



Economic Commission for Europe**Committee on Sustainable Energy****Group of Experts on Coal Mine Methane****Nineteenth session**

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Report on implementation of the work plan for 2022-2023**Mapping Albania's readiness for green and just transition in post-coal mining areas****Note by the Secretariat****I. Introduction**

1. The United Nations Economic Commission for Europe (ECE) is actively promoting environmentally sustainable practices in the energy sector, aligning with principles of carbon neutrality and a just transition. This involves countries undergoing a process of decarbonization, creating new opportunities but also causing disruptive effects, especially for communities reliant on energy-intensive industries.
2. ECE acknowledges the need to tailor the transformation process to each member state's capabilities, considering factors such as natural resources, technology, culture, national aspirations, and legal structures.
3. In response to Albania's request, ECE conducted a study focused on post-coal mining areas to assess the country's current state and readiness for a green and just transition. The study aims to provide stakeholders with a comprehensive understanding of the ongoing socio-economic transition, evaluate the readiness of coal mining communities in Albania.
4. To best serve Albania's request and the affected communities, the study takes a practitioner's approach and provides the stakeholders with a sound understanding of the socio-economic transition under way, with an assessment of the readiness of Just Transition Status of Coal Mining Communities in Albania and with a set of recommendations for possible next steps in the process.
5. Section 1 of the study reviews the emerging practices associated with pursuit of "Just Transitions" through a combination of selected conceptual foundations rooted in scientific research and insights arising from socio-economic transitions. Section 2 gives an overview of the coal mining sector in Albania and its current status. Section 3 assesses the readiness of the coal exit in terms of "ECE Just Transition Framework". Section 4 summarizes the recommendations for next steps in this process.

II. Statement of the problem

6. A burgeoning population and increasing per capita consumption have led to the overuse and partial exhaustion of planetary resources.
7. The primary threat is global warming, driven by manmade greenhouse gas emissions.
8. The challenge is to transition from carbon-intensive supply chains and their related socio-economic ecosystems towards local sustainable green economies.
9. In each case, such transition requires a complex change management process, posing obstacles and creating risks that can make the socio-economic shift more costly, or even halt the transformation process.
10. In an initial phase, transitions oftentimes affect local communities in a disruptive way characterized by surprise and uncertainty. Communities that are unprepared for the systemic change tend to defend their outdated economic models and industries on which they depend.
11. Therefore, it is necessary to enable affected communities to strengthen their capabilities and information basis necessary to enable shift from traditional industries to new sustainable business development.

III. Framework

12. The Just Transition Framework for Sector Decarbonization proposed in the study is intended to enable impacted communities to develop an understanding of the socio-economic transition's needs and objectives, its constituent processes, and system elements. It shares experiences of regions going through the same transition and offers a practitioner's approach creating transparency of the transition under way, set up a procedural and organizational framework in order to embark on the journey from a coal mining community towards a green economy.
13. The developed Framework provides an understanding of the fundamentals of decarbonization driven socio-economic transitions and outlines how an impacted community may assess and visualize its economic ecosystem and how it may negotiate the change process, create and develop projects towards an emerging green economy, while adjusting and balancing ecological, economic, social and participatory concerns.
14. For the purpose of the study, as a starting point, the Framework provides an information base and assessment of the just transition readiness of coal mining communities in Albania.
15. The document also presents two mini-case studies of Malmö (Sweden) and Buffalo (United States) providing a vision of how to apply the building blocks of the Just Transition Framework in practice.

IV. Framework for a continued transformation of post-coal mining areas

A. Multilevel character of socio-economic transformation

16. The concept of "Multilevel Socio-Economic Transitions" (MSET), which has already been extensively discussed in literature, is a framework for understanding the complex and interconnected processes of societal and economic change, in particular in the context of transitioning away from fossil fuels like coal.
17. The concept highlights three key levels: niches, regime, and landscape:
 - (a) Niches are defined as small-scale, decentralized activities allowing experimentation and creating opportunities. Widespread niche activity leads to a diverse range of possibilities;

(b) Regime represents a structured level with specialized cooperation patterns, evolving from a starting point and undergoing reconfiguration aftershocks (e.g., mine closures);

(c) Landscape is a macro-level source of threats and opportunities that are beyond direct control of the community, e.g., such disruptions like coal exit driven by economic liberalization or climate mitigation measures.

