

Thematic Assessment on Just Transition for Ukraine

Part of the Green Agenda for Armenia, Georgia,
Moldova, and Ukraine Project

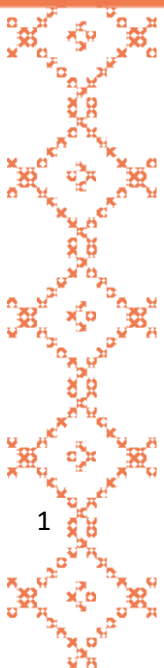
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“Taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities”

Excerpt from Paris Agreement

DISCLAIMER:

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The findings, interpretations, and conclusions expressed in this report are those of the authors and do not necessarily reflect the official policy or position of Sida, SEI, or any other project partners or stakeholders.

The report is based on information available up to Spring 2024. For the latest data and analysis, please refer to the national green transition assessment report for Ukraine.



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1. Current state and trends

1.1. The profile of the thematic area

The topic of **just transition** has been on the agenda of the Government of Ukraine since the adoption of the Paris Climate agreement in 2015, with a particular focus on the **transformation of mining regions in the Eastern region (Donetsk and Luhansk oblasts)**. The debate on the future of the cities specializing in coal mining has been actively supported by the political establishment as well as civil society organizations, especially after the beginning of Russian aggression in 2014 and the occupation of the Ukraine regions on Donbas coal field. On the other hand, the issues of just transition (JT) in other regions and in other sector mono-industrial cities have often been overlooked both in media and political discourse, even though this topic is likely to gain attention in the context of the **post-war recovery of Ukraine**.

Ukraine is currently in the process of strengthening its legislative base to secure its commitment to JT. In October 2021, the **Strategy for Environmental Security and Adaptation to Climate Change for the period up to 2030** ([Cabinet of Ministers of Ukraine 2021](#)) was approved by the Government of Ukraine. The Strategy aims to turn Ukraine into a more ecologically safe and climate change-resistant country that will be able to withstand the inevitable consequences of global climate change and will also contribute to the fulfilment of Ukraine's international obligations under the Paris Agreement ([Cabinet of Ministers of Ukraine 2021](#)). The **Energy Strategy of Ukraine for the period until 2050** was adopted the same year to replace the previous strategy up to 2035 ([Cabinet of Ministers of Ukraine 2023](#)). Also, the **Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine for the period up to 2030** was adopted in September 2021, providing a general framework for the development of transformation plans for communities, ensuring social support of miners and their families, creating economic clusters to support economic growth, attract investments, create jobs in coal-mining territories, and diversify the local economy ([Cabinet of Ministers of Ukraine 2021](#)).

Ukraine is also dedicated to actively participating in the **European green transition** by harmonizing national legislation with the EU Acquis and adopting essential strategic documents. The first draft of the **National Energy and Climate Plan** is planned to be presented shortly, which will address the issues of both post-war recovery and the green transition, particularly the aspects of modernization of old thermal power plants, the development of green generation, and hydrogen technologies ([Prime Minister of Ukraine 2023](#)).

Importantly, the **Ukraine Recovery Plan** offers a comprehensive outlook of the future reconstruction of Ukraine, including the 'building back better' principle. The implementation of the plan will align with the principles of social justice and just transition as it covers the sections of energy security, environmental safety, social protection, and others ([National Recovery Council 2022](#)).



The **sustainable and fair post-war recovery** is among the present priorities of the government of Ukraine and will likely remain at the top of the agenda in the forthcoming years. However, Ukraine faces several challenges in this regard, the cornerstone of which is the issue of **human capital development**. According to the UNHCR data, there are nearly 5.1 million **IDPs** in Ukraine, and more than 6.2 million **refugees** have been recorded globally, while approximately 17.6 million people are in need of humanitarian assistance in 2023 ([UNHCR 2024](#)). At the same time, the labour market in Ukraine has shrunk almost twofold in 2022, causing the rise of **unemployment** to 21.1% due to damaged and destroyed infrastructure, forced relocation of businesses, and geographical mismatch between job opportunities and the labour force ([National Bank of Ukraine 2022](#)) due to ongoing full-scale invasion of Ukraine by Russian Federation. Meanwhile, the state institutions are making efforts to adjust to current wartime needs, notably the need for employment and provision of social assistance to IDPs, war veterans and their families, injured or those affected by war in any other way.

Additionally, addressing the concerns of weak coordination between government bodies, insufficient institutional capacity, scarcity of financial resources, and high risk of corruption is crucial to guarantee a just transition that is both environmentally sustainable and inclusive and just for all population groups.

1.2 Key statistics and trends of the just transition cross-sectoral area

Key statistics regarding the just transition in Ukraine for the period 2010-2022 are available in the table below.

Table 1. Key statistics related to the just transition in Ukraine.

Relevant statistics / indicators	2010	2015	2020	2021	2022	Comments
General metrics of development						
GDP per capita (million USD) (Ministry of Finance of Ukraine 2023)	136,419	90,615	155,582	199,770	160,500	<i>Nominal GDP of Ukraine</i>
GDP growth (%) (Ministry of Finance of Ukraine 2023)	+16.4%	-31.3%	+1.2%	+28.4%	-19.7%	
GHG emissions per capita (t CO₂ eq/y) (World Bank 2023)	5.9	4.2	3.8	n/a	n/a	<i>CO₂ emissions (metric tons per capita)</i>



Ukraine

Population growth rate (Ukraine State Statistics Service 2021)	-0.4%	-5.5%	-0.6%	-0.7%	-1.0%	
Life expectancy at birth (years) (Ukraine State Statistics Service 2021)	70.44	71.38	71.35	69.77	n/a	
Number of healthy years at birth (WHO 2024)	62.2	63.8	64.3 ⁷	n/a	n/a	
Human Development Index (HDI), value (HDI 2022)	0.764	0.774	0.775	0.773	n/a	
Human Development Index (HDI), ranking (HDI 2022)	70	74	75	77	n/a	
Companies' commitment to respecting human rights/labour fundamentals (%)	n/a	n/a	n/a	n/a	n/a	
Population receiving a living wage (%) (Ukraine State Statistics Service 2020)	n/a	n/a	n/a	n/a	n/a	
NET disposable income (million hryvnia) (Ukraine State Statistics Service 2021)	573,744	934,714	2,131,989	2,501,940	n/a	
Companies supported by the state for a just	n/a	n/a	n/a	n/a	n/a	



Ukraine

green transition (number)						
Investments from the private sector that support the measures from the state for just green transitions (euro)	n/a	n/a	n/a	n/a	n/a	
Yearly investment into social equity and justice by the state (million hryvnia) (Ministry of Finance of Ukraine 2015)	n/a	112,056	327,236.1	344,161.8	444,764.5	<i>Expenditures of the state budget of Ukraine for the Ministry of Social Policy, the Ministry of Justice, and the Supreme, Constitutional, and other higher courts of Ukraine</i>
Environmentally related tax revenues (million hryvnia) (EcoPolitic 2022)	n/a	4,689.4	5,165.8	5,435.6	n/a	
Just and equitable low-carbon transition plan (Y/N) (Ministry of Environmental Protection and Natural Resources of Ukraine, 2018)	No	No	Yes	Yes	Yes	<i>The Low Emission Development Strategy for the period until 2050 was adopted in 2018</i>
Just transition is included in the main policy documents (Y/N) (Cabinet of Ministers of Ukraine 2021)	No	No	No	Yes	Yes	



Women's participation in decision-making processes (women in power) (%) (Slovo i Dilo 2021)	7.8%	12%	20.9%	<i>Data provided for representation of women in parliament for the periods 2008-2012, 2015-2019, and 2020-2022</i>		
Global Gender Gap Index (GGGI) (rank) (Global Gender Gap 2010, 2015, 2020, 2021, 2022)	63	67	59	74	81	
Jobs and employment						
Unemployment rate (%) (if possible, by age group) (Ukraine State Statistics Service 2021)	8.1%	9.1%	9.5%	9.8%	n/a	
age group 15–24	17.4%	22.4%	19.3%	19.1%	n/a	
age group 25–29	9.9%	11.2%	8.7%	9.4%	n/a	
age group 30–39	7.8%	n/a	n/a	n/a	n/a	
age group 30–34	n/a	9.7%	8.2%	8.4%	n/a	
age group 35–39	n/a	7.2%	10.3%	10.7%	n/a	
age group 40–49	6.8%	7.6%	9.5%	9.8%	n/a	
age group 50–59	5.3%	6.3%	9.0%	9.5%	n/a	
age group 60–70	0%	0.1%	0.1%	0.3%	n/a	
Youth not in employment or training (% of youth population) (Ukraine State	n/a	17.2%	15.5%	n/a	n/a	



Statistics Service 2020)						
Youth with a low level of education (%)	n/a	n/a	n/a	n/a	n/a	
Employment in highly skilled jobs (%) (Ukraine State Statistics Service 2021))	13.8%	17.1%	17.9%	18%	n/a	<i>% professionals in total employment</i>
Employment in vulnerable sectors (%) (all relevant GUMA topic areas) (Ukraine State Statistics Service 2022))	21.73%	21.16 %	18.70%	18.42%	18.92%	<i>Employment in sectors of agriculture, forestry, and fishing; electricity, gas, steam, and air conditioning supply; construction; manufacture of transport equipment; manufacture of food products and beverages</i>
Employment of women (%) (Ukraine State Statistics Service 2021))	54.4%	51.7%	43.8%	42.9%	n/a	
Income inequality (low, medium, high) (Human Development Report 2024))	9.0%	8.5%	8.5%	8.5%	n/a	
Creation of new jobs (number) (State Employment Center 2024))	n/a	n/a	829,653	705,816	396,337	<i>The number of vacancies registered in the state employment service</i>
Creation of green jobs (number)	n/a	n/a	n/a	n/a	n/a	
Companies creating and providing or supporting access to green	n/a	n/a	n/a	n/a	n/a	



and decent jobs (number)						
Labour force participation rate (% of total population ages 15+) (Work Bank 2024)	63.7%	62.4%	55.1%	54.7%	n/a	
Productivity of the workforce compared to the EU average (%)	n/a	n/a	n/a	n/a	n/a	
Education, reskilling						
Companies committing to reskilling or upskilling workers (%)	n/a	n/a	n/a	n/a	n/a	
Higher-education programs building capacity for the green transition (no of students in / no of courses in ESG, green energy, circular economy, and other EGD- related areas)	n/a	n/a	n/a	n/a	n/a	
Vocational training is necessary for the green transition (number of students in/or number of courses in EGD- related areas)	n/a	n/a	n/a	n/a	n/a	
Participation of adults in lifelong learning (%)	n/a	n/a	n/a	n/a	n/a	



Investment in training for green jobs (EUR)	n/a	n/a	n/a	n/a	n/a	
Vulnerability and inclusivity						
Population in areas most affected by climate change (number)	n/a	n/a	n/a	n/a	n/a	
Population in areas most affected by green transition (number)	n/a	n/a	n/a	n/a	n/a	
Exposure to environmental risk zones (people living in areas with high risk for flooding, air pollution, landslides, etc) (number)	n/a	n/a	n/a	n/a	n/a	
Green areas in cities/settlements (%)	n/a	n/a	n/a	n/a	n/a	
Investment in social equity and inclusion measures (EUR)	n/a	n/a	n/a	n/a	n/a	
Access to services						
Access to green spaces and recreation facilities (within 1 km from home) (%)	n/a	n/a	n/a	n/a	n/a	
Access to energy (%) (World Bank 2024)	99.97%	100%	100%	100%	n/a	Access to electricity (%)
Access to healthcare (%)	n/a	n/a	n/a	21.7% (Ukraine)	n/a	% of households in which any member was unable to receive



				State Statistic s (Service)		<i>medical care, medicines, and medical supplies if necessary, during the last 12 months, from the number of households in which any member needed medical care, the purchase of medicines, and medical supplies</i>
Access to clean water (%) (Macrotrends 2024)	84.76%	88.74 %	89.02%	n/a	n/a	
Access to education (%)	n/a	n/a	n/a	n/a	n/a	
Access to public transport (%) (reasonable distance of public transport stops)	n/a	n/a	n/a	n/a	n/a	
Access to digital services (%) (Kyiv International Institute of Sociology 2022)	n/a	n/a	52.6%	60%	63.4%	<i>% of respondents who reported using state digital services in the respective year</i>
Access to decent and affordable housing (%)	n/a	n/a	n/a	n/a	n/a	
Measures for providing affordable housing by the state (number)	n/a	n/a	n/a	n/a	n/a	

2. Thematic area stakeholders mapping

The content of the 2nd chapter was originally attached as Annex II. Due to GDPR considerations, we are unable to disclose the mapping results publicly.

3. Thematic area gap assessment

3.1 Policy and legal framework

The following section provides an overview of the national policy framework and legislation related to just transition in Ukraine. The outlook includes the analysis of international



agreements related to just transition that Ukraine has ratified, as well as the EU legislation that Ukraine has or is in the process of complying with. Also, a comparative summary between the EGD policy areas and Ukraine's legislative framework is presented, along with an analysis of key gaps and bottlenecks that remain in this domain.

3.1.1. Strategic and planning documents, goals, and targets

To support its commitments to the green agenda, Ukraine has joined several international agreements targeting green and just transition goals. Among others, Ukraine ratified the **UN Framework Convention on Climate Change**, the **Kyoto Protocol**, the **Vienna Convention for the Protection of the Ozone Layer**, and the **Montreal Protocol on Substances that Deplete the Ozone Layer**, all of them addressing the issues of climate change, environmental protection, and green and just transition ([Government Portal](#)). For instance, Ukraine joined the **Paris Agreement** in 2015, having become one of the first European countries to do so. In 2021, the Government of Ukraine adopted the **Second Nationally Determined Contribution to the Paris Agreement** with the goal to reduce greenhouse gas emissions by 35% in 2030 compared to 1990 (achievement of 2018 was a decline to a share of emissions of 39%) ([Cabinet of Ministers of Ukraine 2021](#)). Ukraine is committed to contributing to aligning with the Paris Agreement target by implementing innovations and best global practices in all key sectors of the economy. By 2030, the following steps are planned to be implemented:

- Increasing the share of **renewable energy sources** (RES) in electricity generation to 30% (at the end of 2019, the share of RES was 10.9% of the total amount of electricity generated); reducing coal-fired thermal power plants, and working towards a **gradual closure of coal mines** in combination with programs for the transformation of coal regions.
- Increasing the volume of **heat production using biofuel** by 30% (in 2018, the volume of all RES in heat supply in Ukraine was 8%).
- Reducing **carbon intensity** and energy consumption per unit of production.
- Increasing **forest areas** by 1 million hectares (in 2019, the forest areas in Ukraine were 10.4 million hectares).
- **Thermal modernization of buildings** at the annual level of 1.3% of the total volume of buildings in Ukraine, replacing fossil energy sources with renewable ones.
- Increasing the share of **electric cars** to 15% of the total number of cars; increasing the share of biofuel use and the development of low-carbon transport.
- Transitioning to fertilizers with a slow release of substances; increasing the share of **organic production land** to 3% (in 2019, the share of agricultural land with organic and transitional status was 1.1%) ([Global Compact Network Ukraine 2021](#)).

Ukraine also collaborates with the **International Labour Organization** (ILO) in the implementation of social equity and just transition principles. The Government of Ukraine has so far ratified a number of ILO **Conventions on fundamental principles and rights at work** (including the 1930 Forced Labour Convention, the 1957 Abolition of Forced Labour Convention, the 1948 Freedom of Association and Protection of the Right to Organise Convention, the 1949 Right to Organise and Collective Bargaining Convention, the 1951 Equal Remuneration Convention, the 1958 Discrimination (Employment and Occupation)



Convention, and others), along with the **governance Conventions** (such as the 1964 Employment Policy Convention), and other **technical Conventions** (notably the 1962 Social Policy (Basic Aims and Standards) Convention, the 1975 Human Resources Development Convention, the 1978 Labour Administration Convention, etc.) ([Federation of Professional Unions of Ukraine 2015](#)). This enables the creation of a solid legislative framework in the field of aligning the green transition goals with fundamental principles of social justice and fair labour policy.

Ukraine, like other UN member states, has joined the global process of ensuring sustainable development through its commitment to pursue the **Sustainable Development Goals (SDGs)** and the **Agenda 2030**. In 2019, the President of Ukraine, by his decree, supported the achievement of the SDGs, considering the specifics of Ukraine's development ([Decree of the President of Ukraine 2019](#)). **In December 2020, the Cabinet of Ministers of Ukraine made changes to the Regulations, which henceforth established that the need to achieve the SDGs is taken into account in the process of forming and implementing the state policy of Ukraine.** Also, in connection with the adoption of 17 global SDGs for the period up to 2030, the Sustainable Development Strategy of Ukraine until 2020 needed to be updated. Thus, in 2017, the draft of the **Sustainable Development Strategy of Ukraine until 2030** and the **National Action Plan until 2020** for the implementation of the Strategy were presented as the framework documents to determine the strategic direction of Ukraine's long-term development ([UNDP 2017](#)). As of the end of 2023, Ukraine is in the process of reviewing tasks and indicators for the SDGs due to the impact of the full-scale invasion from the Russian Federation ([Cabinet of Ministers of Ukraine 2023](#)).

Given the European integration agenda, Ukraine dedicates its efforts to reaching harmonization also with the EU's just transition principles. In 2020, internal discussions with business circles regarding the **European Green Deal (EGD)** began in Ukraine, as it creates both new opportunities and challenges for Ukrainian and European businesses, impacting the economic environment and trade. Within this framework, it is planned that the **Carbon Border Adjustment Mechanism (CBAM)** will be implemented starting from 2026 and will primarily affect electric energy, iron and steel, chemicals, cement, fertilizers, and other sectors, as well as influence the Ukraine-EU trade ([Kyiv School of Economics 2021](#)). Also, the cooperation covers the spheres of circular economy, transition to organic agriculture, support of SMEs, energy transition, integration of innovations, etc ([Government Portal 2021](#)).

To implement international commitments of Ukraine in achieving the green transformation and just transition goals, relevant strategic documents have been adopted on the national level. These documents (see Table 10 in Annex III) comply with the policy areas covered in the EGD and define strategic objectives, tasks, and expected results in the spheres of energy security, environmental protection, decarbonization, and others.

3.1.2 Compliance of national legal framework to international obligations and EU approximation

Given Ukraine's aspirations to join the European Union, the Government of Ukraine has been taking steps to align the national legislation with the EU strategic policy directions and key



objectives. The key documents that must be considered in relation to the just transition policy are as follows:

- The **Just Transition Mechanism (JTM)** was first presented by the European Commission under the EGD in March 2020. This mechanism plays a crucial role in ensuring an equitable shift towards a climate-neutral economy, leaving no one disadvantaged. It offers focused assistance to generate approximately 55 billion EUR from 2021 to 2027 in regions facing the greatest impact, mitigating the socio-economic consequences of the transition. It tackles the social and economic consequences of green transition by giving attention to the regions, industries, and workers encountering the most formidable challenges, through three key pillars, namely the Just Transition Fund, the InvestEU "Just Transition" scheme, and the Public Sector Loan Facility ([European Commission 2024](#)).
- Enforced from 29 July 2021, the **European Climate Law** sets the EGD objective for Europe's economy and society to achieve climate neutrality by 2050 as legally binding target for all EU Member States. It also establishes an interim target of reducing net greenhouse gas emissions by at least 55% by 2030, relative to 1990 levels. The 2050 climate neutrality goal involves attaining net-zero greenhouse gas emissions for all EU countries, primarily through emission reduction, investment in green technologies, and preservation of the natural environment. The law is designed to ensure that every EU policy contributes to this objective and that all sectors of the economy and society play a role in this endeavour ([European Commission 2021](#)).
- The **Renovation Wave Strategy** was published in 2020 as a reaction to the growing attention to enhancing the energy efficiency of buildings in the EU amid the COVID-19 pandemic. The objective is to, at a minimum, double the rate of renovations over the next decade, ensuring that these renovations result in increased energy and resource efficiency. This initiative is aimed at improving the quality of life for occupants, reducing greenhouse gas emissions in Europe, promoting digitalization, and advancing the reuse and recycling of materials. By 2030, the plan envisions the renovation of 35 million buildings and the potential creation of up to 160,000 additional green jobs in the construction sector ([European Commission 2020](#)). As an EU candidate country, Ukraine is currently working on the integration of the *acquis* into the national legislation. According to the **European Commission 2023 Report**, Ukraine received a satisfactory assessment of its progress in approximation. **Cluster 4, "The Green Agenda and Sustainable Connectivity,"** provides the estimation of progress in the areas of transport policy, energy, trans-European networks, environment, and climate change that correspond to the just transition agenda. It is noted in the Report that Ukraine demonstrates visible progress in the energy sector and some readiness in other areas. The environmental and climate sphere has seen substantial advancements, particularly in environmental aspects. For example, in the energy sector, Ukraine passed crucial legislation, including a long-awaited law addressing the integrity and transparency of the wholesale energy market. In the chapter on environment and climate change, Ukraine has shown increased legislative alignment with the EU *acquis* and strategic planning. This includes the enactment of a framework



law on waste management, flood risk management plans, and a water strategy extending until 2050 ([European Commission 2023](#)).

