



# SKILLS FOR THE GREEN TRANSITION

EVIDENCE FROM THE EU NEIGHBOURHOOD



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# SKILLS FOR THE GREEN TRANSITION

**To address climate change and promote sustainable development, societies need to transition to low-carbon energy sources, prevent ecological collapse, and enable human development so people can thrive in a green economy.**

This aligns with the EU Green Deal's goals of climate neutrality and reduced inequality. It presents opportunities for governments and organisations to implement changes that make labour markets and education more inclusive, prosperous and beneficial for human well-being.

The European Training Foundation (ETF) has assessed policies and advances in skills deployment for the green transition in EU neighbouring countries<sup>1</sup>. Key findings can help governments address capacity-building needs while enabling long-term social change for a just transition.

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<sup>1</sup> Research has been conducted in the following countries: Albania, Algeria, Armenia, Azerbaijan, Bosnia and Herzegovina, Egypt, Georgia, Israel, Jordan, Kazakhstan, Kosovo (this designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ opinion of the Kosovo declaration of independence), Kyrgyzstan, Lebanon, Moldova, Montenegro, Morocco, North Macedonia, Palestine (this designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual position of the EU Member States on this issue), Serbia, Tajikistan, Tunisia, Türkiye, Turkmenistan, Ukraine and Uzbekistan. In addition to this report, 17 country reports and two thematic reports (energy and construction) have been produced.

**Ambitious Green Transition Targets:** National and sectoral strategies show commitment to ambitious green transition goals aligned with international agreements like the UN Sustainable Development Goals<sup>2</sup>, the Paris Agreement, and the Energy Community Treaty<sup>3</sup>. Most countries have roadmaps and strategies to phase out fossil fuels and achieve renewable energy-powered, low-carbon, circular economies.

**Emphasise Skills:** Despite ambitious targets, the skills dimension is frequently downplayed within these national and sectoral strategies, diminishing their effectiveness in driving transformative change. These strategies often fail to sufficiently acknowledge the need for a qualified workforce or outline adequate measures for supplying essential green skills and competences. Moreover, the strategies fall short in comprehensively describing the range of skills related to the green transition. They often lack the necessary combination of sustainability mindsets, transversal skills, and technical expertise.

**Promote holistic green education reforms:** Education systems often focus more on teaching accepted knowledge rather than empowering students to thrive in unpredictable futures. In doing so, they sometimes inadvertently perpetuate damaging practices that worsen inequality and harm the environment, which is contrary to sustainability objectives. Necessary reforms gain little momentum and fall short in cultivating required skills. Although there are some positive initiatives, many suffer from fragmentation and are predominantly driven by donors, civil society, ambitious providers, and the private sector, rather than by governments. These initiatives are often underfunded and lack connectivity across different levels of education. This lack of an integrated approach hinders comprehensive skills development.

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<sup>2</sup> United Nation's Sustainable Development Goals: <https://sdgs.un.org/goals>

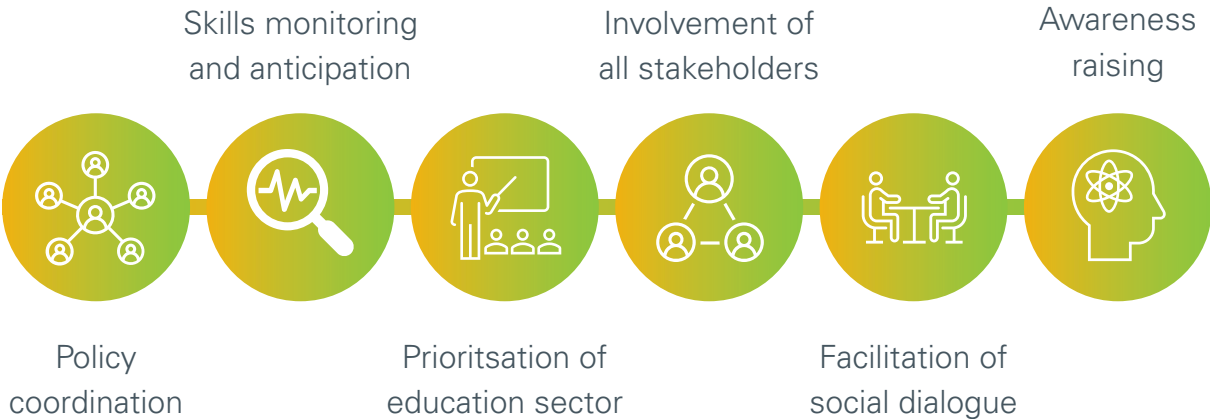
<sup>3</sup> The Southern and Eastern Mediterranean region is not a part of this treaty.

