Renewable energy production area
- Other...

15. In your opinion, what is the biggest danger for the local community in Jiu Valley at the moment?

- The government will not develop a good plan to attract the European funds available for a just transition in the Jiu Valley
- Employees to stage protests against mine closure plan
- The post-mining strategy for Jiu Valley will not be based on sustainable development projects
- Laid-off mining employees not properly assisted in transition
- Other...

16. Other comments you consider relevant to our study:

Long answer :

Romanian version of the survey (original)

Factori de risc și de protecție pentru comunitatea din Valea Jiului în tranziția la economia verde

1. Din ce categorie de participanți la studiu faceți parte?

- Angajat în sectorul minier sau într-un sector dependent de minerit în Valea Jiului
- Reprezentant al autorității locale în Valea Jiului
- Reprezentant al Guvernului României
- Europarlamentar
- Funcționar European
- Consultant Independent
- Cercetător
- Reprezentant al unui ONG
- Jurnalist
- Altele:

2. Cum apreciați planul de închidere a exploatărilor de huilă din Valea Jiului în următorii ani?

Răspunsuri:

1. O măsură necesară pentru atingerea obiectivelor de protecție a mediului
2. O măsură necesară pentru relansarea economică a regiunii
3. O constrângere impusă nejustificat de Comisia Europeană României
4. O măsură injustă față de angajații din minerit

Intensitate:

1. Total de acord
2. Tind să fiu de acord
3. Tind să nu fiu de acord
4. Total dezacord

3. Considerați că procesul de închidere a minelor din Valea Jiului trebuia să fie finalizat până acum?

Răspunsuri:

- Da
- Nu
- Nu știu

3b. Cum vă explicați această întârziere?

Răspuns:...

4. Dacă România poate atinge obiectivul de reducere a emisiilor de carbon asumat la nivel național fără închiderea minelor, considerați că exploatarea din Valea Jiului ar trebui să-și continue activitatea?

- Da
- Nu
- Nu știu
- Altele...

5. Din punctul dvs. de vedere, cât de mare este potențialul de revitalizare a Văii Jiului prin implementarea unor proiecte de dezvoltare durabilă?

- Foarte mare
- Mare
- Mic
- Foarte mic

5b. Justificați în câteva propoziții opțiunea de răspuns de la întrebarea anterioară:

Răspuns: ...

6. Cât de vulnerabilă credeți că este populația din Valea Jiului în tranziția la economia verde ?

- Foarte vulnerabilă
- Vulnerabilă
- Puțin vulnerabilă
- Deloc vulnerabilă

6b. De ce?

Răspuns...

7. Cine poate facilita o tranziție justă pentru angajații din minerit și din sectoarele dependente? Atribuiți un coeficient de la 1 la 6 următorilor actori, în funcție de influența pe care o pot exercita asupra procesului, unde 6 înseamnă cea mai mare influență:

1. Autoritățile naționale
2. Autoritățile locale
3. Sindicate
4. Comisia Europeană
5. Organizațiile non-guvernamentale
6. Mediul universitar regional și național

8. Care sunt cele mai de încredere surse de informare cu privire la implementarea Pactului Verde în Valea Jiului ? Atribuiți un coeficient de la 1 la 8 următoarelor surse, unde 8 reprezintă cea mai de încredere sursă :

1. Guvernul României
2. Autoritățile locale
3. Mass-media centrală din România
4. Mass-media locală din Valea Jiului
5. Comisia Europeană
6. Organizațiile non-guvernamentale active în Valea Jiului
7. Cercetătorii din mediul universitar românesc
8. Surse online

9. Ce tip de asistență li s-a oferit până acum angajaților din minerit și din sectoarele dependente în perspectiva închiderii minelor?

- Informare amănunțită în privința etapelor tranziției
- Consiliere și acces la programe de conversie profesională
- Opțiunea pensionării anticipate
- Stimulente pentru cei care vor să devină antreprenori
- Opțiunea relocării în zone unde ar fi nevoie de forță de muncă disponibilizată din minerit
- Nu am cunoștință să fi demarat deja vreun program de asistență pentru angajați
- Altele...

10. Care credeți că ar trebui să fie rolul mass-media în tranziția la economia verde?

- Să explice mai bine ce înseamnă Pactul Verde și care sunt consecințele implementării prevederilor acestuia în România
- Să organizeze dezbateri cu participarea tuturor părților implicate în gestionarea tranziției
- Să urmărească în ce fel acționează autoritățile centrale și locale pentru a-i proteja pe cei care își vor pierde locurile de muncă
- Mass-media nu trebuie să joace niciun alt rol decât de observator al tranziției
- Altele...