In response to the existing challenges and realizing the need to adjust to the changing global environment and to react to the necessity to implement just transition reforms, Ukraine has adopted a series of relevant legislation, which primarily includes, but is not limited to, the documents listed below:

- In the field of just transition of regions:
 - The **Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine** aims to execute the state's regional policy, fostering the equitable transformation of Ukraine's coal regions, primarily in the Luhansk and Donetsk oblasts. It addresses multidimensional challenges arising from reducing coal production and the gradual closure of associated enterprises, encompassing economic, social, cultural, housing, communal, and environmental aspects, as well as the challenges arising from the effects of the Russian invasion ([Cabinet of Ministers of Ukraine 2021](#)).
- In the field of adaptation to climate change:
 - Created to meet Ukraine's international commitments under the Paris Agreement, the **Low Emission Development Strategy** for the period up to 2050 was approved in 2021. It outlines the collectively agreed national vision for separating economic growth and social development from an increase in GHG emissions. The Strategy forms the foundation for developing economic instruments that facilitate Ukraine's shift towards low-carbon development and incorporating innovative technologies ([Ministry of Environment and Natural Resources of Ukraine 2018](#)).
 - The **Concept of Public Policy in Climate Change for the period up to 2030** was approved by the Cabinet of Ministers in 2016. While considering the requirements of the Paris Agreement, it will contribute to the implementation of the main tasks of international climate policy in Ukraine. It defines the grounds for the development of legislative acts, strategies, and action plans for various directions of state policy in the field of climate change ([Cabinet of Ministers of Ukraine 2016](#)). Also, the **Action Plan for the implementation of the Concept of Public Policy in Climate Change** was approved in 2017 ([Cabinet of Ministers of Ukraine 2017](#)).
- In the field of energy efficiency of buildings:
 - The **National Action Plan for Energy Efficiency until 2030**, adopted in 2021, aims to attain the national energy efficiency objective that the primary and final energy consumption in Ukraine should not surpass 91,468,000 and 50,446,000 tons of oil equivalent, respectively. The Action Plan is not only tasked with establishing economically viable targets for reducing the consumption, utilization, and transportation of energy resources across various segments of the energy system, but also includes institutional objectives. The plan extends its focus to areas such as buildings, industry, transport, agriculture, electricity, and heat production, as well as the systems associated with the transportation,



distribution, and supply of electricity, heat, and gas ([Cabinet of Ministers of Ukraine 2021](#)).

Table 11, which can be accessed in the Annex IV, presents a summarised assessment of the above-mentioned documents, covering their alignment with the relevant EU legal acts.

3.1.3 Summary of gaps/bottlenecks and needs

Overall, considering the summarised assessment of the primary gaps and obstacles provided in Table 2 below, the study found that the strategic policy area exhibits a moderate level of compliance.

Table 2. Summary of gaps/bottlenecks and needs.

Area for analysis	Summary of gaps/bottlenecks
Are all EGD subtopics relevant to JT covered by national strategic documents?	The national documents adopted in Ukraine only partially correspond to the just transition principles. In Ukraine, legislative and strategic documents address only a portion of the goals outlined in the relevant EU strategic documents were implemented in Ukraine. For instance, relevant strategic documents have been adopted by the Government of Ukraine in the areas of barrier-free space lack specific targets for addressing gender equality and just transition in general.
Have the JT-related international agreements been honoured? What are the main issues?	Ukraine has joined and ratified a significant number of international agreements related to just transition, including the Paris Agreement, the UN Framework Convention on Climate Change, the Kyoto Protocol, most of the ILO Conventions, etc, while the necessary legislation has been adopted on the national level. Currently, the Government is working on the implementation of the EGD, engaging with relevant stakeholders, which aligns with Ukraine's EU integration objectives.
Are the current strategic objectives and targets in the JT area in line with those of the EGD? How much do they differ?	While the EU just transition approach addresses the complex issues related to energy efficiency, green transition, decarbonization, sustainable mobility, and production, etc, the Ukrainian strategic documents related to just transition predominantly focus on the one problematic industry - coal mining. At the same time, all the goals and target indicators were developed to form the updated NDC, considering the national specificity of Ukraine and potential issues of further decarbonisation of the remaining industries, which may cause many socio-economic and capacity challenges that would prevent the government from reaching the defined objectives.
Has the relevant EU legal framework been transposed in a suitable way to address JT issues? What are the biggest issues/concerns?	Ukraine is still in the process of transposing the relevant EU legislative framework. While important progress has been made, the ongoing war creates certain limitations. Thus, the measures implemented under martial law, which resulted in reduced transparency and independence of energy stakeholders, need to be reversed. Also, a notable challenge is Ukraine's weak administrative capacity in the realm of environment and climate, acting as a significant bottleneck, particularly in the implementation and enforcement of rules related to environmental impact assessments. It is essential to recognise the intricate connection between these issues and the reforms required for Ukraine's reconstruction during and after the war.
Are there ongoing	As noted in the most recent European Commission Report, Ukraine is



discussions on transposing the EU acquis to align it with national and EGD goals (as far as relevant from the JT perspective)? How far along are they?

making progress in the approximation of the EU acquis, including Cluster 4 “The Green Agenda and Sustainable Connectivity”²⁴. However, according to the national tracker, the Agreement Pulse, Ukraine has implemented only 80% of relevant legislation in this area since the signing of the Association Agreement with the EU in 2014. Meanwhile, granting the candidate status to Ukraine imposes additional obligations on Ukraine that have yet to be fulfilled in the future.

3.2 Instruments for policy implementation

In Ukraine, despite some activities towards achieving a just transition, there is a notable lack of mechanisms to systematically integrate long-term aspects into policies, plans, programs, and projects aimed at this goal. This requires substantial efforts from the state to develop relevant regulatory instruments and funding in the area. The ongoing war has further complicated matters by leading to a shortage of energy resources, prompting a delay in plans to completely phase out coal usage. In addition, some coal mining settlements are either occupied by Russian Federation or have suffered destruction due to invasion. The ongoing war has also severely limited funding sources for a fair transformation process. Nevertheless, there is underway a pilot project for fair transformation in the Chervonograd coal region, supported by international partners.

3.2.1 Regulatory and economic instruments

The state authorities of Ukraine acknowledge the strategic need for a just transformation of the fossil fuel extraction industry and the corresponding regions, committing to a long-term state policy. However, the adoption and implementation of decisions to phase out fossil fuels are facing delays, exacerbated by military actions and extensive damage to the energy sector due to Russian attacks. The country is grappling with limited energy resources, influencing the government's cautious approach toward a complete transition from fossil fuels, especially with some coal mines being under Russian occupation, suffering damage due to hostilities, or being located in the frontline zone ([Cabinet of Ministers of Ukraine, 2021](#); [International Energy Agency, 2023](#)). So, as for now, the government representatives claimed there are currently no plans to shut down mines that have the potential and ability to operate ([Halushchenko, 2023](#)). However, mines that have depleted their resources are planned for closure, with a focus on facilitating just transformations for the affected communities ([Prime Minister of Ukraine 2023](#)).

Since gaining independence, the government has tried to deal with the restructuring of the coal industry, primarily due to its increasing unprofitability, necessitating substantial subsidies. Even before the full-scale invasion, many state-owned coal enterprises were extremely unprofitable, with some recording losses of EUR 230 per ton of coal mined. Studies indicated that shutting down these mines could reduce state maintenance costs by 35%, even



considering decommissioning costs and workers' compensation ([Aurora Energy Research 2021](#)).

The state policy aimed at addressing socio-economic challenges in local economies that heavily rely on coal mining showed its weakness. Ukraine has a legislative framework outlining mandatory social guarantees for employees affected by the closure of mining enterprises. These include options such as transferring employees to other mining enterprises, employing them in other industries, offering one-time or regular unemployment benefits, or creating new job opportunities. However, the effectiveness of these measures has been limited, primarily due to inadequate and inconsistent funding, a lack of a systematic approach to social security policy formation, insufficient planning of mine closure, neglect of the interests of workers, and lack of collaboration among stakeholders ([Pantsyr Serhii, Melnyk Serhi 2016](#))

To develop policies and programs for the comprehensive reform of the coal industry, in 2020, the Cabinet of Ministers established the **Coordinating Center for the Transformation of Coal Regions**, which brought together relevant government officials, members of parliament, representatives of coal mining enterprises, trade unions, and associations of local governments ([Cabinet of Ministers of Ukraine 2020](#)).

A basic legal framework for formation policies addressing challenges arising from the transition away from fossil fuels - the **Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine until 2030** - was established in September 2021 ([Cabinet of Ministers of Ukraine 2021](#)). However, the development of the program itself is still in progress.

In 2021, the Cabinet of Ministers, with the support of the Federal Republic of Germany, initiated a **pilot project for the just transition of coal regions**, commencing with two mining towns (Myrnodol in the Donetsk region and Chervonograd in the Lviv region) and intending to expand to five regions encompassing over 60 settlements. The Prime Minister emphasised that a crucial aspect of this transformation is the creation of new opportunities for residents of coal hromadas and workers of coal enterprises ([Prime Minister of Ukraine 2021](#)). However, due to the full-scale Russian invasion, the implementation of the project on the territory of the Donetsk region was suspended, but continued in regions distant from the frontline zone. With the financial help of GIZ, the Chervonograd coal region is now developing the Fair Transformation Concept ([Prime Minister of Ukraine 2023](#)). Initial measures have already been implemented, including the retraining of miners affected by the closure of one of the local mines and the introduction of new specialities in vocational training institutions. Chervonograd is also working on an investment plan that incorporates initiatives for the development of green energy ([UA Energy 2023](#)).

Significant emphasis is placed on the matter of just transition at the local level. In particular, in 2019, the coal monocities of the Donetsk region, local civil society organisations, and the Donetsk Chamber of Commerce and Industry united in the **Platform for Sustainable**



Development of Coal Towns. The platform aims to facilitate the shift to a low-carbon economy, gradually phase out coal, and promote the retraining and employment of laid-off miners ([Platform for Sustainable Development 2024](#)). Later, at the beginning of 2022, the Platform published a **joint Strategy for Transformation** and devised a plan for its execution ([Myrnohrad territorial community 2022](#)).

Also, the mining hromadas of Western Donbas have adopted **Economic Diversification Programs During a Just Transformation**, serving as roadmaps for their socio-economic development amidst a phased transition away from coal. These programs encompass project concepts fostering new employment opportunities, educational program reforms in local institutions, the adoption of renewable energy sources, and other initiatives ([Leaders of mining hromadas regarding the recovery of Ukraine 2022](#)).

3.2.2 Funding and financing

Overall, the coal industry in Ukraine is heavily subsidised, and state financing falls short of ensuring its sustainable development in alignment with strategic and programmatic objectives. The study shows that a significant portion of funds allocated for industry restructuring between 2015 and 2019 was primarily utilised to address wage payment arrears for miners ([Dixi Group 2020](#)). **The allocated resources did not adequately address the industry's broader challenges, such as enterprise modernisation, employee retraining, job creation, and the rehabilitation of mining sites.** Therefore, despite the focus on the development of the coal industry, in fact, it gradually declined. Later, in 2021, Ukraine joined the Powering Past Coal Alliance and committed to phasing out coal usage ([Ecodiia 2021](#)). However, despite these statements, there has been no substantial financial support for a just transformation in communities affected by mine closures.

In the European Union, a key tool for mitigating the socioeconomic impact of transitioning to a low-carbon economy is the **Just Transition Fund** ([European Commission 2024](#)). **As of now, Ukraine has not developed an equivalent mechanism.** While the government announced plans in 2021 to establish a special **multi-donor fund for coal region transformation** ([Uryadovyy kur'yer 2021](#)), the creation of this fund is still in progress. Notably, the Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine, adopted in 2021 (prior to the full-scale Russian invasion), outlined that the total funding for the program would necessitate around UAH 15.7 billion ([Cabinet of Ministers of Ukraine 2021](#)).

At present, the government provides communities intending to transition away from fossil fuel extraction access to the **State Fund for Regional Development**. Additionally, the Ministry of Development of Communities, Territories, and Infrastructure of Ukraine is claimed to be prepared to assist these hromadas in attracting investments for their reconstruction. This support includes initiatives such as the establishment of local reform support offices, aid with comprehensive development programs and facilitating projects that municipalities can present to potential donors ([Justtransition 2023](#)).



International partners, such as Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, play a significant role in supporting just transition processes in Ukraine. In 2021, GIZ initiated a multi-year **project "Supporting structural change in Ukrainian coal regions"**, aimed at supporting the formation and implementation of state policies related to a just transition, fostering dialogue among stakeholders, and assisting municipalities in developing action plans. The project has also been instrumental in starting the pilot projects for the transformation of two mining cities in Ukraine ([GIZ 2023](#)). Additionally, GIZ supports the Association of Coal Mining Communities of Ukraine, which aims to help improve collaboration and knowledge exchange among coal mining hromadas, state authorities, and foreign financial institutions ([Ecodiia 2023](#)).

Ukrainian businesses are also contributing to the green transformation of coal regions and communities. For example, DTEK, the largest private investor in Ukraine's energy industry, joined the Powering Past Coal Alliance in 2021 and committed to a phased completion of coal mining activities. The company is facilitating communities in coal mining areas to develop roadmaps for creating employment opportunities beyond the mining industry ([DTEK 2021](#)). Another example, the all-Ukrainian holding company OKKO GROUP, has outlined plans to construct two wind power plants in the coal regions of the Volyn region, with financing primarily sourced from foreign loans ([Government Portal 2023](#)).

In general, while mining settlements far from the frontline work to attract additional funds to carry out a just transformation, others' proximity to war zones significantly diminishes their investment potential and poses a substantial obstacle to securing stable financing. In order to reduce the impact of factors of energy poverty in Ukraine (as of 2021, 13-18% of household consumers in Ukraine are energy poor ([UA Energy 2021](#))), measures are being implemented to inform the population about the tools of stimulation to reduce energy consumption (in particular, to achieve an appropriate level of informing household consumers) the current legislation defines the main provisions regarding access to information on setting prices/tariffs; mobile applications "Energetics Online", "Gazoteka" have been introduced and are functioning, as well as the Interactive Register of Electricity Suppliers established to properly communicate energy-saving measures, as suppliers publicize promising ways to increase energy efficiency. In order to improve citizens' awareness of their rights and responsibilities, the NCRECP conducts active work on interaction with national and regional editors and journalists of specialized and business publications, news agencies, TV channels, and radio stations; publishes informational and analytical materials in the official printed publication and on the official website. At the same time, according to experts, about half of consumer complaints about the inadequate quality of communal services and incorrect calculation of their cost have not yet been resolved. The main reason is considered to be the low awareness of consumers about the methods of submitting appeals/complaints/claims, and the low level of presentation and argumentation.

In order to ensure the realization of the population's energy needs under martial law, the Verkhovna Rada of Ukraine introduced a moratorium on tariff increases for the duration of



martial law and a special period after it; The Cabinet of Ministers of Ukraine forbade the termination/suspension of the provision of housing and communal services to the population in case of non-payment or payment in full, and also approved the distribution of subventions from the state budget to local budgets in the amount of almost UAH 563 million to provide fuel wood to the population of the territories adjacent to the zone of military operations (combat) actions; local self-government bodies introduce partial compensation for the cost of purchasing a generator to co-owners of apartment buildings; The Energy Efficiency Fund introduced the "VidnovyDIM" program to finance construction works to restore residential buildings damaged as a result of the Russian military aggression against Ukraine. The draft Law of Ukraine "On the Energy Ombudsman" has been developed, which defines the principles of out-of-court resolution of consumer disputes. However, this regulatory act has not yet been adopted, which slows down positive developments to increase the level of consumer rights protection in the energy sector. At the same time, the CMU, the Ministry of Energy, and the NCRECP are considering several options for increasing electricity tariffs for the population in order to make necessary changes to cover the funding deficit ([National Institute of Strategic Studies 2023](#)).

The limited physical availability of energy resources for the population, caused by the consequences of the destruction of the energy and civil infrastructure, the increase in the number of vulnerable energy consumers, and the deepening of energy poverty in Ukraine require the implementation of additional measures to realize the energy needs of the population.

3.2.3 Summary of gaps/bottlenecks and needs

When identifying and summarising the key gaps and bottlenecks, the study determined that the average level of compliance in the regulatory policy area is low. Current policies in Ukraine are deemed insufficient to offer substantial legal support for the just transition process, and the envisaged measures are considered economically burdensome for the struggling Ukrainian economy. At present, Ukraine heavily relies on external funding. Table 3 sums up the main gaps and bottlenecks, as well as needs.

Table 3. Summary of gaps/bottlenecks and needs in the instruments of policy implementation.

Area of analysis	Summary of gaps
Are JT-related policy and legal areas covered with appropriate regulatory and economic instruments to ensure	Ukraine's current regulatory and economic tools fall short of ensuring the complete realisation of the European Green Deal objectives in ensuring a just transition of coal regions toward a low-carbon economy. While strategic goals are broadly in line with the EGD, legislative frameworks need further development to better integrate EU regulations and associated mechanisms.



compliance with EGD?	
Are the regulatory and economic instruments sufficient to ensure that they lead to real and measurable JT improvements?	In Ukraine, the current regulatory and economic mechanisms are considered insufficient to ensure tangible and measurable improvements in the context of a just transition. The lack of targeted and coordinated policies raises concerns about the ability of available instruments to mitigate the negative impact on populations and settlements vulnerable to the economic changes accompanying this transition. Only coal industry regions are considered when planning just transition not other mono-industry (like metal, paper or cement) regions.
Are the regulatory and economic instruments efficient, considering their ability to support JT in the country?	In Ukraine, the current regulatory and economic mechanisms are deemed insufficient to address the complex challenges associated with the just transition of the workforce from polluting industries toward a low-carbon economy. The lack of targeted and coordinated policies raises concerns about the ability of available instruments to mitigate the negative impact on populations and settlements vulnerable to the economic changes accompanying this transition.
Are the cross-sectoral funding and financing instruments realistic to achieve the just transition goals related to the EGD?	Insufficient financial allocations from both state and local budgets, coupled with the ongoing crisis due to the war, pose significant challenges to financing efforts to ensure a just transition process, hindering the realisation of sectoral goals aligned with the EGD. Ukraine lacks a specialised fund or a state-targeted program specifically tailored to the needs of regions undergoing coal mining abandonment. While these communities can access programs for financing regional development projects, these financial instruments fall short of providing sufficient support to achieve the desired goals.
Is funding the cross-sectoral JT goals important to the national government, or is most of the funding coming from outside donors?	Although Ukraine has declared its commitment to the goals of the European Green Deal and to phasing out the use of coal in power generation, funding for initiatives related to the facilitation of a just transition is not a priority due to ongoing military operations and the imperative to address their consequences. As a result, the country heavily depends on financial support from external donors to make progress in this area.