**Strengthen skills intelligence systems for monitoring skills demands and deployment.** The adage “you cannot manage what you do not measure” is relevant here. Policymakers recognise the challenges in aligning skills development with the green transition. However, limited skills and employment data impedes precise planning. Countries must therefore improve skills deployment to align with green regulations and policies. Only a few countries have labour market monitoring mechanisms, which capture overall trends rather than specialised green economy skills. Examples are Egypt, Israel, Serbia, Morocco, Albania and Georgia.

**Enhance Talent Attraction:** Many countries have unrealised potential to attract talent to the construction and energy sectors. Employer representatives highlight skills shortages as demand rises for medium and high-skilled workers in these key evolving sectors.

Further examination of skills requirements in Albania, Tunisia and Egypt reveals growing demand for energy sector roles focused on technology, business services, and specialised expertise.

**Address widespread disparities in accessing skills and decent work to enable the green transition.** In alignment with the EU Green Deal principles, nations must prioritise inclusive transitions as they move towards sustainability. This requires increased commitment to provide relevant education for marginalised groups like NEETs (Not in Education, Employment, or Training), women, migrants, and people with disabilities. Furthermore, incentivising businesses and civil society to actively support this process is essential. Recognising that green jobs can provide improved working conditions and well-being (Valero et al., 2021), expanding access to these opportunities can broadly benefit the workforce overall.



# Recommendations for supporting skills provision for the green transition in the EU Neighbourhood

## Integrate skills development into sectoral and industrial policies



Advancing relevant skills alongside cohesive industrial policies linked to the green transition can only happen through close coordination between government agencies and private sector stakeholders. This establishes widely accepted frameworks where all roles and responsibilities are clearly defined.

Sectoral strategies and programme-specific key performance indicators (KPIs) should incorporate the nationally determined contributions (NDCs) and the Sustainable Development Goals (SDGs) to ensure policy implementation and monitoring.

These sectoral strategies should explicitly address skills development using action plans aimed at facilitating industry engagement, school-to-work transitions, and social protection connections focused on learners and workers.

International cooperation is essential, as most neighbouring countries participate in agreements enabling best practice sharing, knowledge exchange, resource allocation, and skills programmes to collectively advance green transition goals. This engagement includes partnerships between governments and active participation in the work of international organisations.

## Develop a comprehensive government approach to environmental challenges



This requires integrating environmental sustainability across government departments and policies, rather than treating it as a separate issue. Policy coordination for the green transition necessitates alignment across government levels and sectors - synchronising policies, regulations and incentives for a coherent, sequenced approach.

Structured stakeholder engagement is crucial and should involve diverse groups like businesses, civil society, unions, employers, and academia to consider various perspectives and promote support, innovation and buy-in. Enhancing collaboration between businesses and education providers to anticipate green technology skills needs is essential, and can be achieved through measures like work-based learning, regulatory incentives, tax breaks, and financial incentives for lifelong learning and job-relevant training.

Employers and their organisations should establish sector skills committees to discuss industry changes and define the skills and qualifications required for the green transition.

**Provide regular skills forecasts on new skills demanded by the transition to green economies.**



Bridging skills gaps requires understanding the evolving knowledge and abilities employers need versus what workforces can offer, both in terms of quantity and quality. Accurate, up-to-date intelligence about job-specific knowledge and skills enables policy planning, and informs learners and workers of emerging and current opportunities.