18. The socio-economic transition involves dynamic interactions between niches, regime, and landscape levels.

19. Practical recommendations from MSET include:

(a) On a Socio-Technical Systems level: Recognizing that societal transitions involve more than technology, stakeholders are advised to consider shifts in social practices, institutions, policies, and cultural norms;

(b) On a Regime Shifts level: Transitioning from initial to new regimes involves changes driven by technology, market, politics, policies, or societal values;

(c) In the context of Path Dependency and Lock-In: Existing systems may be "locked-in," requiring efforts to overcome path dependency, crucial for transitioning away from established systems like coal mining;

(d) From a Multilevel Perspective: Emphasizes coordinated efforts across local, regional, national, and global levels. In sustainability transitions, managing initiatives carefully is essential for addressing just transition risks and benefits arising from higher landscape levels.

B. Technology architecture, mine closure and ecological healing

20. The study underscores the significance of a "Just Transition" in the context of mining and coal exit, recognizing the specific technical and administrative challenges. UNECE's expertise is acknowledged, prompting the need for a framework to guide post-mining land recovery, ensuring effective ecosystem restoration and environmental mitigation.

21. Highlighting intensive studies in Poland, Germany, Serbia, and Albania, the document outlines a UNECE study structure for coal mines.

22. Emphasizing context-specific transformations, it addresses procedural aspects, including the screening and reconfiguration of primary and secondary assets.

23. Practical recommendations advocate for a technologically sound approach, consistent national standards, centralized oversight, multi-party collaboration, ongoing monitoring, and the utilization of international expertise for a globally informed strategy. The overarching goal is to establish a standardized, sustainable model for post-mining land recovery.

C. Supply chain decarbonization and value net reconfiguration

24. The document highlights the technologically and cooperation-intensive nature of coal extraction, emphasizing the pivotal role that coal has been playing in many major industrial processes.

25. As a result, the Just Transition from coal significantly impacts the entire economic fabric, marked by long chains of value creation, technological intensity, and complex cooperation. To navigate this process effectively and capitalize on opportunities for infrastructure reconfiguration, understanding economic interdependencies is crucial.

26. The document introduces supply chains as tools for analysing the economic fabric during the Just Transition, highlighting their role in minimizing costs and optimizing processes. Supply chain mapping is proposed to enhance transparency over stakeholders and dependencies in the affected mining sector.

27. Additionally, the concept of value nets is introduced, acknowledging interconnected relationships beyond a single supply chain. The holistic understanding of value creation in sectors like coal mining, encompassing various interlinked industries, is emphasized.

28. Practical recommendations derived from supply chain and value net approaches aim to enhance the success of Just Transitions. The study advocates systematic supply chain optimization as a key path to decarbonization. Companies are encouraged to adopt sustainable practices, incorporating renewable energy, enhanced energy efficiency, and cleaner technologies throughout the supply chain. Radical measures, such as rethinking material inputs, waste reduction, and embracing circular economy principles, are suggested for successful decarbonization.

29. Collaboration across the supply chain is highlighted as crucial to ensure uniform adoption of sustainable practices from mining operations to the final product.

30. Value net analysis is recommended to identify collaboration and innovation opportunities within the broader Just Transition ecosystem. In the context of coal mining, stakeholders are urged to explore partnerships with renewable energy providers, engage in responsible resource extraction practices, and collaborate with governments to address regulatory challenges. The document views the transition away from coal as fuel as an opportunity for new businesses in renewable energy, sustainable materials, mining asset upcycling, and green technologies. Additionally, exploring value nets of regional cooperation is suggested, emphasizing that companies and entrepreneurial ecosystems leveraging their position within the value net can gain a competitive edge aligned with the broader trend of decarbonization.