11. Care credeți că ar trebui să fie rolul sindicatelor în tranziția la economia verde?

- Să se împotrivească cu orice preț închiderii minelor
- Să negocieze cu patronate și autorități compensații pentru angajații care vor fi disponibilizați
- Să fie partenerii autorităților în procesul de închidere a minelor
- Să-i asiste pe angajații din minerit în conversia profesională pe toată durata tranziției
- Altele...

12. Care credeți că ar trebui să fie ordinea priorităților în tranziția la economia verde în Valea Jiului? Atribuiți câte o valoare fiecărei variante de răspuns, unde 1 reprezintă cea mai mare prioritate:

1. Decontaminarea mediului în zonele de unde s-a extras cărbune
2. Stabilirea obiectivelor de folosință a terenurilor post-minerit
3. Informarea populației cu privire la etapele tranziției
4. Atragerea de investiții pentru a crea noi locuri de muncă
5. Integrarea angajaților din minerit în programe de conversie profesională

13. Cum apreciați măsurile luate până acum de autoritățile centrale și locale în gestionarea tranziției la economia verde în Valea Jiului?

- Foarte bune
- Bune
- Satisfăcătoare
- Proaste
- Foarte proaste

14. Care credeți că ar trebui să fie specificul economic al Văii Jiului post-minerit?

- Zonă turistică
- Zonă agricolă
- Zonă cu activități în industria ușoară
- Zonă de producție a energiei regenerabile
- Altele...

15. Care credeți că este în acest moment cel mai mare pericol pentru comunitatea locală din Valea Jiului?

- Guvernul să nu elaboreze un plan suficient de bun pentru a atrage fondurile europene disponibile pentru o tranziție justă în Valea Jiului
- Angajații să organizeze proteste față de planul de închidere a minelor
- Strategia post-minerit pentru Valea Jiului să nu fie bazată pe proiecte de dezvoltare durabilă
- Angajații disponibilizați din minerit să nu fie asistați corespunzător în tranziție
- Altele...

16. Alte comentarii pe care le considerați relevante pentru studiul nostru:

Răspuns: ...

Appendix 4. Profile data of participants in the semi-structured interviews in Jiu Valley

Ctr.	Name	Gender	Age	Profession	Place of residence
1.	R.N.	M	35	Social worker	Petrila
2.	V. S.	F	37	Consultant	Petrila
3.	S. T.	M	32	Architect	Petroșani
4.	D. L.	F	60	Retired civil servant	Petroșani
5.	L. M.	F	44	Journalist	Petroșani
6.	T. A.	M	57	Retired mining engineer	Petroșani
7.	M. C.	M	60	Retired mining engineer	Lonea
8.	V. B.	M	68	Elected local councilor	Petroșani
9.	C. T.	M	57	Retired mining engineer	Petroșani
10.	E. M.	F	63	University professor	Petroșani
11.	M. I.	M	65	University professor	Petroșani
12.	D. P.	M	45	MEP	Bruxelles
13.	A. R.	M	62	Former miner	Vulcan
14.	K. N.	M	61	Former miner	Livezeni
15.	I.R.	M	39	Roman-catholic priest	Lupeni

Appendix 5. Quality of life and perspectives of territorial revitalization in the city of Ştei, Bihor County

1. **Age:**
2. **Gender: M, F**
3. **Town of residence:**
4. **How long have you lived in the town of Ştei?**
 - I was born here.
 - For more than 20 years
 - For more than 10 years
 - For more than 5 years
 - For less than 5 years
5. **Last school graduated:**
 - Primary school
 - Gymnasium
 - High school
 - Vocational school
 - Post-secondary school
 - University
 - Masters
 - PhD
6. **Employment:**
 - Employee of a state-owned company
 - Employee of a private company
 - Unemployed
 - Entrepreneur
 - Retiree

- Beneficiary of a form of social assistance
- Other....

7. Profession:

8. Marital status:

- Single
- Married, without children
- Married, having children
- Divorced
- Widower
- In a consensual union

9. Ethnicity:

- Romanian
- Hungarian
- German
- Roma
- Other...

10. Religious denomination:

- Orthodoxy
- Roman Catholicism
- Byzantine Catholicism
- Lutheran Church
- Neo protestant Church
- Islam
- Mosaic
- None
- Other...