Detailed regional and sectoral data allows countries to align skills development with policy goals. Modern tools like big data analytics, artificial intelligence, and online job listings can be harnessed to provide cost-effective, real-time insights relevant to the green and digital transitions.

**Increase funding for green transition education, especially incorporating sustainability and environmental education into curricula**



Naturally, governments play a crucial role in financing sustainability initiatives in education. They can allocate budgetary resources specifically for environmental education programmes, curriculum development, teacher training, and sustainable school infrastructure.

However, other channels are also possible and desirable. Public-private partnerships (PPP) can help mobilise resources, with private organisations (especially those with environmental interests) providing funding, expertise or resources to support school sustainability projects.

Education institutions can seek grants and donations from foundations, non-governmental organisations, and environmentally-conscious businesses. These funds can be used to develop and implement green education programmes, establish sustainability initiatives, and create eco-friendly infrastructure. Similarly, they can enter corporate partnerships with environmentally-conscious companies to sponsor or fund specific green education initiatives.

Education providers can also increase international aid or grants to support environmental education programmes, particularly with opportunities continuously provided by the EU, such as the Erasmus+ and Horizon programmes.

## Engage with social partners for a worker-centred and just transition



Strong tripartite actors with climate expertise are crucial for effective dialogue on a just transition. Social partners, including employer and employee organisations, play a key role in reskilling workers shifting from declining carbon-intensive or informal industries (agriculture and construction), as many green jobs emerge in these sectors.

This social dialogue should ideally be conducted within a regular and inclusive framework. Relevant stakeholders should be invited to broaden the discussion and draw diverse experiences in this emerging field.

Social dialogue is not only an end in itself, but a vital means of influencing policies and laws. Thus, it should be integrated throughout the process of moving towards environmentally sustainable economies.

Enhancing social protection for informal workers and expanding training access helps to make green jobs decent. Social protection is essential for reintegrating NEETs (those not in education, employment, or training).

## Promote environmental literacy and sustainability mindsets throughout society



Education is critical for raising environmental awareness and promoting pro-environmental behaviour. It must equip learners with the knowledge and skills to identify and address environmental challenges, while shaping attitudes that drive individual and collective action. Schools play a central role in early environmental education. Effective strategies include:

- Integrating environmental education into formal curricula at all levels to nurture climate and environmental literacy.
- Developing age-appropriate curricula covering environmental topics, conservation, climate change, and sustainability.
- Providing professional development for educators to enhance their expertise in environmental education to better engage and inspire students.
- Encouraging collaboration between schools and local environmental organisations for workshops, seminars, and campaigns.
- Using digital resources, apps, and online platforms to make environmental education accessible and engaging.

These strategies can empower individuals to understand and take action on environmental challenges while promoting commitment to pro-environmental behaviour.



**Promote skills for the green transition to support youth access to new job opportunities**



In many EU neighbouring countries, youth unemployment is quite high. It is thus necessary to support these young people, who are often NEETs (not in education, employment, or training), and equip them with the competences needed to enter the job market.

Training opportunities that focus on developing skills relevant to the green transition could help young people (including NEETs) gain the right skills and competences for current and future green jobs.

**Support investment in upskilling and reskilling to adapt to emerging tasks in line with the green transition**



Investment is crucial to support skills development for the green transition. Enabling policies and private sector support will not be effective without accompanying investment in upskilling, reskilling, and career guidance.

As structural labour market adjustments accelerate, sector growth and decline is inevitable. According to ETF research, most EU neighbouring countries do not allocate sufficient resources to employment programmes. Moreover, where programmes do exist, they tend to focus on large cities and neglect inclusion.

Perhaps even more significant is that there appears to be very limited demand for re/upskilling, illustrating a lack of awareness within the workforce of skills needs in a changing labour market context.

# Navigating towards a green economy in EU neighbouring countries: skills strategies

Transitioning to a green economy and achieving net-zero emissions by 2050 requires a skilled workforce to develop, implement, and sustain green practices. This transition involves reshaping all economic sectors for sustainability, including production, distribution, and decision making. Consequently, the workforce needs new skills and competences encompassing knowledge, values, attitudes and behaviour that promote resource efficiency and sustainability.