3.3. Institutional/governance capacity

Overall, Ukraine has a well-developed institutional framework in the field of just transition governance, with several Ministries, together with subordinate bodies and other government entities, performing functions for the development, implementation, and enforcement of



relevant policies. The following section provides an overview of the existing institutional set-up, along with the assessment of the present institutional framework, gaps, and needs defining the areas of human resources engagement, data collection and monitoring, and non-government stakeholders' engagement as those requiring the most improvement. Additionally, the ongoing war is identified as a major challenge for strengthening the institutional capacity in the field of just transition.

3.3.1. Existing institutional set-up

The institutional framework in the field of governance of just transition in Ukraine has a multilevel structure, with the key ministries playing the central role among government stakeholders. Even though there are no specific regulations that define the list of institutions responsible for policymaking and implementation in the field of just transition, certain governmental bodies can be identified as such based on their duties.

The general management and coordination of the institutional framework is administered by the **Prime Minister of Ukraine**, the head of the government of Ukraine, who presides over the Cabinet of Ministers of Ukraine as the highest body of the executive branch of power in the country. The next level encompasses the **Deputy Prime Ministers of Ukraine as the Members of the Cabinet of Ministers of Ukraine**, who have wider responsibilities than the other members of the Cabinet in terms of designing the direction of state policy in the assigned sectors. In connection with the just transition sectors, the activities of the two Deputy Prime Ministers have significant importance, namely the **First Deputy Prime Minister of Ukraine - Minister of Economy of Ukraine** and the **Deputy Prime Minister for Innovation, Education, Science and Technology Development - Minister of Digital Transformation** of Ukraine. Special attention should be given to the responsibility domain of the First Deputy Prime Minister of Ukraine - Minister of Economy, due to the connection of the functions of this government official with just transition areas.

Considering the areas of responsibility of the dedicated Ministries, it is important to point out that two central executive bodies play a fundamental role in the just transition processes. First, the **Ministry of Energy of Ukraine**, is tasked with "formation and implementation of state policy in the field of renewable energy sources and alternative types of gas fuel and in the field of supervision (control) in the fields of electricity and heat supply" ([Cabinet of Ministers of Ukraine 2020](#)), which makes it the authority bearing primary responsibility for overseeing the decision-making, implementation and enforcement of measures within the green transition proceedings, mainly in the field of energy efficiency and others. Additionally, the Ministry interacts with the **State Inspection of Energy Supervision of Ukraine** as its subordinate body, which is responsible for the implementation of state policy in the field of supervision (control) in the fields of electricity and heat supply ([Cabinet of Ministers of Ukraine 2018](#)). Second, the **Ministry of Environmental Protection and Natural Resources of Ukraine**, "forms and implements state policy in the field of environmental protection, ecological and, within the limits of the powers provided for by law, biological and genetic



safety". Among other tasks, the Ministry ensures the policymaking and implementation of state policy in the sphere of regulation of negative anthropogenic impact on climate change and adaptation to its changes and fulfilment of the "requirements of the UN Framework Convention on Climate Change and the Kyoto Protocol, the Paris Agreement" ([Cabinet of Ministers of Ukraine 2020](#)). Therefore, this central executive body is responsible for policy formulation as well as its implementation and monitoring in the fields of environmental protection and climate change within the just transition process. Alongside, the related functions of state policy implementation and control are performed by the Ministry's subordinate bodies, namely the **State Agency of Forest Resources**, the **State Environmental Inspection**, the **State Agency for Exclusion Zone Management**, the **State Geology and Subsoil Service**, and the **State Agency of Water Resources**. Moreover, several other governmental entities perform functions relevant to the governance of just transition. For example, the institutions mentioned above, stay in close contact with the **Deputy Prime Minister for European and Euro-Atlantic Integration of Ukraine**, since further integration into the European Union is also associated with synchronisation of national policy with the goals of the European Green Deal. Ukraine has committed to implementing most of the provisions of the EGD that would be the basis for the future green reconstruction of Ukraine in all sectors of the economy. Among other government authorities, the **Ministry for Communities, Territories and Infrastructure Development of Ukraine** (Ministry of Restoration of Ukraine) is involved in the policy-making process, implementation and enforcement of measures in the field of development of regions and communities, as well as restoration of regions, territories and infrastructure affected by the aggression of the Russian Federation ([Ministry of Development of Communities, Territories, and Infrastructure of Ukraine](#)). Also, the Ministry is responsible for the implementation and monitoring of the just transition process in specific regions; notably, it is tasked with overseeing the implementation of the Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine. The **Ministry of Agrarian Policy and Food of Ukraine**, which forms and implements the state agricultural policy, is another important actor in the institutional framework of the just green transition governance ([Ministry of Agrarian Policy and Food of Ukraine 2021](#)). It contributes to the policy-making process in the sectors of agriculture, fishery and fishing industry, bioresources protection, land management, and others which are vital areas in the context of green transformation that includes, among other things, such priority domains as preserving and restoring ecosystems and biodiversity, implementing from "farm to fork" strategy, and others ([European Commission 2019](#)). Also, the executive bodies involved in the governance of just transition include the **Ministry of Education and Science of Ukraine** as the state institution responsible for the provision of vocational and other training for workers in regions and/or spheres of transformation under the just transition related strategies, the **Ministry of Social Policy of Ukraine** which ensures the provision of social assistance for workers and members of their families in targeted regions, as well as the **Ministry of Finance of Ukraine** that oversees the budgeting component of the process.



The cooperation between different governmental bodies is vital for the effective formulation of state policy and implementation of measures in the field of just transition. **Both formal and informal mechanisms of cooperation and coordination are widely used by government authorities** to ensure the effective governance of just transition. The formal mechanisms include the establishment of interdepartmental working groups, working meetings, strategic sessions, commissions, committees, coordination centres, councils, conferences, public discussions, regular correspondence, etc. Informal channels include bilateral meetings (in person and online), consultations, communication in the course of work, regular correspondence, etc. While informal mechanisms are based on mutual trust between stakeholders and allow building cooperation on horizontal ties, they often create preconditions for further formal interactions within the decision-making process.

Although a variety of mechanisms for inter-institutional cooperation are used, the efficiency of such interactions leaves room for improvement. The reasons for this are the occasional overlapping of functions between government entities, the need for a defined framework for inter-institutional cooperation, potential delays in decision implementation, and others. To enhance the effectiveness of inter-institutional cooperation, it would be beneficial to foster a culture of transparency and information-sharing among government bodies that can contribute to a more coordinated approach, ensuring that each entity involved plays its designated role in the formulation and execution of policies related to the just transition.

3.3.2. Capacity assessment of existing institutional set-up

The institutional capacity for ensuring a just green transition in Ukraine, encompassing policy planning and coordination, enforcement and monitoring, data collection and reporting, as well as the absorption capacities for technical and financial assistance, and effective aid coordination, has shown certain developments. While there have been notable steps forward, there is a need for further improvements in the future. These improvements are expected to address existing gaps and enhance the overall effectiveness of the institutional framework, fostering a more coordinated approach to the challenges associated with the just green transition and considering the current situation in Ukraine. In Table 4, a summarised assessment of the institutional capacity according to specific areas is presented, including the existing gaps and needs in the respective areas.

Table 4. Assessment of the institutional capacity to perform functions relevant to ensuring a just green transition.

Area for analysis	Assessment	Gaps and needs
Long-Term Planning	The existing institutional framework in the field of just transition governance has demonstrated sufficient capacity for long-term planning due to a number of	Current challenges in this area include the need to revise the existing or adopt new strategic documents that will meet the priorities of just green transition



	<p>strategic documents that have been adopted in recent years, including the Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine, the Low Emission Development Strategy for the period up to 2050, the Concept of Public Policy in Climate Change for the period up to 2030 with the Action Plan, and others.</p>	<p>of Ukraine, primarily related to the issues that have appeared due to the full-scale war in Ukraine, as well as the obligations of Ukraine as an EU candidate state. For these, long-term planning should take into consideration the EGD and other EU legislation, along with focusing on the recovery of Ukraine that corresponds to the green transition principles, which have already been stated among the priorities in the Ukraine Recovery Plan (National Recovery Council 2022). Also, just transition should consider also other carbon-intensive industries besides coal mining and use.</p>
<p>Extent of the Mandates and Authority</p>	<ul style="list-style-type: none"> • The majority of functions of overseeing the implementation and enforcement of the just green transition policies are put on the Ministry of Energy and the Ministry of Environmental Protection and Natural Resources. Even though these bodies are primarily engaged in the decision-making and policy formulation process, as the central executive bodies, they have mandates to manage the implementation, enforcement, and monitoring of policies in the relevant sectors. • The duties of implementation of specific measures are executed by the subordinate bodies of the relevant Ministries, as well as the regional and local administrations that possess 	<ul style="list-style-type: none"> • Given that a variety of Ministries and other executive bodies exercise duties relating to the governance of just green transition in Ukraine, defining a central body with a mandate for overseeing the implementation and enforcement, as well as evaluation of relevant policies would be a step forward to improve the existing institutional framework in this area. Currently, no such efforts are being made in this regard. • Also, the martial law in force in Ukraine poses additional limitations for the mandate of government bodies which are, however, expected to be lifted as soon as the full



	the authority to conduct activities and enforce specific policies.	victory is achieved.
Resource Allocation	<ul style="list-style-type: none">• Currently, no financing strategy has been developed to adequately implement the just transition measures, particularly given that a major part of state budget expenditures is dedicated to defence (approx. 22.1% of GDP in 2024 (Ekonomichna pravda 2023)). Despite the government's announcement of plans in 2021 to create a multi-donor fund for coal region transformation (Uryadovyy kur'yer 2021), the establishment of this fund has not yet been finalised. Similarly, no dedicated funds or other funding mechanisms have been established for the implementation of just green transition measures in other sectors.• As for the human resources, however, they can be assessed as sufficient due to the availability of qualified experts in relevant areas, even despite the human capital losses of Ukraine due to the war.	<ul style="list-style-type: none">• In the short- and medium-term perspective, Ukraine is likely to rely on international aid and investment to finance the just green transition process, which includes but is not limited to loans from international organisations and EU funding mechanisms.• The Government of Ukraine plans to integrate the just green transition principles into the recovery strategy, which might facilitate receiving grants, loans, or other forms of investment for relevant projects.• Also, it is critical to create financial infrastructure within Ukraine, preferably with the development of green finances, including green bonds, green taxes, green funds and grants, etc., which would also support the investment into the recovery of Ukraine (Ukrainian Sustainable Fund 2022).
Interagency Coordination	<ul style="list-style-type: none">• The interagency cooperation has been successfully established; however, it requires further strengthening to cover all sectors related to a just and green transition.• Among the established mechanisms for interagency	<ul style="list-style-type: none">• The main gap in the interagency coordination area is the lack of formal mechanisms that would encompass a wide range of sectors for cooperation. Thus, there is a need to identify the key cooperation sectors



	<p>cooperation there are the following: the sectoral working group on green metallurgy as part of the work on the Plan for the implementation of the Ukraine Facility program and the formulation of industry development strategies (Ministry of Economy of Ukraine 2023); the Interdepartmental Working Group (IWG) on preparation of proposals and recommendations for the development of the National Energy and Climate Plan under the chairmanship of the First Deputy Prime Minister of Ukraine - Minister of Economy of Ukraine with participation of representatives of the Office of the President, the Ministry of Energy, the Ministry of the Environment, the Ministry of Agrarian Policy, and the Ministry of Infrastructure (Ministry of Economy of Ukraine 2023); the working group of the High Level Dialogue on the EGD and the Green Transition of Ukraine, co-chaired by the Deputy Prime Minister for European and Euro-Atlantic Integration of Ukraine, and the, Deputy Director General of the Directorate General of the European Commission for Neighbourhood and Enlargement, Head of the Ukraine Support Group (Government Portal 2021).</p>	<p>and establish relevant interaction formats to facilitate dialogue and coordination between relevant bodies.</p>
Compliance and	<ul style="list-style-type: none"> • The institutions involved in the governance of just transition 	<ul style="list-style-type: none"> • The capacity for enforcing compliance with just



Enforcement	are generally assessed as capable of enforcing compliance with relevant policies, principles, and regulations , as the responsible bodies for implementation and enforcement are identified within each strategic document.	transition policies, principles, and regulations needs to be further strengthened in the future, with clear roles and functions of state institutions defined in strategic documents.
Data collection, Monitoring, and Reporting	<ul style="list-style-type: none"> • Due to war-related reasons, the capacity of government stakeholders to collect data, which is essential for qualitative and quantitative assessment of green policies is limited. • Also, there is a lack of evaluation criteria due to the absence of a proven methodology that would consider the current situation. 	<ul style="list-style-type: none"> • Unified metrics to evaluate progress on the just green transition within the national policy-making process, with the ability to be applied at the local level, should be adopted. These metrics should be integrated into the recovery plan to ensure the consistency and effectiveness of governmental policies.
Capacity Building	<ul style="list-style-type: none"> • The ongoing efforts for capacity building are insufficient due to the war-related challenges. These include the remaining issues with ensuring the necessary number of employees working in the relevant areas due to the scarcity of human resources (Ministry of Finance of Ukraine 2023), lack of training for the personnel, and especially the absence of training programmes that would consider the challenges induced by ongoing full-scale invasion by Russian Federation. The problem existed before the war but was exacerbated with start of invasion (Ekonomichna pravda 2023). 	<ul style="list-style-type: none"> • The development of relevant training programmes should be held under the supervision of relevant executive bodies, with the participation of international experts, mainly from the EU, to learn from the international best practices. Also, such training should be conducted both on the national level and in regions and/or communities.



Stakeholder Engagement, Awareness, and Communication	<ul style="list-style-type: none"> The engagement between government stakeholders and civil society, private, and other relevant stakeholders is in the early stages of development. The reasons for this are the lack of mechanisms for such communication and insufficient demand from the state bodies for the participation of non-government representatives. However, such mechanisms are acting, for example, within the framework of the sectoral working group on “green” metallurgy as part of the preparation of the Plan for the Ukraine Facility where over 70 representatives of various sectors of the metallurgical complex, as well as associations, reform support offices, consulting companies, banking institutions, etc., participated (Ministry of Economy of Ukraine 2023). Even though there are efforts to communicate just transition issues and progress to the public on the level of local governments and NGOs (Energy Transition Coalition 2024, Platform for Sustainable Development 2024), this topic is frequently neglected in both media coverage and political discussions, despite the likelihood that this subject will attract increased attention within the context of Ukraine’s post-war recovery. 	<ul style="list-style-type: none"> Mechanisms for cooperation between the Government and civil society, businesses, and other relevant stakeholders should be developed to provide all interested parties with opportunities to participate in the governance of just green transition.
Transparency and	<ul style="list-style-type: none"> While there are indications of progress, the institutional 	<ul style="list-style-type: none"> Transparency and accountability



accountability	setup still requires strengthening to effectively integrate transparency and accountability mechanisms into the core of just transition initiatives. For example, no specific mechanisms are identified within the Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine, so they must be developed in subsequent regulations.	mechanisms are starting to be developed , and clear roles and responsibilities are expected to be defined as part of the strategic documents adopted in the field of just transition in the future.
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3.3.3. Summary of gaps/bottlenecks and needs

Despite some positive developments, room for improvement remains, especially in areas of human resources engagement, data collection and monitoring, and stakeholder engagement. Table 5 presents the summary of key gaps as well as the quantitative assessment of related areas.

Table 5. Assessment of key gaps/bottlenecks in institutional/governance capacity.

Area for analysis	Summary of gaps
<i>Are the roles and responsibilities regarding JT set up in institutions in a clear way?</i>	The roles and responsibilities of government institutions are clearly defined in the regulations regarding the establishment of each entity, whereas the strategic documents have the specific Ministries and/or other executive bodies defined as responsible for their implementation, monitoring, etc.
<i>Have the proper institutions been given a clear and sufficient mandate to reach the EGD-related goals set up for JT?</i>	Although the government institutions are given sufficient mandate to reach the goals of a just green transition, establishing a central body tasked with overseeing the implementation, enforcement, and evaluation of relevant policies would make a positive development in enhancing the current institutional framework in this domain. Also, temporary limitations are enforced due to the martial law in Ukraine.
<i>Do the relevant institutions have enough (human) resources to handle the requirements for JT?</i>	Ukraine has competent experts who can participate in the governance of just transition; however, in general, the country is experiencing a scarcity of human resources due to war-related reasons (forced migration, hostilities, etc.) which might influence the ability to handle the just transition requirements.
<i>Do the relevant institutions have</i>	Despite the present obligations and the developed system of data collection, the effectiveness of this process is low, especially since



<i>transparent and sufficient data collection, monitoring, and reporting systems in place for JT?</i>	the beginning of the full-scale invasion by Russian Federation, which created additional obstacles for data collection both on the national and local levels. Besides, the framework for monitoring and reporting the results of policy implementation requires significant improvement, including the definition of a clear methodology, relevant metrics for evaluation, etc.
<i>Do the relevant institutions have sufficient and meaningful stakeholder engagement and communication activities in place for JT issues?</i>	The mechanisms for communication between state institutions and non-government stakeholders have been established, including the involvement of civil society, private sector representatives, and other relevant stakeholders in working groups, public discussions, and other coordination formats. Nonetheless, the potential of such engagement is significantly underused, which is related to the lack of demand for such cooperation from the state bodies as well as the occasional lack of interest and trust from non-government stakeholders.

3.4. Non-governmental actor capacity

In Ukraine, the non-governmental actors play an important role in achieving the green just transition goals and contributing to the alignment with the EGD objectives. The following section provides an overview of the capacity of such actors, including private entities, CSOs, academia, and others, concerning the just transition areas. The assessment is provided for the financial capacity, human resources provision, opportunities to participate in the policy-making process, and other domains. Additionally, the level of green skills development in Ukraine is estimated as a crucial factor of the country's commitment to building a socially and environmentally just economy.



3.4.1. Technical and infrastructure capacity

The discussions regarding the just green transition in Ukraine have been ongoing for several years, including the dialogue on the available resources to implement the necessary measures to ensure the transition in a socially acceptable and cost-effective way. The key discussions in the relevant areas have been led by non-governmental institutions; however, the development of the discourse has been mostly in line with the state policies in the field of just green transition.

In this context, Ukraine looks up to the experience of other fellow countries, including Germany, Romania, the Czech Republic, and others ([Ecodiia 2019](#)), as well as the European Union experience, in general, to **learn from best international practices** and benefit from cooperation with European institutions and other stakeholders. At the same time, there is a clear understanding among key stakeholders that the modernisation of the main sectors of the economy, along with the introduction of new technological solutions.

For example, in 2020, NGO “Ekodiia” released research which was devoted to the need for modernisation of the industrial sector in Ukraine ([Ecodiia 2021](#)). According to the publication, the modernisation of industrial production must be a priority for the national economy. In metallurgy, **increasing the energy efficiency alone**, namely closing the Siemens-Martin furnaces, construction of electro-smelting production, and gradual transition to steel production in electric arc furnaces, methods that have been used for decades in European countries, **can lead to a decrease of greenhouse gas (GHG) emissions by 30%**. In the future, however, direct reduction iron (DRI) technologies and further transition from gas to “green” hydrogen produced using renewable electricity are the keys to securing a green transition ([Golos Ukrayiny 2020](#)).