D. Entrepreneurial Ecosystems, Smart Specialization and Regional Identity

31. The importance of considering local cultural and socio-economic factors in managing successfully a Just Transition is highlighted.

32. The document underscores the significance of entrepreneurial ecosystems in the context of coal exit transitions and emphasises the uncertainties and challenge faced by mining communities in creating alternative ventures, urging stakeholders to reimagine and reinvent local ecosystems.

33. The role of the broader environment in entrepreneurial success is acknowledged as is the context-specific nature of these ecosystems.

34. An illustration of the interconnected elements of entrepreneurial ecosystems, including entrepreneurs, investors, mentors, educational institutions, government policies, and support organizations is provided and discussed. The study notes the dynamic and self-reinforcing effects of these interactions and notes that in the coal exit situations negative self-reinforcing cycles are common, leading to economic decline and emigration. Conversely, it is argued that a thriving ecosystem attracts resources, talent, and investment, fostering a conducive climate for entrepreneurship.

35. The document introduces the concept of smart specialization as a policy approach, encouraging communities to look at their entrepreneurial ecosystem from a global perspective and align strategies in order to build competitive advantages. It emphasizes the role of communication in this process, addressing challenges in reshaping the region's image during disruptive transitions. Changes in identities and narratives are acknowledged both as potential opportunity in terms unifying forces for change as well as potential sources of conflict.

36. Practical recommendations based on entrepreneurial ecosystem approaches are outlined. Key points include diversification, innovation, and skills development, leveraging investments and infrastructure, and fostering collaboration. The document emphasizes the need for region-specific strategies, considering differences in culture, regulations, and resources. Overall, it advocates for employing the entrepreneurial ecosystem framework and smart specialization perspective to help local communities to navigate the complexities of transitioning away from coal-based economies.

E. JUST Transition – normative context of sustainability policies, goals and Key Performance Indicators (KPIs)

37. The concept Just Transition not only describes a transformation process. It also claims a qualitative property, i.e., that the transition ought to be just.

38. The principles the discussed concept represents have historical roots in earlier labour and social justice movements that advocated for fair treatment and protection of workers and communities affected by economic and industrial changes. However, over time, the concept has evolved and expanded to encompass a broader range of normative “justices”.

39. Two major drivers influence the current ever more prominent role of Just Transition concept and the related policies:

(a) the increasing physical exhaustion of natural resources and global warming, and;

(b) political activities in a form of multilateral negotiations intending to establish a consensus about values, goals, and targets in order to formalize these goals in form of international treaties (in other words, policy domains emphasizing multiple justices in terms of social equity, worker rights, and community well-being in the transition to a more sustainable and inclusive economy).

40. The study offers practical recommendations, advising careful consideration of normative elements in disruptive forces and policy dimensions. It stresses the importance of understanding the long-term policies and market trends driving the particular transition under study, citing for Albania the European Accession Process and Investment Funds as institutional frameworks for the Just Transition process.

F. Uncertainty, Governmental Programs and Possibilism

41. The document reflects on the practical aspects of achieving a "Just Transition" in a coal mining region and highlights the challenges of implementing theoretical concepts in real-world scenarios. It emphasizes the absence of a one-size-fits-all recipe for a successful transition, pointing to the need for on-the-ground experimentation and entrepreneurial effort.

42. The concept of "possibilism" is presented as a valuable perspective for socio-economic transitions. Possibilism encourages viewing constraints not as insurmountable barriers but as opportunities for innovation and reconfiguration. It emphasizes the importance of a creative problem-solving capacity within societies, advocating for adaptable and resilient approaches to address the unique challenges posed by transitions, especially in the context of top-down coal exit programs.