Aligned with tools like GreenComp (Bianchi et al. 2022) and the European classifications of skills, competences and occupations (ESCO), the ETF approaches skills for the green transition as a combination of three key aspects:

- Sustainability mindset
- Technical skills
- Transversal skills/capacities (see figure)

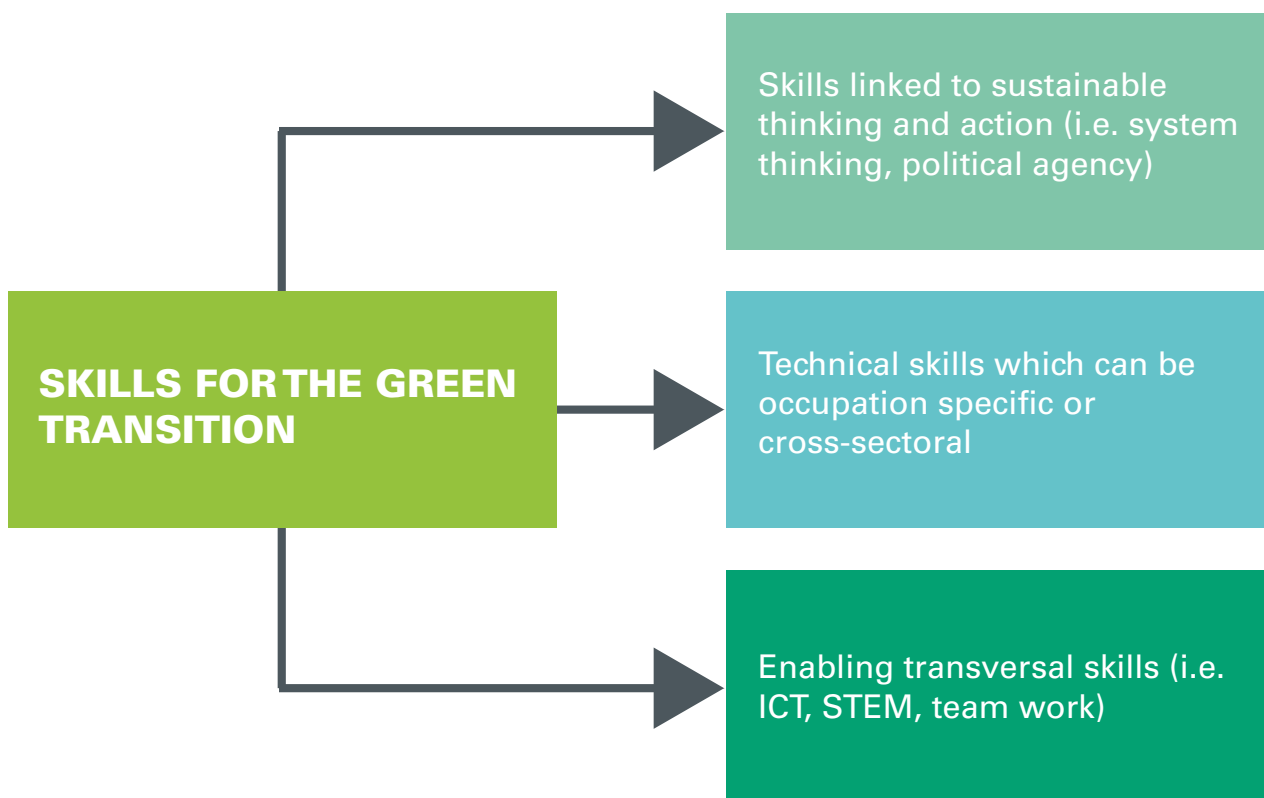
This implies that the necessary skills cannot be developed through just a climate literacy course, but rather requires a holistic approach integrating sustainability principles, ethical standards, values, attitudes, and behaviour across all forms of education and learning.

The goal is transforming knowledge, skills and attitudes towards sustainability, not just adding concepts to the curriculum.



It is therefore essential that learning and training programmes at all education levels meet the requirements of the green economy and provide learners and workers with sustainability education alongside opportunities for relevant technical reskilling or upskilling.