11. Do you have first- or second-degree relatives living abroad?

- Parents
- Children
- Brothers
- None

12. Languages spoken:

- Romanian
- English
- French
- Russian
- Hungarian
- German
- Italian
- Spanish
- Romani
- Ukrainian
- Other...

13. How satisfied are you with the living standard in Ştei?

- Very dissatisfied
- Dissatisfied
- Somewhat pleased
- Satisfied
- Very satisfied

14. How do you rate the quality of the following services in the town of Ştei:

(Very weak; Weak; Good enough; Good; Very good)

- Pre-school education
- Primary education
- Gymnasium education

- High school
- Health system
- Waste management
- Safety
- Public transportation
- Social assistance
- Law applicability

15. Where is your job located?

- In Ştei
- In Oradea, the capital city of the county
- Other...

16. Do you think that the history of the town, closely related to the mining of uranium deposits, represents a stigma for the community?

- Yes
- No
- I don't know

17. What impact does the totalitarian architecture have on the identity of the residents of Ştei?

- It has a negative impact, the association with Stalin and the Soviet Union is bad for the city
- It has neither positive nor negative impact
- It has a positive impact through its uniqueness and historical value
- Other....

18. What improvements would you like regarding access to goods and services in the town of Ştei? Please rate your priorities from 1 to 8, where 1 is the highest priority:

- More green spaces
- More commercial spaces
- More accommodation for tourists
- Reopening of the station and access to rail transport
- Home health care services

- Professional qualification opportunities
- More jobs
- Better interaction with local public administration

19. What leisure activities do you prefer?

- Outdoor walks
- Team sports
- Training in the gym, fitness, yoga, pilates
- Climb
- Activities in the pool: swimming, aqua gym, aqua bike
- Cinema
- Live music concerts
- Relaxation or therapeutic massage
- Outings to cafes and restaurants
- Other...

20. Name three brands (personalities, local products, monuments, events, etc.) representative of the identity of the town:

21. Do you think that the town of Ștei has a touristic potential?

- Yes
- No
- I don't know

22. Please, explain your previous answer in short comment:

23. In your opinion, what are the strengths that the town of Ștei can rely on in its development strategy? Rank the following factors from 1 to 5, with 1 being the most important:

- The small distance from the Western border of Romania
- The proximity with several important tourist attractions
- Good quality of high school education
- Geothermal resources
- The history of the city and the uniqueness of the architecture

24. Do you think there is potential for economic development in Ştei of through the following economic branches?

(Very low; Pretty low; Low; High enough; High; Very high)

- Tourism (cultural, spa, agritourism, etc.)
- Light industry (clothing, footwear, etc.)
- Agrozootechnical
- Business services (accounting, IT, translations, web design, etc.)
- Logistics
- Food industry

25. How likely do you think the following prospects are in the medium and long term?

(Not at all likely; Unlikely; Probable; Very likely)

- Migration of most young people immediately after graduating from high school
- Economic recovery by completing the industrial park and attracting investors
- Low interest from potential investors amid a labour shortage
- Increasing the attractiveness of the city for potential new residents
- The return home of many emigrants

26. If you have any comments that you consider relevant to our study, please use this space:

27. Would you agree to participate in other stages of our research?

- I would be available for a face-to-face interview lasting approx. 30 minutes
- I would be available to participate in focus group discussions
- I do not wish to participate

Romanian version of the survey (original)

Calitatea vieții și perspective de revitalizare teritorială în orașul Ștei, județul Bihor

1. Vîrsta:

2. Gen: M, F

3. Orașul de reședință:

4. De cât timp locuiți în orașul Ștei?

- M-am născut aici
- De mai bine de 20 de ani
- De mai bine de 10 ani
- De mai bine de 5 ani
- De mai puțin de 5 ani

5. Ultima școală absolvită:

- Școală primară
- Gimnaziu
- Liceu
- Școală Vocațională
- Școală postliceală
- Universitate
- Masterat
- Doctorat

6. Angajare:

- Angajat al unei companii de stat
- Angajat al unei companii private
- Șomer
- Antreprenor
- Pensionar
- Beneficiar al unei forme de ajutor social
- Altele....

7. Ocupație:.....

8. Starea civilă:

- Singur
- Căsătorit, fără copii
- Căsătorit, cu copii
- Divorțat
- Văduv
- Într-o uniune consensuală

9. Etnie:

- Română
- Maghiară
- Germană
- Roma
- Altele...