43. Practical recommendations drawn from a possibilism approach include integrating the principles of subsidiarity and entrepreneurial agency into policies. This creates a framework for addressing regional development challenges, encouraging regions to see growth potential within their unique circumstances, leverage local entrepreneurs, and make decisions at the most appropriate level of governance. Subsidiarity promotes decentralized decision-making, tailored approaches, community empowerment, and collaboration among regions, fostering a holistic and resilient approach to regional development.

G. Examples of Just Transition Frameworks – World Bank and European Union (EU)

44. The document highlights the establishment of the "Just Transition" concept as a recognized research field and policy reference, adopted by key institutions like the United Nations, the International Labour Organization, the World Bank, and various national institutions.

45. It refers to two examples of these institutional approaches, one developed by the World Bank for coal-dependent regions in Western Macedonia and another by the Wuppertal Institute under the European Union's Horizon 2020 program.

46. The World Bank's "Coal Sector Transition Assessment Framework" and the Wuppertal Institute's "A Just Transition Readiness Evaluation Tool" are discussed in detail, providing insights into their methodologies, pillars, and phases. The document acknowledges ongoing research challenges in sustainability transitions, particularly regarding the integration of ecological and human systems, the role of multinational companies, and multi-stakeholder coordination.

47. Practical recommendations drawn from Just Transition methodologies stress the localized and creative nature of the process. The study suggests creating unique approaches inspired by external experiences, emphasizing local conditions and community empowerment. The importance of governance is highlighted, focusing on identifying key players committed to the Just Transition and designing an efficient governance structure to integrate stakeholders into the process. The document encourages adaptation, learning from diverse sources, and fostering constructive debate for effective community mobilization.

V. Albanian coal sector and post-coal mining communities

48. In this section the document offers a multidimensional overview of Albania and describes the current state of Just Transition in the country's post-mining communities, proposing the distinction of the following categories of post-mining communities:

- (a) Post-mining areas in the metropolitan area of Tirana;
- (b) Medium centers (Korça, Pogradeci, Telepania), and;
- (c) The remaining, remote post-mining communities.

49. For each community, a detailed "Just Transition ID-Card" is developed in order to provide a starting point of transparency for discussion.

VI. Assessment of Just Transition Readiness of the coal sector in Albania

A. Quantitative Analysis

50. Building upon the World Bank's three pillars approach, the document proposes a comprehensive data model for assessing the readiness of a Just Transition consisting of 8 dimensions and 5 levels:

- (a) The governance pillar includes (1) State level Governance and (2) Regional Agency;
- (b) The people pillar distinguishes between (3) People Care, which assesses supportive measures for compensating hardships, and (4) People Growth, focusing on developing capabilities for adaptation;
- (c) The transformation pillar includes ecological aspects - (5) Ecological Healing - and the creation of substitute employment in the (6) New Economy dimension;
- (d) A fourth pillar, Digitalization, is introduced with (7) Data Transparency and (8) Digital Cooperation dimensions as a precondition for regional capability building and ownership in this process.

51. For each dimension, criteria are suggested to guide the scoring of Just Transition Readiness at each level:

- (a) *Governance* is highlighted as a key dimension associated with landscape-level concepts;

(b) *Regional Agency* and *Individual Ownership* are emphasized for successful development, particularly in the context of disruptions like a coal exit;

(c) *People Care* addresses the impact on individuals and communities, emphasizing the need for support in adapting to disruptions, considering factors like age and speed of disruption;

(d) *People Growth* recognizes the importance of change and the development of new skills through formal education and vocational training, requiring the reinvention of established institutions and networks;

(e) *Ecological Healing* focuses on restoring the natural status after the shutdown of carbon-intensive industries;

(f) *New Economy* emphasizes the challenge of creating a sustainable basis of living for affected individuals and regions through self-supporting activities, attracting existing businesses to invest in the region;

(g) *Data Transparency* and *Digital Cooperation* are introduced as crucial in a rapidly changing scenario, emphasizing the need for coordination and rapid communication in socio-economic transitions.

52. The extension of the three-pillar model is justified by the practical experience in just transitions, complementing institutional governance with agency and ownership at the regional level. The importance of both separating from the old and embracing the new is recognized.