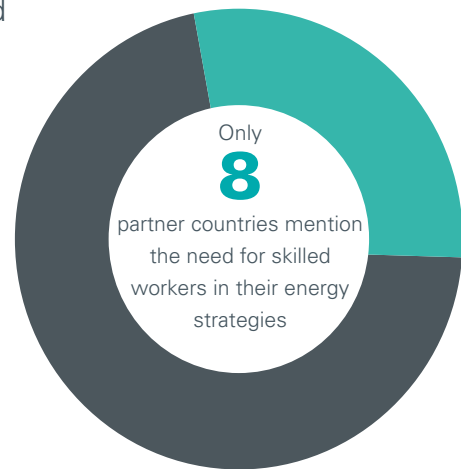
Such programmes must also meet the demands of lifelong learning, create engaging and flexible environments, prepare teachers and trainers, and make teaching materials available that contribute to developing skills to help people adapt and thrive in changing, complex settings. Most importantly this supports timely NDC implementation



## Integrating skills into national sustainability strategies

EU neighbouring countries have developed green transition strategies that contribute to global climate and sustainability efforts while remaining competitive. As part of the Paris Agreement, they have set National Determined Contributions (NDCs) for emission reductions. Additionally, these countries have adopted national sustainability and decarbonisation strategies, along with plans to expand renewable energy and efficiency.

For example, Serbia committed to unconditionally reduce emissions 13.2% below 2010 levels by 2030. Türkiye committed to net zero carbon emissions by 2053, Kazakhstan by 2063. Morocco committed to meeting 80% of energy needs through renewables by 2050, Azerbaijan 30% by 2030, and Egypt 42% by 2030.



Renewable energy plans are frequently among the most prominently discussed policies, with many countries making substantial investments in this sector. While the adoption of national sustainability and clean energy strategies represents a crucial initial step, many of these documents do not sufficiently address the necessary skillsets required to achieve these ambitious goals. Only a limited number of countries explicitly acknowledge the need for qualified personnel or propose concrete measures in this regard, often only briefly mentioning education and training reforms.

Conversely, the majority of countries acknowledge the significance of integrating green transition skills into their education and training strategies.

However, these strategies do not consistently provide specific details about the essential skills, often primarily emphasising sustainable development and environmental awareness.

The absence of a clear focus on skills in key strategic documents hampers the implementation of targeted policies designed to support the acquisition of skills for the green transition. It also obstructs the development of comprehensive sustainability education



approaches across all levels and the provision of inclusive and equitable skills development opportunities for those who may be vulnerable to displacement resulting from technological changes or the decline of high-carbon sectors. This missed opportunity prevents the enhancement of labour market inclusiveness, particularly for individuals with limited participation.

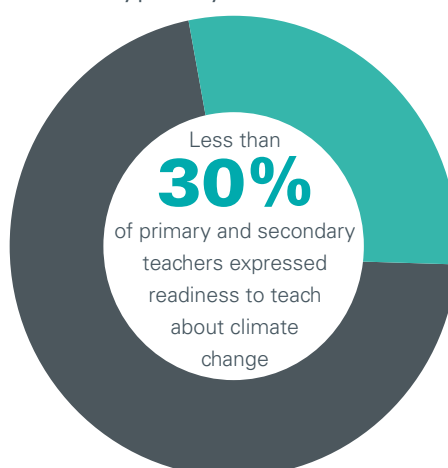
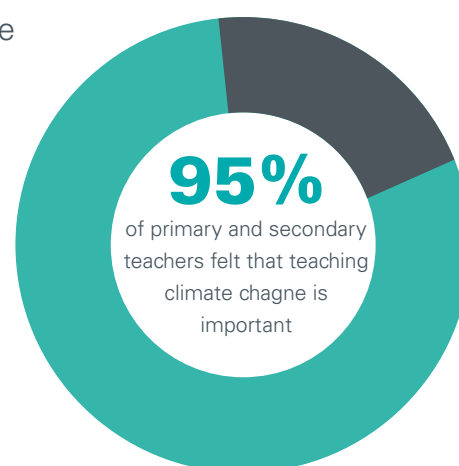
### **The role of educators as catalysts for change**

One significant challenge in incorporating sustainability competences and green technical skills into education and training systems is the limited awareness of the concepts of a green economy and sustainable development among educators (teachers, trainers etc.). These educators require adequate resources to effectively prepare and deliver green transition skills. While trainers can acquire relevant skills and knowledge through professional experience, teachers typically obtain their skills and knowledge in formal educational settings.