The priorities of the green transition of Ukraine now include the following: decarbonisation of the economy and the energy sector; ensuring a low-carbon and resource-efficient industry; introduction of environmentally friendly modes of transport; increasing the energy efficiency of buildings, including during the reconstruction of damaged or destroyed housing, etc. To achieve these objectives, special attention to **scientific research and support of technologies and innovations** in the field of combating climate change, as well as **digitalisation of economic processes**. Some examples in this area include the work carried out by scientists from the Ukrainian Hydrometeorological Institute (UHMI), the Ukrainian Research Institute of Forestry and Forest Melioration named after G. M. Vysotsky (URIFFM), and the Institute of Public Health named after O.M. Marzeev. In cooperation with foreign scientists and thanks to the support of international donors, including the World Bank, Ukrainian scientists study the impact of climate change on forestry and agriculture and human health, which will make it possible to predict the risks of consequences in Ukraine under various scenarios until 2030, 2050 and 2100 ([Golos Ukrayiny 2020](#)).

Additionally, these and other **research and scientific institutions are the main providers of analytical resources** to cover the needs of research and technological development that are crucial for the implementation of the green transformation goals. An important role in the development of technologies for a just green transition is played by private entities, notably **Ukrainian startups**. Some examples of innovative solutions that have been developed by Ukrainian companies and talented individuals that contribute to just green transition are the following: window blinds that can generate electrical energy produced by **SolarGaps**; a wind energy installation that does not make noise and works even at minimal wind speed from Sirocco; free network of charging stations for electric cars **Go-to-U** ([Energy Transition Coalition 2018](#)); manufacturer of paper from fallen leaves **Releaf Paper** ([Releaf Paper 2024](#)); CO₂ capture company **Carbominer** ([Carbominer 2024](#)); aviation solutions manufacturer **Inputsoft** ([Inputsoft 2024](#)); manufacturer of biodegradable packaging made from mushroom mycelium and hemp **S.Lab** ([Greencubator 2023](#)); and numerous others.

These cleantech companies are only a several representatives of the huge market of green innovative solutions that have been developing in Ukraine. What is important, the full-scale invasion of the Russian Federation at the beginning of 2022 has not put an end to R&D in Ukraine. Although some of the Ukrainian companies were forced to move to safer regions, the research and production of technologies have not ceased. **On the contrary, many startups received grants, including from international donors, to support their further growth, while others expanded their activities and opened offices in other countries.** Also, the majority of companies provide either **financial or technological support to the Ukrainian economy**, including the **adaptation of their solutions to war-related needs**, such as demining, energy security, etc. Overall, these factors create a **solid foundation for the post-war recovery of Ukraine** in line with the just green transition goals and objectives.



3.4.2. Green skills and awareness

Broadly speaking, the general awareness of the population regarding just green transition is in the process of being developed as the topic is gaining a wider outlook in media and public discourse. As acknowledged by public officials, it is important not only to create conditions at the state level for green transition but also to inform and convince society that energy efficiency and green energy are profitable and real so that every individual and every household can join this global trend and contribute to reducing CO₂ emissions and improving the environment ([Government Portal 2021](#)). However, while a more visible place is given to environmental issues in the political dialogue, primarily in the context of the post-war recovery of Ukraine, the informational campaigns held by the government are still rather limited. It is worth mentioning that a significant share of Ukrainians (95%) considers the topic of environmental protection as important, even though the share of those who believe that they can make a difference in this area is visibly lower (66%) ([Society and Environment Resource-Analytical Center 2023](#)). At the same time, the opinion of citizens regarding environmental problems in the context of war demonstrates their concern about the impact of military actions on the environment ([Society and Environment Resource-Analytical Center 2023](#)). On the contrary, the profound work on **informing society regarding the importance of green transition and educating on green skills** is performed by **non-governmental organisations**. Not only do these actors provide analytical materials related to the issue, but they also offer enough free educational content to inform society and to provide support for those willing to contribute to a green transition daily. Green skills are a set of knowledge, skills, attitudes, and competencies necessary for living, developing, and maintaining a sustainable and resource-efficient society. For example, in September 2023, the United Nations Population Fund in Ukraine, together with Lviv Open Lab, a space for popularising science and STEAM education, held a two-week educational intensive “EcoLab” for almost 50 young people on implementing an eco-oriented approach in everyday life ([ShoTam 2023](#)). The project is also being continued by Lviv Open Lab to engage even more young people and to educate them on green habits and skills.

Despite the **youth remaining the key target audience** for the aforementioned short-term courses and state-funded digital educational programs, such as Diia. Osvita ([Ministry of the Digital Transformation 2024](#)), in general, there are no age-related or other limits for Ukrainians willing to learn more about green skills. Instead, people of all population groups need to educate themselves on the green transition issues as these skills are seen as essential for building the clean economy of the future Ukraine.



As emphasised by the Minister of Environmental Protection and Natural Resources, **‘Build Back Better’ and ‘Build Back Greener’** are the key principles of Ukraine’s post-war reconstruction ([Ministry of Environmental Protection and Natural Resources 2023](#)). With this in mind, the Government aims to focus on green projects and invest in the green economy which will encourage the creation of green jobs - jobs that contribute to the preservation or restoration of the environment and/or are in industries and sectors that are highly dependent on natural resources and the quality of the environment.

Overall, **green post-war recovery can create up to 4.2 million jobs** (vs. 2.9 million under business in usual conditions), which can almost completely compensate for the jobs lost due to the war (4.8 million) and encourage the return of Ukrainians who moved abroad for war-related reasons. In the long-term perspective, the creation of green jobs will require more skilled workers, which would **stimulate additional training and upskilling** to ensure a workforce with appropriate qualifications, which, in turn, might benefit the economy as a whole ([Razom We Stand 2023](#)). To achieve these goals, there is **a need to introduce educational programs and training for workers** that involve teaching green skills to satisfy the future needs of the economy. Currently, the number of specific educational opportunities for students and workers targeting the green transition is rather low. Nevertheless, in more general cases, with the assistance of the state employment service, citizens from among the registered unemployed can undergo vocational training, namely: 1) vocational training, 2) retraining, 3) advanced training, at the expense of the funds of the Mandatory State Social Insurance Fund of Ukraine in case of unemployment ([State Employment Center 2024](#)). Currently, the State Employment Service is actively expanding the areas of activity of its upskilling divisions ([State Employment Center 2024](#)) and is also developing an online platform on career development ([State Employment Center 2024](#)). Furthermore, the reconstruction of Ukraine and the commitment of the Government to bring the country closer to the EU are likely to offer ample opportunities for **cooperation with the European and other international institutions in this area**. In this regard, a crucial factor will be to analyse the insights from the policy implementations in various countries to develop diverse approaches relevant to local contexts as well as to engage various local, national and international stakeholders, including but not limited to the European Training Foundation (ETF) ([Skilling for the green transition 2022](#)), the UN agencies (UNESCO, UNICEF) and others. The resources provided by the partners can be used to conduct training and reskilling initiatives for improving the qualification of workers, supporting employment in green sectors, fostering the development of green companies and encouraging the green agenda development as part of the corporate social responsibility of businesses, supporting the sustainable development of cities, promoting the environmental responsibility in the communities, enhancing competitiveness through innovative technologies and R&D, and others.

3.4.3. Stakeholder capacity

Overall, the non-governmental actors possess sufficient capacity to contribute significantly to a just transition in Ukraine. As mentioned above, non-governmental stakeholders, including



the private sector, NGOs, and others, have already taken action to support a socially and environmentally just transition through investing in innovative solutions, offering educational opportunities for the population, and participating in the development of green skills of the population. The more detailed information on the capacity of various types of stakeholders is presented below:

- **Private entities generally possess ample financial resources**, which allow them to invest in R&D, introduce innovative solutions, and contribute to economic development on the national level and in the community. As indicated earlier, private companies cooperate with the state to develop or adjust technologies that have already been in use for war-specific objectives, be it miltech or other needs, such as demining. However, the ongoing hostilities, mobilisation, and forced migration in Ukraine have caused **new challenges for the private companies in terms of human resources**. Besides, the **opportunities for engaging in the policy-making process remain limited**: although the Government has been making attempts to remain open to cooperation with businesses through public discussions and other formal and informal mechanisms, participation remains below the expected level due to low interest from the business community and insufficient requests from the state.
- **CSOs** can be considered the key drivers of **educating the population regarding green just transition** goals and measures. At the same time, a substantial number of projects aimed at developing a socially just and sustainable society are implemented by CSOs. They are powerful actors that **engage considerable human resources, particularly among young people**, to be able to make a positive impact on the development of a more inclusive, just, and sustainable future. Specifically, the effects of their activities are visible at the level of regions and communities. The **funding** for the realisation of projects advocated by CSOs is commonly **provided by private and international donors through grants** and mechanisms. Despite having already gained **a powerful voice in the public discourse**, the participation of CSOs in the policy-making process is insufficient and has to be fostered in the future, primarily with governmental actors becoming more open and welcoming to such cooperation.
- **Academia** has been contributing to just transition objectives through R&D and innovative technology development. Even though Ukraine is home to **numerous research and scientific institutions**, be it state or private bodies, with acknowledged scientists working in the field, the impact of this type of actor on the progress in the field of green just transition can be assessed as relatively low. While **higher educational institutions lack programs related to green sectors** or involving the development of green skills, which are essential for young individuals, the **limited funding of scientific research** remains the main challenge for improvement in this area.

3.4.4. Summary of key gaps and needs



The progress of the non-governmental actor capacity in Ukraine indicates insufficient progress in the highlighted areas. Notably, there is scope for improvement in human resources engagement, ensuring stable funding, and increasing the participation of non-governmental actors in the policy-making process through formal and informal mechanisms. Table 1 outlines the primary gaps and provides a quantitative assessment of associated domains.

Table 6. Summary of gaps and needs in non-governmental actor capacity.

Area for analysis	Summary of gaps
Does the country have sufficient technical and infrastructure capabilities to reach national and EGD goals related to just transition?	Ukraine has a well-developed R&D sector that is represented by academic, research, and scientific institutions that are engaged in developing innovative solutions, including technologies contributing to the green just transition. Also, the private sector has a visible representation in cleantech, with numerous companies and startups working on green solutions for a more sustainable future. However, the limited funding and insufficient support from the state can pose additional challenges for the development in this domain.
Are the discussions related to the technical and infrastructure development focusing on making changes required for a just green transition?	Given the specific conditions of Ukraine, namely the ongoing full-scale invasion by Russian Federation, the central point of the public discussions is the necessity to support the reconstruction of Ukraine which has seen severe damage to infrastructure. Even though the post-war recovery is planned to be performed in line with the 'Build Back Better' and 'Build Back Greener' principles, a more profound dialogue on the changes that are required for a just green transition is still to be held in the future including widening the focus from coal to other carbon-intensive industries.
Are there enough skilled workers who can support the green transition in vulnerable sectors and areas and does the government have plans and measures in place to support the development of green skills?	Ukraine is known for its substantial scientific and innovative potential, which also includes human capital. However, despite a significant number of skilled workers who can contribute to the green just transition of Ukraine, the ongoing war and related challenges, such as the forced displacement of people, are the key obstacles to the engagement of full human potential. Some other obstacles include the absence of a specific government plan to encourage the return of specialists to Ukraine after the end of the war, as well as the significant lack of green skills programs for the general public in secondary schools and universities, as part of professional training programs, or others.
Are the vulnerable sectors aware of the	The dialogue regarding the specific measures that must be taken to ensure a smooth and effective transition to a green



changes they need to take to reach just green transition-related goals and overcome the challenges?	and just economy is still ongoing, while critical decisions in this domain are expected to be made in relation to the recovery plan of Ukraine. The sectoral cooperation is in the process of development, whereas the key focus is on the transformation of coal regions in Ukraine, with the awareness regarding specific changes being quite limited. Other vulnerable mono- or carbon intensive industries have not yet actively considered transition needs.
Do the key stakeholders of the sectors most vulnerable to climate change have the capacity and resources needed to implement and support an inclusive transition?	The key stakeholders in sectors identified as particularly vulnerable to the impacts of climate change face significant challenges in implementing and supporting an inclusive transition. The available human, financial, and other resources are limited due to war-related reasons and systemic challenges.

4. Just transition to other thematic and cross-cutting areas

The energy, smart mobility, and building and renovation sectors stand as pivotal pillars in the post-war recovery of Ukraine, especially within the frameworks of the National Energy and Climate Plan of Ukraine 2025-2030 and the National Strategy for Creating a Barrier-Free Space in Ukraine. The energy sector, central to the national economy and environmental sustainability, will drive the recovery by ensuring energy independence, fostering the transition to renewable sources, and securing stable, clean energy supplies vital for rebuilding efforts and sustainable development. Simultaneously, the focus needs to be laid on social security as instrumental in guaranteeing that the challenges of energy transition, transportation, and construction in the recovery process are inclusive, supporting vulnerable populations and ensuring equitable access to services and opportunities. This multi-vectoral focus not only aims at rebuilding what was lost but also at transforming Ukraine into a more resilient, sustainable, and inclusive society. By prioritizing these sectors, Ukraine aligns its post-war recovery with broader goals of sustainable development, energy security, and social inclusion, laying down the foundations for a future-proof nation.

4.1. Smart Mobility

State institutions have limited capacity in terms of skilled human resources to ensure a socially and environmentally just transition and inclusive policymaking. Public organizations are more advanced and prepared in terms of training, but lack resources. Cabinet of Ministers Order No. 366-r, dated April 14, 2021, introduced the National Strategy for Creating a Barrier-Free Environment in Ukraine until 2030 ([BFS 2021](#)), serving as a pivotal strategic document in



this domain. In 2023, the Ukrainian government updated the action plan for 2023-2024 to implement the National Strategy, incorporating several initiatives tailored for war veterans and refugees ([Cabinet of Ministers of Ukraine 2023](#)).

Issues of sustainable urban mobility are expertly dealt with by only a few companies in Ukraine that can develop city transport models (urban mobility models).⁴ However, the regional application of such initiatives has been limited – one of the primary factors being that the quality workforce in less developed regions is limited, which is also related to the availability of trained specialists. Most of such initiatives are limited to large cities like Kyiv, where the number of participants is nevertheless still small, e.g., only 4 NGOs and the Department of Transport Infrastructure of the KMDA. Such meetings and communication need a wider scope of participants. Universities practically do not train transport modelers, because this requires special software, which costs ca five thousand euros, which is too high for universities. A failure on the part of the authorities regarding interaction with interested parties has also been demonstrated in the adoption in general of draft law No. 5655 on reforming the sphere of urban development, which contradicts many contemporary urban standards, according to the opinion of national experts.

There were already many barriers to women's economic participation and livelihoods prior to the full-scale invasion. However, this situation has been exacerbated since February 2022, with women's engagement in voluntary activities and men's absence due to their participation in the armed forces severely limiting the ability of women to participate in income-generating activities. These impacts have been particularly negative for women with restricted mobility, including older women and female caregivers. For displaced women and for those returning to their homes, finding new livelihoods is a considerable challenge.

It is estimated that roughly 4.8 million jobs have been lost in Ukraine since the war started. Large-scale population displacement, combined with military service volunteer mobilization and conscription, has resulted in imbalances in the formal labour market. In addition to an already declining and aging population (estimated to shrink by a third in the next 30 years), high levels of displacement, especially outside of Ukraine, have heightened already existing demographic concerns about Ukraine's shrinking skilled labour force.

Not only are fewer workers available, but Ukrainian refugees abroad are highly employable and therefore less likely to return. Ukraine is likely to have more female-headed households, a larger proportion of single-earner households, as well as increasing numbers of households with individuals with disabilities. Ninety percent of previously employed IDPs who are currently inactive — including those seeking work, not seeking work, and engaged in housework — lost their jobs directly due to the war, affecting both male and female IDPs equally. Only 29% of IDPs of working age are currently employed in their area of displacement, with the lack of decent employment opportunities and childcare cited as the main barriers to seeking work. Businesses reportedly still expect to reduce their workforce in 2023, although at a slower pace than in 2022.

Overall, the issues of employment and job loss in the face of the green transition remain significant challenges for the majority of Ukraine's sectors. Key figures in the JT area include



employment in the sector at 961,000 persons (6.16% of total employment), with women comprising 13.1%. Concerning job loss, a 15.5% reduction in employment (2.4 million jobs) post-war is seen as one of the biggest challenges, attributed to factors like supply chain disruption and enterprise cessation. Regarding green transition impacts, potential new job creation in the transport sector ranges from 174,948 to 644,546. Training programs and company initiatives for employee retraining are also discussed. Some international donor-funded programs, like the USAID program "Competitive Economy of Ukraine," aim to address job transition challenges. The overall outlook suggests a positive impact from green transition investments, potentially creating up to 1.2 million additional jobs in sectors like energy, transport, and water supply, thereby compensating for war-induced job losses.

4.2. Building and Renovation

The Ukrainian labor market, particularly in the Buildings and Renovations (B&R) sector, faces significant challenges, exacerbated by the recent conflict and the imperative of transitioning to greener practices. Before Russia's invasion, Ukraine was already grappling with its highest unemployment rate in a decade, standing at 9.8% in 2021, with notable gender disparities in employment. However, the sectoral policy lacks direct measures addressing job loss or gender inequality. Green Transition has the potential to create jobs, particularly in engineering and design roles. Various projects funded by international donors conduct social impact assessments to mitigate negative consequences, while state-funded endeavours prioritize community engagement to address diverse needs, including those of women.

Despite the turmoil caused by war, the green transition is expected to foster job creation throughout Ukraine's B&R sector. Investments in energy-efficient equipment and construction products, alongside the emergence of new enterprises and markets, are projected to generate employment opportunities. Training programs play a crucial role in equipping the workforce with the necessary skills for this transition. Efforts outlined in the Long-Term Thermomodernization Strategy include updating vocational training approaches and integrating renewable energy sources into educational curricula, aiming to address skill shortages and facilitate the shift towards climate-neutral building practices.

Moreover, several private companies and business associations offer certification programs and training courses to support retraining in sectors such as energy management and engineering. These initiatives align with broader efforts to develop human potential and enhance workforce competence in energy efficiency.

Government initiatives like the housing subsidy program provide crucial social protection, particularly for low-income families struggling with rising housing costs. Eligible services cover various expenses related to housing and communal services, with subsidies targeting vulnerable individuals, including citizens and legally residing foreigners. The Long-Term Thermomodernization Strategy further aims to combat energy poverty by supporting residential building thermal modernization, setting indicators for overcoming energy poverty, and implementing measures to increase energy efficiency.



Overall, the integration of green practices in the B&R sector presents both challenges and opportunities for Ukraine's labor market. While the transition may disrupt existing jobs, it also holds the promise of creating new employment opportunities, particularly in areas related to energy efficiency and sustainable construction. Adequate policy measures, coupled with training programs and social protection initiatives, are essential for facilitating this transition while addressing potential job losses and gender inequalities in the sector.

4.3. Biodiversity

The value of ecosystem services in Ukraine is estimated at \$190 billion per year; it almost equals Ukraine's GDP (Vasyluk and Ilmynska, 2020). Protected Areas (PAs) play an important role in raising public awareness and educating their visitors and the local population about environmental issues, and they serve as unique cultural centres. In many cases, PA administrations play a leading role in promoting environmental protection and folk traditions, as well as the development of tourist infrastructure in regions. Increasing numbers of visitors come to enjoy PAs and to recover their physical and psychological well-being (MEPNR, 2023). At the same time, the number of employees in PA administration and conservation has been declining for the last 10 years, even prior to the war, posing a significant challenge ([SSSU 2021](#)).

The “State Strategy of Regional Development for 2021-2027” is the principal strategic document for the coordination of state policy in various areas at the regional level, the achievement of the efficiency of the use of state resources in territorial communities and regions in the interests of people, the unity of the state, the sustainable development of historic settlements and the preservation of the traditional character of the historical environment, the conservation of the natural environment and sustainable use of natural resources for current and future generations of Ukrainians. The strategy contains goals and objectives related to preserving the environment and directly defines the need to increase the area of PZF to 15% by 2027. It also indicates the need to increase the area of eco-networks, forests, and protected lands, and reduce the area of arable land. Among the tasks are also increasing the level of employment of the population near nature conservation areas, increasing the attractiveness of national parks through the development of infrastructure, monitoring the state of the environment, and increasing the awareness and understanding of the public on nature protection issues. The 24 relevant international or EGD strategic documents correspond to 81 Ukraine national strategic documents.