53. The section concludes with a minimum set of Key Performance Indicators (KPIs) for quantitative analysis of the Just Transition, with considerations for data availability and readiness.

54. The limitations of fragmented statistical databases in Albania are acknowledged, and estimates are proposed based on systematically collected information from interviews.

55. In order to overcome the data gaps, a digital twin simulates the socio-economic transition based on additional assumptions. The digital twin diagrams provide a condensed quantitative image of the socio-economic transition in form of a reduced set of KPIs for the coal mining sector, with color-coded indications of data readiness.

56. The document also refers to the SDG monitoring plan as a complementary data source, highlighting Albania's progress in SDG scores.

B. Qualitative Analysis

57. This section outlines the specific coal exit transition in Albania through information collected during the field trips, interviews, and group discussions in 2023.

58. Utilizing a multi-level socio-economic transition scheme, supply chain analysis, and entrepreneurial ecosystem analysis, the document provides a pragmatic description of key characteristics.

59. The Mapping of Socio-Economic Transition (MSET) illustrates the temporal evolution of the transition, highlighting major activities on landscape, regime, entrepreneurial ecosystem, and niche levels. Significant turning points include the breakdown of the initial communist regime, the collapse of the industrial entrepreneurial ecosystem after 1990, and subsequent steps such as the mining law of 1994 and EU integration processes.

60. The document emphasizes the influence of United Nations (UN) and EU policy frameworks, becoming integral to Albanian policy and opening the opportunity for a multidimensional modernization of the entrepreneurial ecosystem by 2035. This includes reforms in education, administration, and legal structures to align with European standards and attract foreign investments.

61. In terms of the economic situation, the document notes the shift from a linear industrial supply chain of the energy sector before 1990 to a diversified national and

regionally interconnected power market. The liberalization and modernization of the power market create opportunities for the green economy and renewable energy projects, regional cooperation and aligning with global trends.

62. Challenges identified in interviews and analysis of statistical data include demography and the availability of a qualified workforce. The collapse of the socialist system in 1989 led to a sub-critical job market for miners, but opportunities exist for regional cooperation in mining education and strategic realignment into growth markets such as renewable energy.

63. The document also highlights the need for stronger support for decentralized power generation, addressing transparency and administrative barriers to project development. Albania faces the challenge and opportunity of shifting to a growth model fuelled by renewable energies, requiring coordinated efforts in policy, legislation, administration, infrastructure, and education.

C. Expert-based assessment of the Just Transition readiness

64. The need for a methodological approach to assess the readiness of a country or entrepreneurial ecosystem undergoing a transformative evolution, such as the Just Transition process is emphasized.

65. The concept of a maturity model is introduced to provide a transparent and understandable assessment scheme, allowing stakeholders to evaluate the status and manage progress in the transformational process.

66. Maturity models, commonly used in various evolutionary phenomena, consist of dimensions characterizing the degree of progress of the process under study.

67. In this case, dimensions of the Just Transition are combined with five maturity levels (neutral, basic, managed, defined, established). Criteria for each level are defined, and the maturity is assessed for each dimension, aggregated with proportional weights to obtain an overall maturity for the entire Just Transition Readiness.

68. The obtained maturity value serves as an indicator of the extent to which the Just Transition process under investigation is implemented. However, it does not measure the completion of specific goals, such as new employment, land reuse percentage, or renewable electricity production.

69. The document includes a table summarizing the expert-based assessment of Just Transition Readiness for the Coal Mining Sector in Albania. The assessment process involves a two-level approach: individual assessments from a small group of experts who have closely followed the project and field studies, followed by a structured group interview leading to a qualified group assessment of the transition maturity.