The ETF's analysis reveals that the majority of teachers in many countries are not adequately prepared or enthusiastic about teaching the competences needed for the green transition. This finding is consistent with UNESCO's research, which showed that although 95% of primary and secondary teachers surveyed recognised the importance of teaching climate change, less than 30% felt ready to teach it (UNESCO, 2023).

However, some countries are making efforts to address this issue by providing training to trainers and teachers on sustainability topics. These efforts often include systematic and ongoing professional development programmes for teachers, offering various courses related to sustainable development and the green transition. For example, countries like Albania, Jordan, and Israel have implemented such initiatives, and online learning platforms, like the one in Türkiye, are also being used to provide training.

Furthermore, in the rapidly evolving landscape of green technologies, it is crucial to ensure that educators have the necessary skills and stay up-to-date with the latest knowledge. Collaboration with the private sector can play a significant role in supporting this process. By providing educators with access to cutting-edge technologies, training infrastructure, and resources, as well as sharing industry expertise, the private sector can contribute to enhancing the proficiency of educators. Regrettably, this potential collaboration is not fully realised in most neighbouring countries.

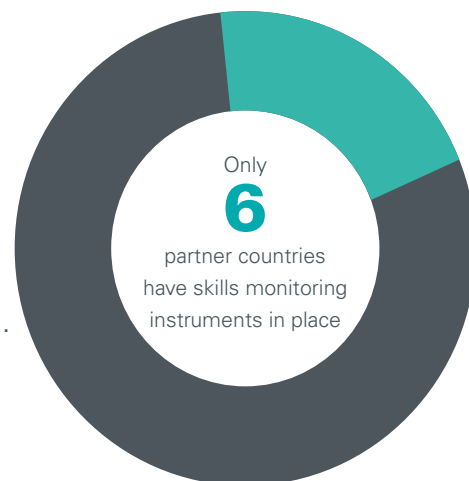




## Skills monitoring systems, especially in the context of the new skills required for the green economy are lacking

As the demand for skills rapidly evolves, the capacity to identify, analyse, and make use of labour market skills, commonly referred to as skills intelligence, becomes an essential prerequisite for facilitating responsive structural changes in economies transitioning toward circular and green models.

This shift necessitates disruptive labour reallocations and a pressing need for new skills.



Interestingly, only six out of 28 countries, namely Albania, Egypt, Georgia, Israel, Morocco, and Serbia, have reported the existence of regular skills monitoring mechanisms. However, these systems primarily concentrate on monitoring general labour force needs and trends, such as employment, wages, and job vacancies, without specific attention to the skill requirements for the deployment of green technologies and broader transitions toward sustainable practices.

At present, the most readily accessible data for all countries is derived from ILO statistics pertaining to the energy sector, supplemented by comprehensive analysis conducted by ETF, albeit limited to select countries (ETF 2020; ILOSTAT n.d.). For instance, between 2017 and 2020, the energy sector's share of employment, encompassing all three sub-categories detailed in table 1, varied from 0.33% (Lebanon) to 4.01% (Belarus).

Sub-categories for which data on energy sector employment is available	Mining and coal lignite (NACE B5)
	Electricity, gas stream and air conditioning (NACE D)
	Extraction of crude petroleum (NACE B.06.1)

Table 1 Sub categories covering the energy sector

Regrettably, disaggregated data concerning employment in the renewable energy sector and within energy-efficient technologies remains unavailable for these countries. Labour market trends are derived from IRENA estimates, suggesting that as much as 50% of global energy sector employment is related to renewable energy. Furthermore, due to ongoing expansion, this proportion of workers is expected to more than double by 2030.