10. Religie:

- Ortodox
- Romano-catolic
- Greco-catolic
- Luteran
- Neoprotestant
- Islam
- Mozaic
- Nici unul

11. Aveți pe cineva de gradul I sau al II-lea care trăiește în străinătate?

- Părinții
- Copiii
- Frații
- Nimeni

12. Limbi vorbite:

- Română
- Engleză
- Franceză
- Rusă
- Maghiară
- Germană
- Italiană
- Spaniolă
- Rromani

- Ucrainiană
- Alta...

13. Cât de mulțumit sunteți de nivelul de trai din Ștei?

- Foarte nemulțumit
- Nemulțumit
- Oarecum mulțumit
- Mulțumit
- Foarte mulțumit

14. Cum apreciați calitatea următoarelor servicii din orașul Ștei?

(Foarte slabă; Slabă; Destul de bună; Bună; Foarte bună)

- Educație preșcolară
- Învățământul primar
- Învățământul gimnazial
- Liceu
- Sistemul de sănătate
- Gestionarea deșeurilor
- Siguranță
- Transportul public
- Asistența socială
- Aplicarea legii

15. Unde se află locul de muncă al dumneavoastră?

- În Ștei
- În Oradea, capitala județului
- În altă parte...

16. Credeți că istoria orașului, strâns legată de exploatarea zăcămintelor de uraniu, reprezintă un stigmat pentru comunitate?

- Da
- Nu
- Nu știu

17. Ce impact are arhitectura totalitară asupra identității locuitorilor din Ștei?

- Are un impact negativ, asocierea cu Stalin și Uniunea Sovietică este dăunătoare orașului
- Nu are nici un impact pozitiv, nici negativ
- Are un impact pozitiv prin unicitatea și valoarea sa istorică
- Altele....

18. Ce îmbunătățiri ați dori în ceea ce privește accesul la bunuri și servicii în orașul Ștei? Vă rugăm să evaluați prioritățile dvs. de la 1 la 8, unde 1 este cea mai mare prioritate:

- Mai multe spații verzi
- Mai multe spații comerciale
- Mai multe locuri de cazare pentru turiști
- Redeschiderea gării și accesul la transportul feroviar
- Servicii de îngrijire medicală la domiciliu
- Oportunități de calificare profesională
- Mai multe locuri de muncă
- Interacțiune mai bună cu administrația publică locală

19. Ce activități de agrement preferați?

- Plimbări în aer liber
- Sporturi de echipă
- Antrenamente în sala de fitness, yoga, pilates
- Cățărări
- Activități în piscină: înot, aquagym, aquabike
- Cinema
- Concerte de muzică live
- Masaj de relaxare sau terapeutic
- Leșiri la cafenele și restaurante
- Altele...

20. Numiți trei mărci (personalități, produse locale, monumente, evenimente etc.) reprezentative pentru identitatea orașului:

1.

2.

3.

21. Credeți că orașul Ștei are potențial turistic?

- Da
- Nu
- Nu știu

22. Vă rugăm să detaliați răspunsul anterior într-un scurt comentariu:

23. Care credeți că sunt punctele forte pe care se poate baza orașul Ștei în strategia sa de dezvoltare? Notează următorii factori de la 1 la 5, 1 fiind cel mai important:

- Distanța mică față de granița de vest a României
- Apropierea de mai multe obiective turistice importante
- Învățământ liceal de bună calitate
- Resurse geotermale

- Istoria orașului și unicitatea arhitecturii

24. Credeți că există potențial de dezvoltare prin următoarele ramuri economice?

(Foarte scăzut; Destul de scăzut; Scăzut; Suficient de mare; Mare; Foarte mare)

- Turism (cultural, spa, agroturism, etc.)
- Industrie ușoară (haine, încălțăminte etc.)
- Agrozootehnică
- Servicii de afaceri (contabilitate, IT, traduceri, web design etc.)
- Logistică
- Industrie alimentară

25. Cât de probabile credeți că sunt următoarele perspective pe termen mediu și lung?

(deloc probabil; puțin probabil; probabil; foarte probabil)

- Emigrarea majorității tinerilor imediat după absolvirea liceului
- Redresarea economică prin finalizarea parcului industrial și atragerea investitorilor
- Interes scăzut din partea potențialilor investitori pe fondul deficitului de forță de muncă
- Creșterea atractivității orașului pentru potențiali noi rezidenți
- Întoarcerea acasă a multor emigranți

26. Dacă aveți comentarii pe care le considerați relevante pentru studiul nostru, vă rugăm să folosiți acest spațiu :

.....