The employees of local community authorities tend to have limited knowledge about biodiversity and the value of ecosystems. Due to economic, social and demographic reasons also many local organisations lack people with a high level of education and understanding. Public organisations that unite local communities based on interests or a regional basis can be a good link for spreading knowledge and raising awareness for the relevance of biodiversity for green transition at the local level.



The strategic documents in the area of biodiversity are usually approved at the level of the Cabinet of Ministers of Ukraine, and are, as a rule, progressive and correspond to European integration goals and set clear indicators, but remain unfulfilled due to the lack of human capacity, funding, political will, lobbying of business interests, and their non-fulfilment does not entail responsibility. On the regional level, the commercialization of forestry and the loss of the human and scientific potential of the industry are taking place both due to internal political and economic processes and due to the consequences of the full-scale aggression of the Russian Federation.

Some organisations are actively growing (like UNCG), while others have lost human capacity (like the National Ecocenter). In most cases, negative processes are associated with the loss of organisation members and employees due to the loss of leaders, organisational and economic difficulties, and changes in the country's military, political, and humanitarian situations. 5-15% of staff members of non-government organisations entered the Military Forces of Ukraine, Territorial Defence Forces, or Voluntary Groups to defend the country actively. Also, several hundred small NGOs registered in the biodiversity sector before 2014, which has reduced by five times during the last ten years. The government is active in supporting provision for war veterans, which is important in the context of post-war recovery: the government provides grant funds for business startups of war veterans and their family members. The program has a list of 6 partner organizations (some of which are engaged in green recovery activities) that provide retraining services for veterans and spouses within the framework of the e-Robota grant program ([Diia 2024](#)). The government also provides free vouchers for educational opportunities, which might include training in sustainable practices ([State Employment Service 2024](#)). The further development of the technical and infrastructural capacity of this group of stakeholders requires the updating of computer equipment, the purchase of specialised equipment for monitoring biodiversity, the implementation of the latest approaches, in particular, the creation of opportunities for genetic analyses, remote biodiversity and landscape monitoring, the use of GIS technologies and space-based earth sensing, the harmonisation of biodiversity monitoring systems with the EU and fulfilling the goals of the Global Biodiversity Framework and creating an opportunity for public control of this process.

4.4. Climate change

It is hard to say whether Ukraine has been diverting enough attention to just the transition implications of the climate change mitigation initiatives, because there are not many climate change mitigation initiatives. Most government policies that have been aligned with the emissions-reducing goals were primarily driven by economic considerations, so just transition measures were addressed superficially. For instance, the State Target Program For The Just Transformation Of The Coal Regions of Ukraine For The Period Until 2030 has resulted in a significant portion of funds allocated for industry restructuring between 2015 and 2019 being primarily utilised to address wage payment arrears for miners.¹² The allocated resources did not adequately address the industry's broader challenges, such as enterprise modernisation, employee retraining, job creation, and the rehabilitation of mining sites. Therefore, despite



the relevant focus on the modernisation and optimisation of the coal industry, in fact, it gradually declined. In 2021, Ukraine joined the Powering Past Coal Alliance and committed to phasing out coal usage.¹³ However, despite these statements, there has been no substantial financial support for a just transformation in communities affected by mine closures. The regions most vulnerable due to climate change are in the South of the country and are currently occupied by Russian Federation. There is a lack of understanding and initiatives by other carbon-intensive industries and mono-industry cities and regions besides coal to be considered in need of just transition measures.

During recent years, Ukraine has demonstrated significant progress in the development of green skills and awareness, particularly in the context of education and human resource management. Although the ongoing war has significantly impacted its scientific community, leading to a noticeable decrease in overall applied scientific and academic capacity, Taras Shevchenko National University in Kyiv has been and remains a key player in this area. For example, the Department of Environmental Management and Entrepreneurship within the Faculty of Economics has been focusing on training professionals to transform the economic system based on green and sustainable principles. This initiative aligns with the goals of the European Green Deal and is recognized for its broad scope, making it a finalist in the European Training Foundation's Green Skills Awards 2023¹⁴.

The ongoing full-scale invasion of Ukraine by Russian Federation has significantly impacted the country's scientific community, leading to a noticeable decrease in scientific capacity. According to a study highlighted on ScienceDaily, approximately 18% of Ukrainian scientists have left the country due to war, resulting in a 20% reduction in overall research capacity. This exodus of talent includes some of the most research-active scientists, exacerbating the impact. The departure of these scientists presents a long-term challenge, as the rebuilding of this intellectual capital and training of new generations of scientists are both time-consuming and resource-intensive processes¹⁵.

The Ukrainian government is making a concerted effort to bolster scientific research¹⁶. For 2024, the budget for scientific developments is set to increase by over 20% compared to the previous year. This increase in funding is aimed at supporting young scientists and the development of universities and scientific institutions. It also focuses on financing priority scientific developments that are crucial for the economy, society, and the defence sector. These efforts illustrate the Ukrainian science community's resilience and commitment to addressing global challenges, such as climate change, and the willingness to contribute to the global initiative.

The key risks in realizing climate targets in the various sectors that are most important for people's well-being (workplace, home, mobility) lie in the potential loss of high-paying jobs in the metallurgy, mining, low-quality agriculture, and manufacturing sectors. Existing estimates suggest that the best way for the climate ambition to mitigate/compensate for the negative effects is to provide employment opportunities in the green-transition initiatives of the Energy, transportation, water supply and sewerage, healthcare, and education sectors.

4.5. Farm to Fork



Overall, the key aspects of the just transition theme that should be brought out under the context of Farm-to-fork thematic area include equal employment opportunities, inclusion of underrepresented groups of population in the workforce, and provision of training and funding to support the just transition.

The current state of opportunities across the agri-food sector is not sufficient to reach a state of equality soon. One of the current key problems in the sector is horizontal and vertical gender inequality and, as a result, a gender pay gap. The following practices could support a more just transition:

- Targeted support to small and local farmers: If the strategy includes measures to support small and local farmers, it can contribute to a more just transition by enhancing the accessibility of resources for these farmers, especially if the support measures include gender considerations.
- Allocating more financing towards R&I and technological accessibility: the strategy may involve innovations in agriculture, processing, food production and innovations in agri-technology, such as R&D of alternative protein sources. Ensuring that these innovations are accessible to farmers of all sizes, including smallholders, can contribute to a just transition.
- Supporting activities to reduce food waste: efforts to reduce food waste can have positive implications for affordability, as more efficient use of resources may contribute to cost reduction and potentially make food more accessible.
- Promoting sustainable and healthy diets: while not directly related to affordability, strategies promoting sustainable and healthy diets can have implications for accessibility to nutritious food options.

4.6. Energy

At the time of writing the report, the government of Ukraine does not prioritise gender-related issues of employment in the energy sector. Pre-war studies for Ukraine indicated that the loss of human capital from non-participation in the labor force is higher for women than for men. For example, only 67% of women with a complete higher education were economically active, compared with 78% of men with the same level of education. The biggest gender difference in the activity rates is among highly educated people in the 15-34 age group (76% for women compared to 95% for men), which can be explained by the fact that women leave the labor market to take care of young children. However, in some progressive industries like the IT sector, the situation is better. The share of women has been increasing throughout the last decade, and the gender pay gap between men and women in IT is 11 p.p. lower than the national average. The overall result is still far from the desired equality. The share of girls applying for STEM majors in universities remains low as well.

In the case of Green Post-War Reconstruction Process the same USD 46 bn of investments would generate ~ 1mn of direct jobs and ~ 300 th of supplementary jobs, which would make a significant boost to the overall economic growth and industry development. Out of the direct jobs created (avg. 3.1 mn), the estimates suggest that the energy sector will make up ~37%.



Out of supplementary jobs created (~0.9 mn), the energy sector is expected to make up ~32%²³.

However, it is not clear which existing economic sectors would be the key workforce donors, since the most recent estimates of the unemployment rate done by the NBU (19%²⁴) suggest that the total number of unemployed workforce in Ukraine is just about 2.8 mn (based on the assumption that the total number of workforce reduced from 17.4 mn to ~14.8 mn due to war proportionally to the total reduction in population). It is hard to estimate the return of the war refugees, which would be necessary to make up such numbers.

4.7. Industry

Decarbonization requirements are relevant, especially in the steel, paper and cement industries and industries extracting fossil fuels like the coal industry. In 2021, before the war, the Ukrainian steel industry directly employed 102 thousand people, while the coal industry employed 62 thousand people (State Statistics Service of Ukraine, 2022). In Ukraine, coal mines are dominantly located in small towns, where coal mines are the main employer. The economy of such towns totally depends on the operational activity of the coal mine. Steel plants also make significant economic and social contributions to the economy of towns where they are located.

As of 2017, Ukraine ranked 36th in the world in the production of cardboard and paper: 40 companies have installed 70 machines with a capacity of as much as 1.4 million tons per year. The Paper & Paperboard Manufacturing in Ukraine ranks 16 in Europe with regards to its 2024 revenue (€1.4bn). There are 55 companies in the Paper & Paperboard Manufacturing industry in Ukraine.

According to the Ukrcement, the Ukrainian cement association, the domestic cement consumption of 5.4Mt in 2023, has been up by 17% year-on-year from 4.6Mt in 2022, but down by 49% from pre-war levels of 10.6Mt in 2021. In 2023, Ukraine's 14.8Mt/yr production capacity was 2.7 times greater than its consumption, compared to 1.4 times in 2021. Of Ukraine's nine cement plants, one (the 1.8Mt/yr Amwrossijiwka plant in Donetsk Oblast) now lies behind Russian lines. Four others sit within 300km of the front line in Eastern and Southern Ukraine. Among these, the 4.4Mt/yr Balakliia plant in Kharkiv Oblast, the largest in the country, first fell to the Russians, but was subsequently liberated in September 2022.

Decarbonisation will change the demand for raw materials. The steel industry will not need iron ore sinter, coke, or coking coal. Blast furnaces will be decommissioned. Integrated steelmakers based on blast furnaces and basic oxygen furnaces (BF-BOF) will have to rebuild their facilities. There are two options: to construct a plant producing direct reduced iron (DRI) and EAF (electric arc furnace) or to construct a DRI plant and smelter. The second option will allow them to continue using basic oxygen furnaces, while the first option involves their closure. In any case, steel plants will have to decommission some existing capacities. New decarbonized steel facilities (DRI-EAF based) will need less personnel than existing BF-BOF plants. For example, the average annual workforce productivity at EAF-based Interpipe Steel is



1367 t of steel per employee (GMK Center, 2023). The same indicator for BF-BOF plants is 75-80% lower. Considering the future operation of the DRI plant and auxiliary facilities supporting future decarbonized steel plants, we assume that the decrease in employment in the steel industry may reach 50-60%, which makes 51-61 thousand people compared to the pre-war level.

Ukraine has a long history of coal industry restructuring:

- In July 2005, the government approved the “Concept of coal industry development”;
- In May 2008, the government approved “Concept of reforming the coal industry”;
- In May 2017, the government approved “The concept of reforming and developing the coal industry for the period up to 2020” and an action plan for 2017 regarding the implementation of this concept;
- In September 2021, the government approved “The concept of the State target program concerning the fair transformation of the coal regions of Ukraine”.

However, no governmental concept was fully implemented due to a lack of financing and institutional capacities. The state budget finances the separate program “Restructuring of the coal industry”, but these funds are mainly used to compensate part of the production costs of state coal mines. All coal mines will be closed, which will lead to declining employment by 62 thousand people compared to the pre-war level. It will be a major problem for Dnipropetrovsk, Donetsk, Luhansk, Lviv, and Volyn regions, where coal mines are located.

Ukraine does not have an active program facilitating the employment of personnel working at closed industrial facilities. It is a major gap in the context of green transformation because decarbonisation will lead to an increasing number of dismissed employees. There is also no dialogue about the creation of such a program in Ukraine, although climate ambitions must be reinforced by application of just transition principles.

4.8. Zero Pollution for a Toxic-free Environment

Industry is the biggest polluter of air, water and soil and generate the most waste. The most affected sectors by the potential achievement of the ambitious goals of the EGD are energy, metallurgical and chemical industry, extractive industry (ore and coal mining), agriculture, building and housing, and transport.

The most significant change in the labour market of Ukraine in 2022 was a reduction in employment due to reasons not related to the green transition. This happened because of a decrease in business activity or the termination of activity of a significant number of enterprises, as well as a reduction in employment for economic reasons at enterprises that continued to work due to population migration and mobilization. The largest decrease in employment during 2022 occurred because of a significant decrease in the volume of production at enterprises and due to the disruption of industrial relations, and the destruction of enterprises in the regions of military actions. Consequently, the number of non-budgetary enterprises in Ukraine decreased by 21.3% in 2022. A significant share of the reduction in employment fell on industrialized regions. In particular, the reduction in employment in the



Kharkiv, Dnipropetrovsk, Odesa, Mykolaiv, and Kyiv regions, and the city of Kyiv accounted for 59% of the total reduction. Thus, the remaining 16 regions account for no more than 18% of the total volume of this reduction.

Women's employment increased due to negative factors, including military actions and the mobilization of men. This forces women to enter traditionally male occupations to fill vacant positions. This explains why providing just a green transition is currently not one of the main goals of state policy and business expectations, instead, efforts are aimed at preserving the status quo and maintaining economic and social stability.

Due to lack of specific goals and deadlines in achieving zero pollution in strategic documents of Ukraine, there are no planning documents that would provide for measures that would ensure just transition. Accordingly, there were no comprehensive assessments of the potential impact of the green transition on workplaces, there was no direct funding, comprehensive training programs and retraining of workers.

At the legislative level, regulations aimed at ensuring just transition exist only in the field of coal mining (closure of coal mines and support of the relevant regions). The National Economic Strategy for the period until 2030 assumes that the closure of mines and the transformation of coal regions contribute to the formation of risks for the operation of thermal generation and endanger the existence of settlements with a high dependence on coal mines and thermal power plants. It provides for the implementation of projects and programs for the support and development of certain types of territories (in particular, rural territories in unfavourable conditions, coal regions, etc.); development and implementation of a social protection program, in particular taking into account the gender component, ensuring retraining of workers of mines that will be closed; promoting the diversification of the economy of regions most dependent on the coal industry. In 2021, the "Concept of the State target program for the fair transformation of the coal regions of Ukraine" was approved. However, these initiatives did not move beyond strategies and concepts.

As of 2021, Ukraine's employed population in the zero-pollution-related areas across various economic activities indicates significant engagement in industries potentially affected by zero pollution goals, with over 40% of the workforce involved in such sectors. However, by 2023, notable decreases in employment were observed across major sectors compared to the previous year, ranging from 2% to 17%. Women constituted 48% of the employed population aged 15-70 in Ukraine as of April 1, 2021. Despite these trends, reductions in employment are attributed to factors other than the green transition.

Gender equality is ensured through general legal norms rather than specific state decisions related to just transition. While strategic regulatory documents exist for the coal industry, they lack specific measures, and no corresponding state assessment has been conducted. Analytical notes suggest potential job creation in post-war reconstruction, particularly in the energy and transport sectors. However, Ukraine lacks comprehensive state programs for just transition in the zero-pollution area, and initiatives are primarily carried out by non-



governmental environmental organizations without targeted funding. Retraining programs aim to fill vacant positions due to personnel outflow, indicating a lack of focused efforts toward green and just transition.

4.9. Transition Finance

In terms of key financial challenges, it can be said that the past experiences, such as the transformation of the coal industry, reveal potential issues in funding distribution efficiency, while the lack of estimates on recent program funding efficiency raises concerns about the effectiveness of strategy implementation. Financial inclusion remains low in Ukraine, partly due to insignificant private funding in just transition programs and the high cost of loans. Additionally, Ukraine faces significant challenges in collecting comprehensive data on financial access, hindering the assessment of financial sector performance and monitoring of funding efficiency. Moreover, the development of debt and equity instruments in transition finance is lacking, with limited issuance of green bonds and negligible progress in transition loans or impact-oriented investments.

In terms of opportunities, the potential areas for transitional finance include sustainable agricultural practices, support for SMEs in the agri-food sector, energy efficiency projects, and socially inclusive infrastructure projects. Leveraging green bonds and sustainability loans could address climate change impacts and war-induced damages. Emphasizing the role of international organizations and donors is crucial in supporting Ukraine's recovery and transition finance, given the undermined solvency of domestic investors. Furthermore, Ukraine's participation in initiatives like the Powering Past Coal Alliance and the development of strategic documents like the National Economic Strategy demonstrate a commitment to sustainable transition. Existing mechanisms such as the Ukrainian Social Investment Fund and the Energy Efficiency Fund could be adapted or expanded to support just transition initiatives more broadly.

Key recommendations which could be outlined in the context of transition finance for Ukraine include improving alignment between national policies and EU standards, focusing on sustainable development goals and the European Green Deal (essential to enhance policy coherence), encouraging greater investment in green technologies and sustainability projects through legislative and regulatory incentives, and strengthening the capacity of institutions responsible for implementing just transition policies is necessary to ensure efficient coordination and funding allocation. Seeking technical and financial support from international partners can facilitate Ukraine's transition towards environmental sustainability and economic resilience can also boost domestic investments - overall, the role of financial mechanisms and policy frameworks in ensuring a just green transition for Ukraine remains critical, identifying key areas for improvement and opportunities for leveraging finance to achieve these goals.

4.10. Research and Innovation



Overall, the field of just transition is not sufficiently addressed in the Ukrainian research and innovation (R&I) sector. The State Strategy for the development of the sphere of innovative activity for the period up to 2030 does not include components related to issues of equality, equity, or a just green transition. For this reason, the level of the overall JT inclusion in the key R&D strategic documents can be considered low. The same is true for the opposite – the National strategy for creating a barrier-free space in Ukraine contains only one point, which notes the problem of a lack of resources for conducting competitive marketing activities and for introducing innovations among enterprises whose owners are persons with disabilities.

As of spring 2024, Ukraine is experiencing a significant labour shortage. Officially, the number of unemployed in Ukraine has sharply decreased. According to the State Employment Service, as of the beginning of 2023, only 483,200 people have the status of unemployed, which is 60% less than the number of unemployed in 2021¹. Almost 100,000 job seekers have not yet had employment experience. At the same time, according to some reports, such as the estimations of the Resource and Analysis Centre “Society and Environment”, adopting green recovery principles within just five key sectors, namely transportation, energy, healthcare, education, and water supply, will require between 2.0 and 4.2 million skilled professionals. The expected number of new jobs for each sector is the following: transportation - 0.6 to 2.2 million jobs, energy - 1.0 to 1.1 million jobs, healthcare - 0.1 to 0.2 million jobs, education - 0.1 to 0.2 million jobs, water supply - 0.2 to 0.6 million jobs ([Society and Environment 2023](#)).

Regarding relevant training, 2 educational programs (Environmental protection technologies and Environmental science) exist under the official List of fields of knowledge and specialties for which higher education applicants are trained ([Ministry of Education, 2023](#)).

Lately, there has been no significant increase in training programs to support a just green transition. However, it is worth mentioning that the planned study “Necessary changes in the educational interface between the academic environment and the real sector of the economy in Ukraine”, funded by a consortium of donors lead by the UNDP, is expected to show what knowledge and skills modern green transition managers in Ukraine will need. The project is planned to start in the spring of 2024 in Chernihiv, Sumy, Poltava, Mykolaiv, and Dnipropetrovsk regions ([Sustainable Decision Office, 2024](#)).