VII. Practical Recommendations and Considerations

A. Recommendations

70. Based on the described above analysis, the document provides the following set of recommendations:

(a) Create Participatory Process and Governance for "Just Transition & Coal Exit in Albania":

(i) Identify a core group of stakeholders dedicated to the mission of the project;

(ii) Gain national stakeholder support and establish a shared, methodologically sound perspective on the Just Transition & Coal Exit;

(iii) Set up a robust, multi-level process with centrally coordinated governance supporting mine closure security, environmental protection, and local business diversification;

- (iv) Leverage EU-driven institutional renewal by investing in governance, policy frameworks, and local entrepreneurship for the mining sector and related education.
- (b) Modernize into a Competitive Green Economy:
 - (i) Exploit Albania's high degree of electricity generation from renewable resources, focusing on untapped photovoltaic and wind potential;
 - (ii) Position Albania as a leader in the Green Economy within the European Union;
 - (iii) Capitalize on ongoing EU-driven modernization efforts to establish a consistent legal framework for a low-carbon economy;
 - (iv) Focus on creating a favourable legal and market framework for decentralized electricity generation and related business models;
 - (v) Phase out fossil fuels strategically, invest in competitive infrastructure, and build markets for expanding the usage of renewable energy and local resources.
- (c) Reinvent Local Business Models and Foster Smart Specialization of Communities:
 - (i) Prioritize the revitalization of local entrepreneurship as a strategic, long-term task;
 - (ii) Encourage communities to take initiative and ownership of challenges, fostering a business development mindset;
 - (iii) Establish the Just Transition Initiative as a catalyst for entrepreneurship and learning within communities;
 - (iv) Develop key partnerships with higher education institutions focusing on innovation and entrepreneurship to support learning and skills acquisition;
 - (v) Accelerate adaptation through the modernization of higher education institutions, international learning networks, and practical cooperation at local, national, and regional levels;
 - (vi) Mobilize and support private sector and local initiatives centrally to ensure a comprehensive framework for success.

B. Considerations

71. The document provides also certain practical considerations to be taken into account while preparing for implementation of the transition process:

- (a) Focus on the Initiation and Setup of a Just Transition Working Group:
 - (i) Given the completed social coal exit but unfinished ecological healing and new business development in Albania, prioritize the establishment of a Just Transition working group;
 - (ii) This group should serve as the seed for developing a local pilot project, acting as a proof of concept for completing the coal exit initiated in the 1990s and transitioning toward a finished Just Transition;
 - (iii) Use the Just Transition framework as a guiding methodology to align with UN and EU programs, increasing the likelihood of obtaining financial support for a systematic program for post-mining communities.
- (b) Importance of a Local Pilot Group with Committed Stakeholders:
 - (i) Without a local pilot group comprising committed stakeholders, interested international institutions may lack a counterpart for developing an internationally funded Just Transition program for Albania;

- (ii) Practical recommendations emphasize the critical nature of this initial step in the life cycle of a Just Transition program.
 - (c) Next Steps in the Just Transition Program:
 - (i) A local initiative consisting of 3 to 10 players, including representatives from higher education, green economy businesses, post-mining communities, and government sponsors, should be formed within 6-8 weeks;
 - (ii) Prioritize "speed boat" projects during a workshop under the ECE, focusing on small, resource-efficient projects with rapid outcomes to engage local and international stakeholders;
 - (iii) Over the next 1-3 years, this project group becomes a counterpart for continued dialogue in the Just Transition path with ECE and other international partners.
 - (d) Building Public-Private Cooperation into the Local Project Group:
 - (i) Emphasize the importance of public-private cooperation within the local project group, recognizing that Just Transition is fundamentally about building a viable and resilient local economy;
 - (ii) Engage potential business partners, such as international companies in the energy market or anchor companies in post-mining communities, to enhance the attractiveness of these places for future employees.
 - (e) Involvement of Higher Education Institutions:
 - (i) Encourage active participation, ideally at the professorship level, from a faculty of entrepreneurship, sustainable development, or innovation from leading higher education institutions in Albania;
 - (ii) Highlight the potential for applied learning in entrepreneurship and provide research opportunities for students, creating a mutually beneficial relationship between the "Just Transition Initiative Albania" and educational institutions.
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