27. Ați fi de acord să participați la alte etape ale cercetării noastre ?

- Aș fi disponibil pentru un interviu față în față de aproximativ 30 de minute
- Aș dori să particip la focus-grupuri
- Nu vreau să particip

Appendix 6. Survey in La Louvière

1. In your opinion, what are the assets of Louvière?

.....

.....

2. Are you satisfied with the current level of development of La Louvière?

- Very satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied
- Indifferent

3. Do you think that La Louvière can become a model city in terms of environmental protection?

- Yes, absolutely
- Yes, potentially
- No, unlikely
- No, not at all likely
- Indifferent

4. Can you assess the potential that the following sectors have to economically develop La Louvière? Rank these sectors on a scale of very high potential to very low potential.

	Very high potential	High potential	Medium potential	Low potential	Very low potential	Indifferent
The industry						
High Technology companies						
Crafts and small businesses						
Shops and services						
Tourism and leisure						

Education and research						
Agriculture and agri-food						
The cultural sector						
Construction and real estate						

5. In your opinion, is the tourist potential well exploited in La Louvière?

- Very well exploited
- Well exploited
- Poorly exploited
- Very poorly exploited
- Indifferent

6. Are you satisfied with the quality of life in La Louvière?

- Very satisfied
- Satisfied
- Dissatisfied
- Very dissatisfied
- Indifferent

7. In your opinion, what level of support should be provided to the following sectors to improve the quality of life in La Louvière? Rank them from 1 to 7, where 1 is the area that would require the most support.

	1	2	3	4	5	6	7
The health sector							
The education sector							
The sports and culture sector							
Hobbies							
The administrative sector							
The security sector							

The employment sector									
-----------------------	--	--	--	--	--	--	--	--	--

8. In your opinion, which actors have the most influence on the development of La Louvière? Rank the following actors from 1 to 9, based on their potential impact on the future of the city, where 1 represents the greatest impact.

	1	2	3	4	5	6	7	8	9
Public interest organizations									
Municipal authorities									
Regional authorities									
Federal government									
Cultural, associative and youth organizations									
Private companies									
Civil society/citizens									
European Union									
Media									

9. How would you assess your level of knowledge of the projects/initiatives proposed by the city for the future of La Louvière?

- Very good knowledge
- Good knowledge
- Average knowledge
- Low knowledge
- Very low knowledge

10. According to you, which sources of information concerning the projects/initiatives for the future of La Louvière seem most credible to you. Rank the following actors from 1 to 9 based on their credibility, where 1 represents the highest credibility.

	1	2	3	4	5	6	7	8	9
Public interest organizations									

Municipal authorities									
Regional authorities									
Federal government									
Cultural, associative and youth organizations									
Private companies									
Civil society/citizens									
European Union									
Media									

11. Do you participate in projects or initiatives that aim to improve the future of La Louvière?

- Yes
- No

If so, why ?

.....

12. What is your gender?

- Woman
- Man
- Other

13. What is your year of birth?

14. What is the highest level of qualification you have obtained?

- No diploma
- Primary education
- Secondary education (lower/higher)
- Short/long higher education
- Professional training
- Other.....

15. What is your current professional situation?

- Full-time employee
- Part-time employee
- Independent
- Student
- Retired
- Unemployed
- Other:

If employed: What profession do you currently practice?

16. How long has your family lived in La Louvière?

17. Do you plan to stay in La Louvière in the future? Please explain why.

- Yes
- No
- I don't know

Why ?

18. What is/are your origin(s)?

19. In the past, have you had a close family member who worked in the mines?

- Yes
- No
- I don't know

20. To what extent was your family impacted by the closure of the mines in the 1970s in La Louvière?

- Very impacted
- Little impacted
- Not impacted at all

If impacted, in what way(s)?.....

Enquête sur la Louvière

1. Selon vous, quels sont les atouts de la Louvière ?

.....
.....

2. Êtes-vous satisfait du niveau de développement actuel de La Louvière ?