In general, the current state of the sector looks promising: according to the conclusions of an analytical study conducted by the Resource Analytical Center “Society and Environment”, it can create more than 4.2 million jobs in transport, energy, health care, education, and water supply sectors ([Society and Environment 2023](#)). Furthermore, the formation of green jobs is indicated in state planning documents and the Ukraine Facility Plan. There are sectors that will become key to the development of green jobs. This is energy conservation, the use of biogas

¹ State Employment Service, 2024, URL: <https://dcz.gov.ua/stat/profanalis>



and biomass, the development of maneuvering capacities, and the introduction of energy transmission systems - smart grids, all of which are emphasized within the framework of the Ukraine Facility ([Cabinet of Ministers of Ukraine 2024](#)). For the further creation of innovative green jobs and ensuring a just social transition in the context of green transition in Ukraine, important challenges are restrictions on the withdrawal of capital from Ukraine and insufficient readiness to take on military risks on the part of insurance institutions.

Regarding the ongoing R&D in the sector, the Department of Energy Efficiency of the Ministry of Development of Communities, Territories and Infrastructure of Ukraine is already working with municipalities to prepare for the green post-war reconstruction of Ukraine and create green jobs. Also, according to the Department of Strategic Development of the State Energy Efficiency Agency, the agency already cooperates with IRENA in matters of professional education in the field of energy efficiency, implementing the "green university" concept: In the ""green university"" format, the agency plans to intentionally introduce new unique specialties and educational programs, develop modern standards in energy efficiency and ecological construction, direct efforts to recycling technologies and decentralized energy, improve the quality of training of energy auditors for industry and municipalities ([Razomwestand 2024](#)).

Achieving gender equality in the Ukrainian energy sector is a potential innovation factor. If we assess the gender balance in the Ukrainian energy sector in 2020, then, according to the calculations of specialists of one of the largest electricity producers in Ukraine, on average, 22% of women worked in the industry, and in DTEK, this figure was 27%. About 4,600 employees have been mobilized among the company's employees, 18 of them are women. Since the beginning of the war, the company has lost 212 people, three of them women, due to the shelling of energy facilities. According to company representatives, now more qualified female specialists should enter the energy industry: there are prerequisites for this, because, for example, among the graduates of technical universities, only 46% of young men and about 54% of girls have high knowledge indicators, which enables them to lead the reconstruction of the energy industry at a new technological and safety level ([Ukraine Energy 2024](#))

Ukraine has several think-tanks that conduct regular analytics and publications in the JT-related areas of research and innovation. Noteworthy mentions include the aforementioned Resource Analytical Center "Society and Environment" ([RACSE 2024](#)) " the Kyiv School of Energy policy ([KSEP 2024](#)), as well as Kyiv School of Economics, which has conducted noteworthy research in the area of green recovery prospects, outlining the list of innovative recommendations for businesses ([UNDP 2024](#)).

4.11. Digitalisation



Throughout the last 10 years, the Ukrainian government has moved swiftly towards the digitalisation of state registers and state services. Most of the actions were done in accordance with the Strategy of Digital Transformation of the Social Sphere, approved by Order No. 1353 of the Cabinet of Ministers of Ukraine dated October 28, 2020. Since its adoption, digitalisation of public services in Ukraine accelerated and began to expand at a rapid rate: during the full-scale invasion by Russian Federation, the digitization of public services in Ukraine accelerated significantly and even became mainstream. Innovations and digitalization make it possible to increase the efficiency of state authorities and retain their institutional capacity, as the period of lockdown and more than 2 years of war have shown ([CMU 2020](#)).

Since 2019, the Ministry of Digital has been developing the Diia app, which allows Ukrainian citizens to use digital documents on their smartphones instead of physical ones for identification and sharing purposes. As of 2023. The Diia portal allows access to ~130 government services. According to the Ministry, almost half of all Ukrainians use Diia, totaling 19.8 million people ([EU4Digital 2024](#)). Many of its key projects and spaces, which were launched since the app and platform emergence, are relevant to the JT thematic area.

To accelerate changes in the digitalization of regions, the Ministry of Digital Transformation introduced new positions in regional state (military) administrations — deputies for digital development, digital transformations, and digitalization ([SDTO](#)). Over four years, CDTO has successfully implemented more than 210 unique cross-industry projects. Among them, in the field of JT, it is worth noting more than 30 initiatives in the implementation of electronic services, among them: the veteran's office on the web portal Dopomoga Zakarpattia, the electronic queue at the Central National Administrative Service, telegram channels for job search, electronic appeals, petitions, consultations in territorial communities and notification of missile danger through the Telegram chat-bot; about 25 projects in the field of public services, such as the comprehensive service for war veterans "Me-veteran" in the National Center for National Health and Welfare in Dnipropetrovsk Region, the opening of Diia. Centers in communities, digital educational hubs for distance learning, electronic tickets on suburban and intercity bus routes in Lviv Region, as well as more than 23 initiatives in the field of information systems ([State portal 2024](#)).

Out of ca 130 government services that the Diia portal allows access to as of 2023, many have JT-oriented functions. Notable mentions include "Diia.Barrier-free", containing articles and instructions for internally displaced persons (due to the war), people with disabilities, and parents with many kids. The contents of the website are designed to help people from the target groups better understand the public services available to them and provide an opportunity to apply for them online ([Diia.Barrier-free 2024](#)). Furthermore, the platform 'Diia.Ovsvita' provides educational opportunities for online learning of different skills and knowledge needed to start a business or make first steps in a new profession ([Diia.Education 2024](#)).





5. Executive summary: Just Transition in Ukraine

This report provides an analysis of the current state and trends of the green transition in Ukraine related to social equity and just transition perspectives. It compiles key statistics and trends related to just transition in Ukraine for the Green Agenda for Georgia, Ukraine, Moldova, and Armenia project. It describes the policy and legal frameworks, policy instruments, institutional set-up, and governmental and nongovernmental capacities, and identifies gaps in each component. The report also describes just transition (JT) related vulnerabilities in different sectors related to the EU Green Deal, including climate change, smart mobility, farm-to-fork, energy, buildings, biodiversity, and zero pollution. It also outlines JT considerations in the areas of finance, digitalization, research, and innovation. The report emphasizes Ukraine's commitment to environmental security, adaptation to climate change up to 2030, and alignment with the EU's green transition goals. The report is based on relevant data, including data collected from the Ministry of Economy and Trade of Ukraine, the Government of Ukraine's National Strategy for Creating a Barrier Free Environment in Ukraine until 2030, and the Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine for the period up to 2030. The aim of this report is to explore the use of just transition principles in Ukraine, focusing on the transformation of central sectors according to EGD.

5.1 Current state of the green transition

This section sums up the state of the current environmental policies and the status of vulnerable regions in Ukraine. It discusses the strategic importance of transitioning from coal to renewable energy sources, highlighting the government's efforts in adopting strategies for environmental security and climate adaptation and emphasizes the need to consider just transition also in other industries besides coal like steel, pulp and paper and cement industries. Key statistics and trends illustrate Ukraine's challenges and progress in reducing greenhouse gas emissions, increasing the share of renewable energy, and addressing the socio-economic impacts of this transition, especially for the coal regions. Overall, the situation in Ukraine is uneven across the distributional, procedural, recognition, and restorative dimensions of just transition:

- **Recognition justice** in Ukraine is on a moderate level. The Law on National Minorities (communities) of Ukraine, adopted in 2023, is essential for acknowledging and respecting the diverse values, identities, and cultural backgrounds of its population. Recognizing the intrinsic value of nature and the dignity of all individuals, regardless of their social status or background, is crucial for promoting inclusivity and social cohesion.
- **Distributional justice** in Ukraine is a significant concern, as there are disparities in how the costs and benefits of environmental policies and economic activities are allocated across society, exacerbating existing inequalities and marginalizing



vulnerable groups. Also, at the moment, key economic and fiscal instruments (ecological tax, as well as different fines and penalties) are not aligned with the EU equivalents.

- **Procedural justice** in Ukraine faces challenges, with decision-making processes often lacking inclusivity and representation from different interest groups, including vulnerable and marginalized groups, such as homeless individuals, socially excluded groups, and future generations. There is a need to enhance the inclusivity and transparency of decision-making to ensure fair participation for all stakeholders.
- **Restorative justice** in Ukraine is not fully developed, but it is very relevant for addressing past injustices and remedying environmental degradation caused by historical industrial activities (especially in the area of river basin pollution), and the impacts of climate change. Efforts to address environmental injustices and promote healing and resolution should be prioritized to build a more sustainable and equitable future for all Ukrainians.

Table 7 below sums up the key indicators targeted in Ukraine, which can be outlined as corresponding to the key components of the European Pillar of Social Rights.

Table 7. EGD objectives/targets and current status in just transition thematic area (see Annex 3 for all thematic tables).

EGD Objectives and Targets (including 8th EAP targets and indicators)	Relevant EGD indicators and EU level reference (8th EAP)	Ukraine Objectives	Ukraine Targets	Ukraine's level of achievement
Just transition				
European Pillar of Social Rights:	Relevant Eurostat indicators	National Economic Strategy for 2030	Relevant Derzstat indicators	Comments on achievement progress
1. Education, training, and lifelong learning	<p>Early leavers from education and training % of population 18-24</p> <p>Individuals who have basic or above basic overall digital skills % of population</p>	<p>99% of social infrastructure institutions and local self-government bodies are connected to fixed broadband access with a speed of at least 1 Gbit/s;</p>	<p>Total students of general secondary education.</p> <p>Network and activity of</p>	<p>Targets do not correspond to the EU ones directly, but the area is undergoing significant reforms (high school university level), which</p>



	Young people neither in employment nor in education and training (NEET) % of population 15-29		educational institutions	might lead to further transformation.
			Share of the number of enterprises that have conducted training for other persons employed in ICT of the total number of enterprises	
2. Gender equality	Gender employment gap Percentage points	According to strategic goal 5, "Ensuring equal rights and opportunities for everyone, inclusion and barrier-freeness, a high level of social protection for a dignified life; increasing the level of employment of women and men of the respective age groups and reducing the wage gap between women and men."	Employees' wages by gender, age, education, and professional groups	NES does not prioritise this thematic area.
3. Equal opportunities	Income inequality - quintile share ratio (S80/S20)	Initiatives to combat discrimination in the labour market, as well as in other areas, such as the	Number of employed who have access to the internet of the total number of	Indicators do not really target income equality either.



		abolition in 2018 of the list of professions prohibited for women (in force for the previous 25 years), made it possible to reduce the gap between the average salary of men and women by 0.5 percent in 2019 compared to 2018. NES does not really contain many new, relevant targets or objectives in this category.	persons employed	
4. Active support for employment		Increasing the number of social services provided online and improving their quality	Share of youth not in employment, education or training	The government is actively working on increasing the monitoring of this strategic direction via indicators of the State Employment Service
5. Secure and adaptable employment	<p>Employment rate (% of population 20-64)</p> <p>Unemployment rate (% of labour force 15-74)</p> <p>Long-term unemployment rate</p>	<p>Creation of conditions for the development of social entrepreneurship as a mediator for solving social problems, spreading the model and best practices of social</p>	<p>Long-term unemployment rate</p> <p>Unemployment rate of the population</p> <p>Labour force</p>	The area is actively tracked and monitored, but standard alignment is lacking.



	(% of labour force 15-74)	entrepreneurship to the socio-cultural sphere in order to increase its viability; promoting and encouraging social change and positive behavior patterns by expanding microfinance incentives for social entrepreneurship; creation of flexible and effective tax conditions for conducting social entrepreneurship.	participation rate	
6. Wages (that provide for a decent standard of living).		The area is not prioritised in the NES.	-	-
7. Information about employment conditions and protection in case of dismissals	At-risk-of-poverty or social exclusion rate (AROPE) % of population	The area is not prioritised in the NES.	-	-
8. Social dialogue and involvement of workers	Persons living in a household with a very low work intensity.	Doubling the number of social innovations of the frugal type, developed within the framework of	Social protection satellite accounts in Ukraine	Although many companies initiate CSR, the level of union



<p>9. Work-life balance</p>		<p>the partnership of the state, business, science and civil society institutions.</p>		<p>development in Ukraine is low, and their involvement in social dialogue is insignificant.</p>
<p>10. A healthy, safe, and well-adapted work environment and data protection</p>		<p>The area is not prioritised in the NES.</p>	<p>-</p>	<p>-</p>
<p>11. Childcare and support for children</p>	<p>At-risk-of-poverty rate or exclusion of children</p> <p>Severe material and social deprivation rate (SMSD) for children</p>	<p>As a part of the Strategic goal 5, "Ensuring equal rights and opportunities for everyone, inclusion and barrier-free, a high level of social protection for a dignified life; increasing the level of employment of women and men of the relevant age groups and reducing the wage gap between women and men", NES highlights the reform of the system of ensuring children's rights in conditions of</p>	<p>Account of costs for environmental protection</p> <p>Share of children under the age of 18 living in overcrowded housing</p>	<p>The area is not prioritized by the NES.</p> <p>The area is well-monitored by the government and does not experience a significant lack of observations.</p>



		decentralization, ensuring the protection of children's rights to health care, a sufficient standard of living, protection from all forms of violence, contact with parents, housing and education, business activities; unification into children's and youth organizations, implementation of a program of preparation for independent living for graduates of institutions of institutional care and upbringing of children, persons from foster families and family-type children's homes.		
12. Social protection	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP)	According to strategic goal 5, "Ensuring equal rights and opportunities for everyone, inclusion and barrier-freeness, a high level of social protection for a dignified	Change of social contributions volume Change in social transfers	Well-tracked indicators and an outlined goal structure



<p>13. Unemployment benefits</p>	<p>-</p>	<p>life - strengthening the targeting and development of the provision of social services and social protection. According to strategic goal 4, "Ensuring harmonization of the industry with the environment," social problems associated with the closure of mines (significant dependence of the population of coal-mining regions on the operation of mines).</p>	<p>Labour force survey</p>	<p>The area is mentioned within NES, but not prioritized.</p>
<p>14. Minimum income</p>	<p>Real gross disposable income of households Per capita increase (Index = 2008)</p>	<p>The area is not prioritised in the NES.</p>	<p>-</p>	<p>-</p>
<p>15. Old-age income and pensions</p>		<p>The area is not prioritised in the NES.</p>	<p>-</p>	<p>-</p>
<p>16. Healthcare</p>	<p>General government expenditure by function: healthcare % of GDP</p>	<p>NES outlines a list of 4 initiatives according to strategic goal 6 "Creating appropriate conditions and ensuring accessibility for</p>	<p>Satellite healthcare account in Ukraine</p>	<p>The level of alignment is high, although the Ukrainian healthcare system struggles with underfinancing.</p>



17. Inclusion of people with disabilities	Out-of-pocket expenditure on healthcare % of total health expenditure	physical education and sports".		
	Disability employment gap ratio	National Strategy for Creating a Barrier-Free Space (NSCBS) in Ukraine for 2030.		Monitoring results for 2023
		Monitoring the degree of barrier-free physical environment facilities and services for persons with disabilities.		
18. Long-term care	Self-reported unmet need for medical care % of population 16+	The area is not prioritised by In the NES or NSCBS.	-	-
19. Housing and assistance for the homeless	Severe housing deprivation % of owners with mortgage or loan	The Ukrainian housing stock needs to attract 120 billion US dollars by 2030 to carry out 100% renovation of the entire stock of old housing. According to strategic goal 1, "Creation of sustainable domestic demand for domestic industrial products", NES highlights the growth of	Survey of the living conditions of the household	The level of alignment of statistics collection is high, however, the government does not directly track the number of homeless people.
	Housing cost overburden % of population		Payment rate by the population for housing and communal services Housing market price changes	



		housing construction through deregulation of the industry (in particular, by ensuring the revitalization of housing construction — implementation of the "Affordable Housing" program ensuring renewal of housing and communal funds.		
20. Access to essential services	-	The area is not prioritised in NES or NSCBS.	-	-

5.2 The impact of War

Ukraine has highly qualified, well-educated, creative, and motivated human capital. According to the international ranking of talent competitiveness (GTCI, 2021), Ukraine ranked 61 out of 155 countries, which demonstrated a significantly high level of human capital development ([Lanvin, Monteiro, 2021](#)). The full-scale invasion of Ukraine by Russian Federation led to a significant outflow of human capital from Ukraine: according to the UN, as of December 31, 2023, 6.4 million Ukrainians were registered abroad. Although according to hundreds of conducted polls, the majority of Ukrainians still plan to return to Ukraine (26% definitely and 26% likely), the number of those who definitely plan to return is decreasing, having almost halved over the last year ([CES 2024](#)).

Another problem that Ukraine will face due to the non-return of refugees is changes in the demographic situation. Even before the full-scale invasion of Russia, the birth rate in Ukraine was low, and emigration from Ukraine significantly exceeded immigration, leading to an aging and declining population. If the refugees do not return, the demographic situation will worsen: the vast majority of refugees are children and middle-aged women. The non-return of these groups will mean that the population of Ukraine will decrease even more in the future, and the trend of population aging will continue and worsen. The Center of Economic Strategy (CES) estimates that potential GDP losses from migration under the average scenario



amount to 5.4% of GDP ([CES 2024](#)). This effect significantly undermines the prospects of a successful green transition in the country, as well as the general potential of recovery and reconstruction initiatives.

Furthermore, as highlighted in the study “Future of Work: Development of Human Capital in Ukraine”, the total estimated labour force gap for 2032 amounts to 3.1-4.5 million persons needed for the 7% annual GDP growth target ([Human Capital UA 2023](#)). Therefore, the Ukrainian government will need to implement relevant policies and initiatives to address this challenge and achieve the desired economic growth rate. The population segments that the policies will need to target include both Ukrainian talents within the country and those abroad, as well as foreign talents. Ukrainian talents that should be mobilized within the country include entrepreneurs, students, scientists, and workers (incl. vulnerable groups). Ukrainian talents that can be attracted from abroad include labour migrants, refugees, students, scientists, and the broader diaspora ([Human Capital UA 2023](#)).

5.3 Summary of the gap assessment

So far, the just transition discourse in Ukraine has mostly focused on the reduction of the use of coal, which will lead to a loss of thousands of jobs compared to the pre-war level, affecting significantly Dnipropetrovsk, Donetsk, Luhansk, Lviv, and Volyn regions, where the coal mines are located. There is a need to broaden that discourse to include further relevant aspects and sectors to support a just progress towards green transition.

Summing up the results of the analysis, energy, smart mobility, and building and renovation sectors can be considered the key fields for the post-war recovery of Ukraine. This is also reflected in the draft National Energy and Climate Plan of Ukraine 2025-2030 and the National Strategy for Creating a Barrier-Free Space in Ukraine. The energy sector, central to the national economy and environmental sustainability, will be the driver of the recovery by ensuring energy independence, fostering the transition to renewable sources, and securing stable, clean energy supplies vital for sustainable rebuilding efforts. A stronger focus on social equity is instrumental for guaranteeing that the challenges of energy transition, transportation, and construction sectors in the recovery process are inclusive, supporting vulnerable groups and ensuring equitable access to services and opportunities.

Such a multi-vectorial focus not only aims at rebuilding what was lost, but also at transforming Ukraine into a more resilient, sustainable, and inclusive society. By prioritizing these sectors and adding a just transition focus, Ukraine aligns its post-war recovery with broader goals of sustainable and inclusive development, laying down the foundations for a future-proof nation.

Table 8 below sums up the assessment of various aspects related to the just transition in Ukraine, highlighting enabling conditions, key gaps, and needs that should be tackled to support a just green transition and recovery of Ukraine.



Table 8. Summary of main enabling conditions, gaps, and needs of just transition in Ukraine.

Main elements	Enabling conditions	Key gaps	Needs
EU Strategic framework and Acquis (policy and legal readiness) (section 3.1)	National documents only partially align with JT principles, lacking specific targets on gender equality and inclusion of vulnerable groups. Strategic focus remains limited to problematic industries like coal, while broader decarbonisation efforts face socio-economic and capacity-related challenges. Administrative weaknesses and reduced transparency under martial law hinder the effective implementation of environmental policies. Though Ukraine has made progress toward EU integration, significant legislative gaps and obligations tied to its candidate status remain unmet.	Slow progress in EU legislative transposition. Partial correspondence to EGD strategic goals. Limited scope of JT approach: Ukraine has ratified relevant international agreements, but its strategic documents predominantly focus on problematic industries like coal mining, rather than addressing broader issues.	Need for expanding JT efforts beyond coal mining to address broader issues, including e.g. energy efficiency, industry, transport, and agricultural sectors. Need to accelerate legislative transposition.
Instruments for policy implementation (implementation)	Ukrainian regulatory landscape falls short of covering	Inadequate regulatory mechanisms, lack of reporting, and	The need for a comprehensive data collection and monitoring system is



readiness) (section 3.2)	<p>the entire scope of the just transition framework.</p> <p>Although there are some notable initiatives such as those launched by the State Employment Service and the Ministry of Digital Transformation, the activities of the Ministry of Social policies lack strategic vision of the needed reforms.</p>	legislative transparency	<p>indispensable to the implementation of unified metrics and regular reporting frameworks based on SDG criteria to assess progress and funding efficiency.</p> <p>There is a need for a mandatory environmental, social, and governance reporting for companies to embed sustainability in management and evaluation processes. Targeted subsidies and incentives for sectors heavily impacted by the transition, such as coal, to facilitate restructuring and support affected workers and communities, will also be needed to support the change, facilitated by the utilization of dormant assets and passive capital to build up funds dedicated to promoting social entrepreneurship.</p>
Financial capacity (implementation/ financial readiness) (section 3.2.2)	<p>Ukraine's current regulatory and economic tools are insufficient to ensure a just transition toward a low-carbon economy, particularly in coal regions. While strategic goals align with the</p>	<p>Inadequate regulatory and economic mechanisms. Lack of coordinated policies (hinders tangible and measurable improvements in achieving a just transition). Financial</p>	<p>Need for strengthened regulatory and economic mechanisms to ensure the successful recovery of the war-damaged regions, which entails further development of legislative frameworks to align with EU regulations and associated mechanisms,</p>



	<p>European Green Deal (EGD), legislative frameworks require further development to integrate EU regulations effectively. The absence of targeted and coordinated policies raises concerns about the effectiveness of available instruments in mitigating the negative impact on populations vulnerable to economic changes during the transition. Despite declaring a commitment to EGD goals, funding for transition initiatives remains a low priority due to competing priorities, necessitating heavy reliance on external donor support.</p>	<p>constraints and priorities: insufficient financial allocations from state and local budgets, compounded by the ongoing war crisis, pose significant challenges to financing efforts for a just transition.</p>	<p>thereby fostering a conducive environment for sustainable development. Need for enhanced financial support. Establishing specialized funds or state-targeted programs tailored to the needs of war-affected regions is crucial. Additionally, efforts should be made to prioritize blended finance for different sectors of the economy.</p>
Public capacity (institutional capacity - effectiveness and efficiency - implementation)	<p>While government institutions have defined roles in implementing just green transition policies, there is a gap in the absence</p>	<p>Lack of a central overseeing body that would enhance the current institutional framework and ensure more</p>	<p>Need to establish a central oversight body to coordinate just green transition policies.</p> <p>Need to strengthen human resources to</p>



readiness) (section 3.3)	of a central body tasked with overseeing and coordinating policy implementation, enforcement, and evaluation. Ukraine faces a scarcity of human resources, exacerbated by war-related factors such as forced migration and hostilities. Despite existing obligations and data collection systems, the effectiveness of these processes is hindered, especially since the onset of the full-scale Russian invasion. Additional obstacles for data collection, coupled with inadequate monitoring and reporting frameworks, highlight the need for significant improvement in methodology and metrics for evaluation. Mechanisms for communication between state institutions and non-government stakeholders exist, but are underutilized.	effective governance in this domain, particularly in the context of temporary limitations due to martial law. Human resource scarcity (overall capacity to handle the requirements for JT is compromised, posing challenges to effective policy implementation). Ineffective data collection and monitoring needed for transparent recovery processes tracking, underutilized stakeholder engagement, limited demand for cooperation from state bodies, and occasional lack of interest and trust from non-government stakeholders indicate a gap in effective stakeholder engagement.	address war-related scarcity. Need to enhance and develop data collection and stakeholder engagement practices to ensure effective implementation and evaluation of just transition initiatives essential for navigating challenges such as martial law limitations and fostering inclusive decision-making processes towards sustainable development goals.
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Non-governmental capacity (implementation readiness) (section 3.4)	<p>Ukraine has a strong R&D base and a growing cleantech sector, but lacks key enabling conditions such as stable funding and coordinated state support. The ongoing war overshadows the focus on just transition principles and long-term climate planning. Conflict-related disruptions limited green skills programmes, and the absence of strategies to retain or attract talent hinders the mobilisation of human capital. Sectoral cooperation remains weak, especially in coal regions, where low awareness and resource constraints impede inclusive transition efforts.</p>	<p>Limited funding and insufficient state support for R&D and private cleantech industries. Dominance of war-related discourse, deflecting attention from JT discussions. War-related obstacles hinder the full engagement of human capital, including forced displacement and lack of specialist return plans. Significant deficit in green skills programmes in both education and professional training. Slow development of sectoral cooperation, particularly in coal regions, with limited awareness of necessary changes. Resource limitations for key stakeholders, exacerbated by war and systemic challenges.</p>	<p>Increased funding and state support for R&D and private cleantech industries to accelerate green innovation. Facilitation of dialogue and engagement on just green transition amidst war-related discourse to ensure long-term sustainability. Implementation of measures to overcome war-related obstacles and encourage the return of skilled specialists to Ukraine. Development and expansion of green skills programs in education and professional training to build capacity. Acceleration of sectoral cooperation and awareness-building efforts, particularly in coal regions, to facilitate transition planning. Provision of resources and support mechanisms for key stakeholders to navigate challenges and facilitate an inclusive transition process.</p>
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Annex I Overview of the policy instruments impacting just transition

Table 9. Overview of types of instruments related to JT in Ukraine.

Type of instrument	Name of the instrument and brief description	Statutory requirement	Responsible party/target group
Regulatory	<i>Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine until 2030</i> (a basic legal framework for the formation of policies addressing challenges arising from the transition away from fossil fuels)	Resolution of the Cabinet of Ministers of Ukraine №1024	Ministry of Development of Communities, Territories, and Infrastructure
Regulatory	<i>Comprehensive plan for the social protection of laid-off workers, the development of social infrastructure, and the identification of sources of funding for these measures</i> (the mechanism of social guarantees and guarantees in the field of employment; must be approved together with the project of liquidation and conservation of the mining enterprise)	Mining Law of Ukraine (Section VIII)	Ministry of Energy, coal mining enterprises, trade unions
Regulatory	<i>Procedure for creating new jobs for the employment of workers who are released from coal mining, coal processing and peat mining enterprises, which are liquidated at the expense of the state budget funds for the restructuring of the coal and peat mining industry</i> (procedure of creation of new jobs by regional state administrations for	Resolution of the Cabinet of Ministers of Ukraine №1954	Ministry of Energy, coal mining enterprises, trade unions



	employment of laid-off workers of coal enterprises)		
Regulatory	<i>Socio-economic Development Program</i> (a comprehensive framework outlining goals and measures for addressing the local social and economic challenges)	Law of Ukraine "On Local Self-Government in Ukraine" Law of Ukraine "On state forecasting and development of programs for the economic and social development of Ukraine"	Local governments
Regulatory	<i>Concept of creating a system of social support for employees of coal enterprises and the population of the territories where coal mining and coal processing enterprises that are in the stage of liquidation (conservation) are located</i> (a basic legal framework for formation policies addressing challenges arising from the liquidation of coal enterprises)	Resolution of the Cabinet of Ministers of Ukraine №990-p	Ministry of Energy, coal mining enterprises, trade unions
Economic	<i>State budget program "Coal Industry Restructuring"</i> (the program is aimed at paying wages and repaying debts owed to coal industry workers, modernisation of coal mining enterprises, and maintenance of uncompleted mine №10)	Resolution of the Cabinet of Ministers of Ukraine №80	Ministry of Energy
Economic	<i>Mandatory State Social Insurance Fund in case of unemployment</i> (mechanism providing financial support in case of unemployment due to circumstances beyond the	The Law of Ukraine "On Mandatory State Social Insurance in the Event of Unemployment"	Ministry of Economy



	control of the insured person)		
Economic	<i>State Fund for Regional Development</i> (The fund is a part of the state budget, directed to the implementation of investment programs and projects of regional development)	Budget Code of Ukraine (Article 24 ¹)	Ministry of Development of Communities, Territories, and Infrastructure, Local governments
Voluntary	<i>Coordinating Center for the Transformation of Coal Regions</i> (a consultative and advisory body of the Cabinet of Ministers to ensure the coordination of the stakeholders for the development of policy priorities for the transformation of coal regions)	Resolution of the Cabinet of Ministers of Ukraine №391	Government officials, members of parliament, coal mining enterprises, trade unions, and local governments
Voluntary	<i>Integrated Development Program</i> (Development of this document should help communities that have suffered significant damage and losses because of war, or are places of concentration of complex socio-economic, infrastructural, environmental, or other crisis phenomena, to outline the main vision of their recovery and development.	Resolution of the Cabinet of Ministers of Ukraine №731 Resolution of the Cabinet of Ministers of Ukraine №1159	Territorial communities (hromadas)

Annex II. Stakeholder mapping

The content of the 2nd chapter was originally attached as Annex II. Due to GDPR considerations, we are unable to disclose the mapping results publicly.



Annex III. Mapping of strategic national documents

Table 10. Mapping of strategic national documents, as well as relevant thematic objectives and targets

JT-relevant international or EGD policy area ¹⁰ / strategic document	Existing national strategic document	Time of adoption and date of last revision	Legally binding or not	Relevant objectives and targets
European Pillar of Social Rights	National Strategy for Creating a Barrier-Free Environment in Ukraine until 2030	14.04.2021	Yes	On the initiative of the first lady of Ukraine Olena Zelenska "Without barriers", the National Strategy for the creation of a barrier-free space in Ukraine until 2030 was adopted and the plan of measures for its implementation for 2021 and 2022 was approved, the majority of which are targeting the improvement of conditions of work and social protection for people with disabilities, which is also targeted in the EU Pillar of Social Rights.
Increasing the EU's climate ambition for 2030 and 2050	Strategy for Environmental Security and Adaptation to Climate Change and Operational Implementation Plan for 2022-2024 (Cabinet of Ministers of Ukraine 2021)	Adopted in 2021 for the period until 2030	Yes	The strategic goals include: reducing the level of industrial pollution; ensuring rational use of natural resources; achieving an ecological state of waters; ensuring sustainable forest management; increasing the efficiency of the state system of impact assessment and state supervision (control); preservation of biodiversity and ensuring the development of nature reserves; strengthening the adaptive capacity and resilience of social, economic and ecological systems to climate change; stabilisation of the ecological balance in the temporarily occupied territories after the restoration of the territorial integrity of Ukraine.
Supplying	Energy Strategy	Adopted	Yes	Strategic goals include: achieving



clean, affordable, and secure energy	of Ukraine for the period until 2050 (Cabinet of Ministers of Ukraine 2023 , Ministry of Energy of Ukraine 2022)	in 2023		the maximum level of emission reduction; maximum reduction of coal use in the energy sector; renewal and modernisation of energy infrastructure; increasing the efficiency of the use of resources in the energy sector; providing the energy sector with its own resources, taking into account economic feasibility; development of alternative energy sources, new products and innovative solutions in the energy sector.
Mobilising industry for a clean and circular economy	Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine (Cabinet of Ministers of Ukraine, 2021)	Adopted in 2021 for the period up to 2030	Yes	Expected results: creation of conditions for diversification of the economy of more than 20 coal communities with 850,000 people; increasing the number of the employed population in the industrial areas of the economy, not related to the coal industry (creating new jobs and increasing the self-employment); updating the infrastructure facilities through the use of effective sources and financing mechanisms (more than 60 settlements); creating 3 centres of creative economy and infrastructure development for 5 or more industrial parks (with a total area of more than 200 hectares) in coal regions; expansion of opportunities for professional self-realisation of employees of coal enterprises through the implementation of special programs of retraining, professional training, obtaining a second education for further employment; reducing the dependence of local budgets on taxes and fees paid by coal enterprises.
Supplying clean, affordable,	Ukraine Recovery Plan (National	Presented in 2022	No	Energy security objectives: efficient operation of energy markets; diversification of energy supply



and secure energy; Preserving and restoring ecosystems and biodiversity	Recovery Council 2022)			sources; decarbonisation and development of low-carbon generation; modernisation and development of energy infrastructure; improvement of energy efficiency and demand-side management. Environmental protection: mitigation and adaptation to climate change; effective waste management; sustainable use of natural resources; conservation of natural ecosystems and biological diversity, restoration and development of protected area systems; effective public administration in the field of environmental protection and use of natural resources.
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Annex IV. EU Approximation Assessment

Table 11. Relevant legislative documents that are related to the key Green Deal-related regulations and directives in the EU acquis and international agreements

Relevant EU legal document (only key directives and regulations relevant for the JT area)	Existing national law	Planned national law (including drafted, but not adopted)	Status of transposition (fully, partially, not transposed)	Further steps in transposition	Competent Authority	Comments: issues/difficulties that can create problems for further transposition
Just Transition Mechanism	Concept of the State Target Program for the Fair Transformation of the Coal Regions of Ukraine	n/a	Transposition in progress	Establishment and conduct of the meeting of focus groups to determine specific goals and priorities for communities; development of detailed	Ministry of Communities, Territories and Infrastructure Development (former Ministry	The law targets the just transition objectives in specific regions, which limits its territorial scope.



				road maps with specific goals, tasks, and indicators for each community	of Communities and Territories Development)	
European Climate Law	Low Emission Development Strategy for the period up to 2050	n/a	Transposition in progress	Integration of the Strategy's principles into the existing and future national and regional strategic documents	Ministry of Environment and Natural Resources of Ukraine	The need to adjust the Strategy to the changes caused by the Russian full-scale invasion
	Concept of Public Policy in Climate Change for the period up to 2030 and Action Plan	n/a	Transposition in progress	Alignment of national legislation with the principles of the Concept; integration of the principles into the national and regional strategies	Ministry of Environment and Natural Resources of Ukraine	The need to adjust the Strategy to the changes caused by the Russian full-scale invasion
Renovation Wave Strategy	National action plan for energy efficiency until 2030	n/a	Transposition in progress	Development of an updated Action Plan with specific tasks, measures, and indicators for the period after 2023	Ministry of Communities, Territories and Infrastructure Development	The need to consider the effects of war, primarily the necessity to rebuild damaged and destroyed infrastructure



References

- Cabinet of Ministers of Ukraine. (20 October 2021). Strategy for Environmental Security and Adaptation to Climate Change for the period up to 2030. URL: <https://www.kmu.gov.ua/npas/pro-shvalennya-strategiyi-ekologichno-a1363r>.
- Official web portal of the Parliament of Ukraine. (21 April 2023). Energy Strategy of Ukraine for the period up to 2050. URL: <https://zakon.rada.gov.ua/laws/show/373-2023-%D1%80#Text>.
- Official web portal of the Parliament of Ukraine. (22 September 2021). Concept of the National Target Program for the Just Transition of Coal Regions in Ukraine for the period up to 2030. URL: <https://zakon.rada.gov.ua/laws/show/1024-2021-%D0%BF#Text>.
- Government Portal. (9 November 2023). Prime Minister: Ukraine is determined to implement the model of fair transformation of coal regions. URL: <https://www.kmu.gov.ua/news/premier-ministr-ukraina-nalashtovana-realizuvaty-model-spravedlyvoi-transformatsii-vuhilnykh-rehioniv>
- National Recovery Council. (July 2022). Ukraine's National Recovery Plan. URL: <https://www.unc-international.com/unc2022-recovery-plan>
- UNHCR (2024). Ukraine Refugee Crisis: Aid, Statistics and News. USA for UNHCR. URL: <https://www.unrefugees.org/emergencies/ukraine/>
- National Bank of Ukraine. (2022). URL: <https://bank.gov.ua/en/>
- Ministry of Finance of Ukraine (12 April 2023). Ukraine's GDP. GDP per capita in Ukraine. URL: <https://index.minfin.com.ua/ua/economy/gdp/>
- World Bank (2020). CO2 emissions (metric tons per capita) | Data. URL: <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=UA>
- World Health Organization. (2024). Ukraine data URL: [https://data.who.int/countries/804#:~:text=Healthy%20life%20expectancy%20\(HALE\)%20at%20birth&text=Global%2064.3%20Ukraine-In%20Ukraine%2C%20healthy%20life%20expectancy%20at%20birth%20has%20improved%20by,to%2063.7%20years%20in%202019](https://data.who.int/countries/804#:~:text=Healthy%20life%20expectancy%20(HALE)%20at%20birth&text=Global%2064.3%20Ukraine-In%20Ukraine%2C%20healthy%20life%20expectancy%20at%20birth%20has%20improved%20by,to%2063.7%20years%20in%202019).
- UNDP (2022). Human Development Index. United Nations Development Programme. URL: <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI>
- Ukraine State Statistics Service. (2020). The number of full-time employees who worked a full month and received earnings within the minimum wage range, by types of economic activity, 2017-2020. URL: https://www.ukrstat.gov.ua/operativ/operativ2017/gdn/kpvm/kpvm_ek/arh_kpvm_ek_u.htm
- Ukraine State Statistics Service. (2021). Available Income of the Population 2021. URL: https://www.ukrstat.gov.ua/operativ/operativ2021/gdn/ndn/arh_ndn2021_u.htm
- Ministry of Finance of Ukraine. (29 March 2015). Expenditures of the State Budget of Ukraine. URL: <https://index.minfin.com.ua/ua/finance/budget/gov/expense/2015/>



EcoPolitic. (28 August 2022). Environmental taxes of Ukraine: who pays, how much, and for what. URL: <https://ecopolitic.com.ua/en/news/ekologichni-podatki-ukraini-hto-za-shho-i-silki-splachuie-2/>

Ministry of Environmental Protection and Natural Resources of Ukraine. (2018). Low Emission Development Strategy of Ukraine until 2050. URL: <https://mepr.gov.ua/diyalnist/napryamky/zmina-klimatu/pom-yakshennya-zminy-klimatu/strategiya-nyzkovugletseвого-rozvytku-ukrayiny-do-2050-roku/>

Slovo i Dilo. (23 August 2024). 30 years of Independence: how the gender composition of the Verkhovna Rada has changed. URL: <https://www.slovoidilo.ua/2021/08/23/infografika/polityka/30-rokiv-nezalezhnosti-yak-zminyuvavsya-hendernyj-sklad-verxovnoyi-rady>

Global Gender Gap. (2010). Global Gender Gap Report. URL: https://www3.weforum.org/docs/WEF_GenderGap_Report_2010.pdf

Global Gender Gap. (2015). Global Gender Gap Report. URL: <https://www3.weforum.org/docs/GGGR2015/cover.pdf>

Global Gender Gap. (2020). Global Gender Gap Report. URL: https://www3.weforum.org/docs/WEF_GGGR_2020.pdf

Global Gender Gap. (2021). Global Gender Gap Report. URL: https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

Global Gender Gap. (2022). Global Gender Gap Report. URL: https://www3.weforum.org/docs/WEF_GGGR_2022.pdf

Ukraine State Statistics Service. (2021). Unemployment Rate of Population (according to ILO methodology) by gender, type of locality, and age groups, 2017-2021. URL: https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans_u/arch_bnsmv_u.htm

Ukraine State Statistics Service. (2021). Labour Force of Ukraine. URL: https://ukrstat.gov.ua/druk/publicat/kat_u/2021/zb/08/rab_sula_e.pdf