- Très satisfait
- Satisfait
- Insatisfait
- Très insatisfait
- Indifférent

3. Pensez-vous que La Louvière peut-elle devenir une ville-modèle en matière de protection de l'environnement ?

- Oui, absolument
- Oui, potentiellement
- Non, peu probable
- Non, pas du tout probable
- Indifférent

4. Pouvez-vous évaluer le potentiel qu'ont les secteurs suivants pour développer économiquement La Louvière ? Classez ces secteurs sur une échelle de très haut potentiel à très faible potentiel.

	Très haut potentiel	Haut potentiel	Potentiel moyen	Faible potentiel	Très faible potentiel	Indifférent
L'industrie						
Les entreprises de Haute Technologie						
L'artisanat et les petites entreprises						
Les commerces et les services						
Le tourisme et les loisirs						
L'éducation et la recherche						

L'agriculture et l'agroalimentaire						
Le secteur culturel						
La construction et l'immobilier						

5. Selon vous, le potentiel touristique est-il bien exploité à La Louvière ?

- Très bien exploité
- Bien exploité
- Mal exploité
- Très mal exploité
- Indifférent

6. Êtes-vous satisfait de la qualité de vie à La Louvière ?

- Très satisfait
- Satisfait
- Insatisfait
- Très insatisfait
- Indifférent

7. Selon vous, quel niveau de soutien devrait-on apporter aux secteurs suivants pour améliorer la qualité de vie à La Louvière ? Classez-les de 1 à 7, où 1 est le secteur qui demanderait le plus de soutien.

	1	2	3	4	5	6	7
Le secteur de la santé							
Le secteur éducatif							
Le secteur des sports et de la culture							
Loisirs							
Le secteur administratif							
Le secteur de la sécurité							
Le secteur de l'emploi							

8. Selon vous, quels acteurs ont le plus d'influence sur le développement de La Louvière ? Classez les acteurs suivants de 1 à 9, en fonction de leur impact potentiel sur l'avenir de la ville, où 1 représente le plus grand impact.

	1	2	3	4	5	6	7	8	9
Organismes d'intérêt public									
Autorités communales									

Autorités régionales									
Gouvernement fédéral									
Organismes culturels, associatifs et de jeunesse									
Entreprises privées									
Société civile/les citoyens									
Union européenne									
Médias									

9. Comment évalueriez-vous votre niveau de connaissance des projets/initiatives proposé(e)s par la ville pour l'avenir de La Louvière ?

- Très bonne connaissance
- Bonne connaissance
- Connaissance moyenne
- Faible connaissance
- Très faible connaissance

10. Selon vous, quelles sources d'information concernant les projets/ initiatives pour l'avenir de La Louvière vous semblent les plus crédibles. Classez les acteurs suivants de 1 à 9 en fonction de leur crédibilité, où 1 représente la plus haute crédibilité.

	1	2	3	4	5	6	7	8	9
Organismes d'intérêt public									
Autorités communales									
Autorités régionales									
Gouvernement fédéral									
Organismes culturels, associatifs et de jeunesse									
Entreprises privés									
Société civile/citoyens									
Union européenne									
Médias									

11. Participez-vous à des projets ou initiatives qui ont pour but d'améliorer l'avenir de La Louvière ?

- Oui
- Non

Si oui, le(s)quel(le)s ?

.....

12. Quel est votre genre ?

- Femme
- Homme
- Autre

13. Quelle est votre année de naissance ?

14. Quel est le plus haut niveau de diplôme que vous avez obtenu ?

- Aucun diplôme
- Enseignement primaire
- Enseignement secondaire (inférieur/supérieur)
- Enseignement supérieur de type court/long
- Formation professionnelle
- Autre :

15. Quelle est votre situation professionnelle actuelle ?

- Employé à temps plein
- Employé à temps partiel
- Indépendant
- Etudiant
- Retraité
- Sans emploi
- Autre : ...

Si emploi : Quelle profession exercez-vous actuellement ?

16. Depuis combien de temps votre famille réside-t-elle à La Louvière ?

17. Prévoyez-vous de rester à La Louvière à l'avenir ? Veuillez expliquer pourquoi.

- Oui
- Non
- Je ne sais pas

Pourquoi ?

18. Quelle(s) est/sont votre/vos origine(s) ?

19. Par le passé, avez-vous un membre de votre famille proche qui a travaillé dans les mines ?

- Oui
- Non

- Je ne sais pas

20. Dans quelle mesure votre famille a-t-elle été impactée par la fermeture des mines dans les années 1970 à La Louvière ?

- Très impactée
- Peu impacté
- Pas du tout impactée

Si impactée, de quelle(s) manière(s) ?

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