Ukraine State Statistics Service. (2021). Employed population aged 15-70, by occupational group and sex, 2010-2021. URL: https://ukrstat.gov.ua/operativ/operativ2021/rp/zn/zn_pgs20_ue.xls

Ukraine State Statistics Service. (2022). Number of persons employed by business entities by type of economic activity in 2010-2022. URL: https://www.ukrstat.gov.ua/operativ/operativ2022/fin/pssg/kzpsg_ek_2010_2021.xlsx

Ukraine State Statistics Service. (2021). Employment of the Population by gender, type of locality, and age groups, 2017-2021. URL: https://www.ukrstat.gov.ua/operativ/operativ2017/rp/eans/eans_u/arch_znsnmv_u.htm

United Nations Development Programme. (2024). Human Development Index of Ukraine. URL: <https://hdr.undp.org/data-center/specific-country-data#/countries/UKR>

The World Bank (2024). World Development Indicators. URL: <https://databank.worldbank.org/source/world-development-indicators>



Ukraine State Statistics Service. (2021). Self-assessment of the population regarding health status and the level of accessibility of certain types of medical care, 2017, 2021. URL: https://www.ukrstat.gov.ua/operativ/operativ2018/gdvdg/Arh_snsz_u.htm

Macrotrends. (2024). Ukraine Clean Water Access 2000-2024. URL: <https://www.macrotrends.net/global-metrics/countries/UKR/ukraine/clean-water-access-statistics>

UNDP, Kyiv International Institute of Sociology. (16 January 2023). Analytical report on the "Opinions and views of the Ukrainian population regarding state electronic services". URL: <https://www.undp.org/ukraine/publications/analytical-report-opinions-and-views-ukrainian-population-regarding-state-electronic-services>

Government Portal. (2024). Environmental Policy. URL: <https://www.kmu.gov.ua/reformi/ekonomichne-zrostannya/ekologichna-polityka>

Government Portal. (30 July 2021). The Government approved the goals of Ukraine's climate policy until 2030. URL: <https://www.kmu.gov.ua/news/uryad-shvaliv-cili-klimatichnoyi-politiki-ukrayini-do-2030-roku>

Global Compact Network Ukraine. (20 April 2021). Paris Climate Agreement for Ukraine. URL: <https://globalcompact.org.ua/news/parizka-klimatichna-ugoda-dlja-ukraini/>

Federation of Professional Unions of Ukraine. (1 November 2015). List of ILO Conventions ratified by Ukraine. URL: <https://www.fpsu.org.ua/yuridicheskie-konsultatsii-2/napryamki-diyalnosti/mizhnarodna-robota/2545-spisok-konventsij-mop-ratifikovanikh-ukrajinoj-standom-na-29-zhovtnya-2013-r>

Official web portal of the Parliament of Ukraine. (30 September 2019). Decree of the President of Ukraine on the Sustainable Development Goals of Ukraine for the period up to 2030. URL: <https://zakon.rada.gov.ua/laws/show/722/2019#Text>

UNDP. (27 December 2017). Draft of the Sustainable Development Strategy of Ukraine until 2030. URL: <https://www.undp.org/uk/ukraine/publications/stratehiya-staloho-rozvytku-ukrayiny-do-2030-roku>

Official web portal of the Parliament of Ukraine. (29 August 2023). Decree of the Cabinet of Ministers of Ukraine on creation of Interagency Working Group for the achievement of the SDGs. URL: <https://zakon.rada.gov.ua/laws/show/923-2023-%D0%BF#Text>

KSE. (November 2021). Research of the impact on the economy of Ukraine from the introduction of CBAM by the European Union. URL: https://kse.ua/wp-content/uploads/2021/12/ENG_20211115-KSE_CBAM_for-publication.pdf

Government Portal. (15 April 2021). European Green Deal. URL: <https://ukraine-eu.mfa.gov.ua/posolstvo/galuzeve-spivrobotnictvo/klimat-yevropejska-zelena-ugoda>

European Commission. (2024). The Just Transition Mechanism: making sure no one is left behind URL: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en

European Commission. (2021). European Climate Law. URL: https://climate.ec.europa.eu/eu-action/european-climate-law_en



European Commission. (14 October 2020). Renovation Wave: doubling the renovation rate to cut emissions, boost recovery and reduce energy poverty. URL:

https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1835

European Commission. (8 November 2023). Communication on EU Enlargement policy. Ukraine 2023 Report. URL: https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-11/SWD_2023_699%20Ukraine%20report.pdf

Ministry of Environment and Natural Resources of Ukraine. (2018). Low Emission Development Strategy. URL: <https://mepr.gov.ua/diyalnist/napryamky/zmina-klimatu/pom-yakshennya-zminy-klimatu/strategiya-nyzkovugletseвого-rozvytku-ukrayiny-do-2050-roku/>

Official web portal of the Parliament of Ukraine. (7 December 2016). Concept of Public Policy in Climate Change for the period up to 2030. URL: <https://zakon.rada.gov.ua/laws/show/932-2016-%D1%80#Text>

Official web portal of the Parliament of Ukraine. (6 December 2017). Action Plan for the implementation of the Concept of Public Policy in Climate Change. URL:

<https://zakon.rada.gov.ua/laws/show/878-2017-%D1%80#Text>

Government Portal. (29 December 2021). National Action Plan for Energy Efficiency until 2030. URL: <https://www.kmu.gov.ua/npas/pro-nacionalnij-plan-dij-z-energoefektivnosti-na-period-do-2030-t291221>

Government Portal. (9 November 2023). Prime Minister: Ukraine intends to introduce a model of fair transformation of coal regions. URL: <https://www.kmu.gov.ua/en/news/premier-ministr-ukraina-nalashtovana-realizuvaty-model-spravedlyvoi-transformatsii-vuhilnykh-rehioniv>

Aurora Energy Research. (2021). Economic consequences of the gradual abandonment of the use of coal in Ukraine until 2030. URL: https://ecoaction.org.ua/wp-content/uploads/2021/07/2021_07_Economic_implications_ua-s-1.pdf

Pantsyr Serhii, Melnyk Serhii. (November 2016). What should be the state policy of Ukraine regarding miners under conditions of mass closure of coal mining enterprises? URL:

https://pdf.usaid.gov/pdf_docs/PA00XC8J.pdf

Official web portal of the Parliament of Ukraine. (13 May 2020). About the establishment of the Coordinating Centre for the Transformation of the Coal Regions of Ukraine. URL:

<https://zakon.rada.gov.ua/laws/show/391-2020-%D0%BF#n40>

Government Portal. (6 July 2021). Prime Minister: Fair transformation of coal regions means the creation of new opportunities for community members and employees of enterprises. URL:

<https://www.kmu.gov.ua/news/premyer-ministr-spravedliva-transformaciya-vugilnih-regioniv-ce-stvorennnya-novih-mozhливостей-dlya-zhителiv-gromad-i-pracivnikov-pidpriemstv>

Government Portal. (9 November 2023). Prime Minister: Ukraine intends to introduce a model of fair transformation of coal regions. URL: <https://www.kmu.gov.ua/en/news/premier-ministr-ukraina-nalashtovana-realizuvaty-model-spravedlyvoi-transformatsii-vuhilnykh-rehioniv>



- Ukrainian Energy. (25 July 2023). Two years of transformation: how reforms are progressing in the coal regions of the country. URL: <https://ua-energy.org/uk/posts/dva-roky-transformatsii-iak-prosuvaiutsia-reformy-u-vuhilnykh-rehionakh-krainy>
- Platform for Sustainable Development. (2024). URL: <https://justtransition.org.ua/en/main-en/>
- Mironhrad Territorial Community. (16 February 2022). Strategy of transformation of coal-mining hromadas of Donetsk region. URL: <https://myrnograd-rada.gov.ua/news/23492-povidomlennya-pro-oprilyudnennya-projektu-strategiyi-transformaciyi-vugilnix-gromad-doneckoyi-oblasti>
- Ecodiia. (14 September 2022). An open letter from leaders of mining hromadas regarding the recovery of Ukraine. URL: <https://ecoaction.org.ua/vidkrytyj-lyst-kerivnykh-shakhtar-hromad.html>
- Dixi Group. (2020). Evaluation of the effectiveness of state expenditures on the restructuring of the coal industry. URL: <https://ua.boell.org/sites/default/files/2021-02/Otsinka%20efektyvnosti%20derzhvydatkiv%20na%20restrukturyzatsiu%20vugilnoi%20galuzi.pdf>
- Ecodiia. (5 November 2021). Ukraine sets a double date to phase out coal in power generation. URL: <https://en.ecoaction.org.ua/ukraine-sets-phase-out-coal.html>
- European Commission. (2024). The Just Transition Mechanism: making sure no one is left behind. URL: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism_en
- Uryadovyy Kur'yer. (14 June 2013). The government will create a fund for the transformation of coal regions. URL: <https://ukurier.gov.ua/uk/news/uryad-stvorit-fond-dlya-transformaciyi-vugilnih-re/>
- Platform for Sustainable Development of Coal Cities in Donetsk Region. (24 April 2023). Is the government ready to help mining towns with a just transition. URL: <https://justtransition.org.ua/uriad-ta-mista/>
- GIZ Project. (October 2023). Facilitating a just transition for Ukraine's coal regions. URL: <https://www.giz.de/en/worldwide/133998.html>
- Ecodiia. (10 November 2023). Establishment of the Association of Coal Mining Communities of Ukraine. URL: <https://ecoaction.org.ua/stvorennia-asotsiatsi-vuh-hromad.html>
- DTEK. (5 November 2021). DTEK joined the Powering Past Coal Alliance for a phased transition to carbon-free energy. URL: <https://dtek.com/media-center/news/dtek-has-joined-the-powering-past-coal-alliance-for-a-phased-transition-to-carbon-free-energy/>
- Official web portal of the Parliament of Ukraine. (20 November 2023). The concept of transformation of coal regions foresees new development opportunities for mining cities, including the spread of "green" technologies. URL: https://www.rada.gov.ua/news/news_kom/243850.html
- Ukrainian Energy. (07 December 2021). 13-18% of household consumers in Ukraine are energy poor – research. URL: <https://ua-energy.org/uk/posts/13-18-pobutovykh-spozhyvachiv-ukrainy-ie-enerhetychno-bidnymi-doslidzhennia>
- NISS 2023. (4 April 2023). Actualization of factors of energy poverty caused by the consequences of armed aggression against Ukraine. URL: <https://niss.gov.ua/news/komentari-ekspertiv/aktualizatsiya-faktoriv-enerhetychnoyi-bidnosti-shcho-zumovleni-naslidkami>



Official web portal of the Parliament of Ukraine. (17 June 2020). Regulation on the Ministry of Energy of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/507-2020-%D0%BF#Text>

Official web portal of the Parliament of Ukraine. (25 June 2020). Regulation on the Ministry of Environmental Protection and Natural Resources of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/614-2020-%D0%BF#n13>

About the Ministry of Restoration. URL: <https://mtu.gov.ua/news/35514.html>

Ministry of Agrarian Policy and Food of Ukraine. (1 October 2021). About the Ministry of Agrarian Policy and Food of Ukraine. URL: <https://minagro.gov.ua/en/pro-nas/mission-and-strategy>

Official Journal of the European Union. (11 December 2019). According to EGD transformative policies. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0640>

Ekonomichna Pravda. (28 November 2023). The President signed the 2024 budget. URL: <https://www.epravda.com.ua/news/2023/11/28/707094/>

Ukrainian Sustainable Fund. (2022). Financing Mechanisms of the "Green" Transition of Ukraine. URL: <https://ukrsf.org/green-finance-ua/>

Ministry of Economy of Ukraine. (18 September 2023). The Institutional Meeting Of The Sectoral Working Group On Green Metallurgy Was Held Within The Framework Of Work On The Ukraine Facility Program From The EU. URL: <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=1a766d73-d73e-43eb-9eb3-eadbef4a8e1c&title=ZustrichUkraineFacility>

Government Portal. (23 September 2021). The second meeting of the working group of the High Level Dialogue on the European Green Course and the Green Transition of Ukraine was held. URL: <https://www.kmu.gov.ua/news/vidbulosya-druge-zasidannya-robochoyi-grupi-dialogu-visokogo-rivnya-shchodo-yevropejskogo-zelenogo-kursu-i-zelenogo-perehodu-ukrayini>

Ministry of Finance. (8 February 2024). Ministry of Finance: During 2023, the actual number of employees of state bodies decreased by 6.8 thousand people. URL: https://www.mof.gov.ua/uk/news/minfin_protiagom_2023_roku_faktichna_chiselnist_pratsivnikiv_d_erzhorganiv_skorotilas_na_68_tis_osib_dashbord-4421

Ekonomichna Pravda. (8 June 2023). There is a noticeable shortage of civil servants in Ukraine: the NASS announced the risks for the country. URL: <https://www.epravda.com.ua/news/2023/06/8/700959/>

Government Portal. (26 December 2023). Ministry of Economy: Summarised the proposals from the participants of the sectoral working group on "green" metallurgy as part of the preparation of the Plan for the Ukraine Facility. URL: <https://www.kmu.gov.ua/news/minekonomiky-pidbyly-pidsumky-propozytsii-vid-uchasnykiv-sektoralnoi-robochoi-hrupy-iz-zelenoi-metallurhii-v-ramkakh-pidhotovky-planu-dlia-ukraine-facility>

Energy Transition Coalition. (2017). About the coalition. URL: <https://energytransition.in.ua/pro-koalitsiiu/>

Ekodiia. (10 June 2019). Experience of transformation of mining regions: Recommendations for Ukraine. URL: <https://ecoaction.org.ua/aftercoal-ua.html>



Ekodiia. (19 November 2021). Climate Goals and Ukrainian Industry: Modernise or Lose. URL: <https://ecoaction.org.ua/klimatychni-tsili-ta-uaprom.html>

Yana Pavko, Golos Ukrayiny. (22 April 2020). "Green" technologies and energy transition: essence and features. URL: <http://www.golos.com.ua/article/330165>

Energy Transition Coalition. (2018). How Ukrainian startups are approaching the "green" future. URL: <https://energytransition.in.ua/project/yak-ukrains-ki-startapy-nablyzhaiut-zelene-maybutnie/>

Releaf Paper UA. (2024). URL: <https://releaf.com.ua/>

Carbominer. (2024). URL: <https://carbominer.com/>

Inputsoft. (2024). URL: <https://www.inputsoft.net/>

Greencubator. (2023). Is the Ukrainian cleantech alive during the war? Three key insights we learned in 2023. URL: <https://greencubator.info/key-insights-about-ukrainian-cleantech-in-2023/>

Government Portal. (2021). State Agency on Energy Efficiency and Energy Saving of Ukraine: "Green" transition requires political will, financing, investment projects, and most importantly - the understanding of every citizen. URL: <https://www.kmu.gov.ua/news/derzhenergoefektivnosti-zelenij-perehid-potrebuye-politichnoyi-voli-finansuvannya-investicijnih-proektiv-golovne-rozuminnya-kozhnogo-gromadyanina>

Resource-Analytical Center "Society and Environment". (2023). How the war changes Ukrainians. URL: <https://rac.org.ua/ekologichna-polityka-ukrayiny/socziologichni-opytuvannya/yak-vijna-zminyuye-ukrayincziv-opytuvannya-dumky-gromadyan-pro-vijnu-dovkilliya-povoyennu-vidbudovu-ta-vstup-do-yes/>

#ShoTam. (30 October 2023). "I want the city to have more fountains with drinking water." How Lviv Open Lab trained young people in "green" skills. URL: <https://shotam.info/yak-lviv-open-lab-prokachav-molod-u-zelenykh-navychkakh/>

Ministry of the Digital Transformation. (2024). Diia.Osvita. URL: <https://osvita.diia.gov.ua/en>

Government Portal. (28 November 2023). Ministry of Environmental Protection and Natural Resources: Build Back Better, Build Back Greener - key principles of Ukraine's reconstruction. URL: <https://www.kmu.gov.ua/en/news/mindovkillia-build-back-better-vuild-vack-greener-kliuchovi-pryntsypy-vidbudovy-ukrainy>

Razom We Stand. (September 2023). Analytical report. Green Workplaces and Post-War Reconstruction of Ukraine. URL: <https://razomwestand.org.ua/article/zeleni-robochi-mistsya-ta-povoyenna-vidbudova-ukrayiny-nova-analitychna-dopovid>

State Employment Center. (2024). Vocational training under the direction of SEC. URL: <https://www.dcz.gov.ua/profnavch>

State Employment Center. (2024). A consolidated list of educational institutions for the organization of professional training of the registered unemployed. URL: <https://www.dcz.gov.ua/proforient>

State Employment Service. (2024). Online platform on career development. URL: <https://profi.dcz.gov.ua/>



Skilling for the green transition. (November 2022). ETF Policy Briefing: Evidence, Practice & Advice for Policy Makers. URL: https://www.etf.europa.eu/sites/default/files/2022-11/Edited%20green%20transition%20policy%20brief_EN.pdf?fbclid=IwAR1LIAWRxhoVV0jHpOtu8dfACswZepbb2_gSIPT2vFyIuU-9sBkxEuUeno4

State Statistics Service of Ukraine. (2021). Indicators for monitoring gender equality in Ukraine. URL: https://ukrstat.gov.ua/druk/publicat/kat_u/2021/2021_Indukator-Monitor.pdf

Sudakov Mykola, Lisohor Larysa. (2023). Labor Market of Ukraine 2022–2023: state, trends and prospects. URL: https://solidarityfund.org.ua/wp-content/uploads/2023/04/ebrd_ukraine-lm-1.pdf

Andrusevych A., Andrusevych N., Kozak Z., Ptashnyk I., Romanko S. "Razom We Stand" & "Society and Environment". (2023). Green Jobs and the Post-War Reconstruction of Ukraine. Policy paper. URL: <https://rac.org.ua/vijna-ta-povoyenna-vidbudova-uk/zeleni-robochi-misczya-i-povoyenna-vidbud/>

Kyiv Regional Military Administration. (2023). An Announced Grant Program Aimed at Increase of Personnel Potential of Ukrainian Business. URL: <https://koda.gov.ua/ogoloshena-grantova-programa-yaka-spryamovana-na-pidvyshhennya-kadrovogo-potenczialu-ukrayinskogo-biznesu/>

Official web portal of the Parliament of Ukraine. (18 February 1997). Approval of Rules for Providing Passenger Automobile Transport Service. URL: <https://zakon.rada.gov.ua/laws/show/176-97-%D0%BF#Text>

Bruno Lanvin, Felipe Monteiro. (2021). The Global Talent Competitiveness Index 2021: Talent Competitiveness in Times of COVID. URL: <https://www.insead.edu/sites/default/files/assets/dept/fr/gtci/GTCI-2021-Report.pdf>

Economic Strategy Center. (2024). Ukrainian refugees. The future abroad and plans to return. The third wave of research. URL: https://ces.org.ua/ukrainian_refugees_third_wave_research/

Human Capital UA. (2023). Future of Work: Development of Human Capital in Ukraine. URL: <https://www.humancapitalua.com/research/>

Government Portal. (20 October 2021). Strategy for Environmental Security and Adaptation to Climate Change for the period up to 2030. URL: <https://www.kmu.gov.ua/npas/pro-shvalennya-strategiyi-ekologichno-a1363r>

Ministry of Energy of Ukraine. (8 February 2022). Energy Strategy. URL: <https://www.mev.gov.ua/reforma/enerhetychna-stratehiya>

International Energy Agency. (2023). *Ukraine energy profile – Energy security*. <https://www.iea.org/reports/ukraine-energy-profile/energy-security>

Halushchenko, H. (2023, June 21). *Ukraine to phase out coal-fired power generation by 2035, but viable mines will remain operational*. Statement at the Ukraine Recovery Conference, London. Ministry of Energy of Ukraine. URL: <https://mev.gov.ua/en/news/ukraine-phase-out-coal-fired-power-generation-2035-viable-mines-will-remain-operational>