While neighboring EU countries are expected to follow this trend, some may lag behind due to their high reliance on fossil fuels and political considerations.

Among these countries, the share of non-renewable energy sources in the total energy supply varies significantly, ranging from 58.88% (Tajikistan) to 98.64% (Azerbaijan), with figures of 86% (Türkiye), 63% (Morocco), and 75% (Serbia) (IRENA, 2022). The limited availability of monitoring mechanisms presents a significant challenge for these countries in tracking labour market dynamics, including the skills required for the green transition and the supply of skilled workers.

This limitation hampers their ability to adapt training and employment programmes to ensure the provision of up-to-date skills and competences. Moreover, it makes it challenging to formulate targeted, quantified policies and implement support mechanisms for skills and employment stakeholders, including education institutions, private sector entities, civil society organisations, and workers.

### **Governance and coordination mechanisms for the green transition**

The shift toward a green economy involves various sectors and policies, including energy, transportation, agriculture, and waste management. Effective governance mechanisms play a crucial role in harmonising and integrating these diverse areas, preventing conflicts and overlaps. They provide the necessary structure and framework for navigating the complex transition to a green economy, enabling streamlined coordination, policy coherence, engagement with stakeholders, data-driven decision-making, and optimal resource allocation. These mechanisms are central to achieving environmental sustainability and combating climate change.

In addition, governance mechanisms are essential for ensuring policy coherence by aligning national, regional, and local policies with overarching green economy objectives. This alignment reduces uncertainty for businesses and investors, fostering a more conducive environment for sustainable practices.



In terms of government efficiency and regulatory capacity, most EU neighbouring countries lag behind advanced EU economies. The government effectiveness indicator assesses “the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies” (Kaufmann et al., 2010). Scores on this composite index, derived from 48 indicators across 16 sources, typically range between -2.5 and 2.5, with higher values indicating better governance. However, except for Israel, all of these countries scored below 1 in 2021, suggesting limited institutional capacity to respond promptly to shocks and societal changes due to suboptimal coordination and public administration culture (Demirgüç-Kunt and Torre, 2022).

Nonetheless, in several of the EU’s neighboring countries, particularly in Central Asia, Eastern Europe, and the Western Balkans, state strategies and incentives play a pivotal role in driving the green transition. For example, in Kyrgyzstan, key changes in tax regulations, including provisions to support the green economy, are instrumental in propelling the transition. In countries such as Albania and Moldova, government policies and actions revolve around the EU approximation process, serving as a key driver and incentive to introduce regulations that enable the green transition.

Within ETF partner countries, there are examples of concerted efforts through cooperation between different institutions. One such example is the Inter-Ministerial Working Group on Climate Change in Albania, which acts as a coordinating body for all institutions involved in climate change-related activities. Another is the National Council for Sustainable Development in Kyrgyzstan, responsible for coordinating and evaluating national development strategies and priorities. However, even in these countries, coordination at a broader level between different stakeholders, including private sector representatives, remains a challenge.



The ETF analysis highlights a persistent obstacle cited by stakeholders across the EU’s neighbouring regions — a lack of coordination, particularly pronounced in countries with relatively recent statehood histories characterised by unstable, fragmented institutional structures. This lack of proper coordination between governmental bodies hampers the integration of green transition skills into the education system, as no entity assumes leadership responsibility for this critical task. Consequently, there has been minimal collaboration among diverse actors, resulting in difficulties in standardizing education and training approaches.



### **Securing resources for education’s green transition: Funding the green future**

Achieving climate neutrality requires resources, and the field of education and training is no exception. The ETF’s findings reveal that in many countries,





education budgets often fall short of meeting policy ambitions and commitments. Typically, these budgets are primarily allocated for salaries, with occasional injections from public or international sources to adapt infrastructure, develop innovative curricula, and enhance service delivery for individuals and companies.

To address this historical trend, some countries have adopted a more diversified approach to funding. They involve the private sector in financially supporting skills development through public-private partnerships, sectoral bodies for skills analysis, work-based learning, and even contributions from households to cover education costs.

However, in several countries, there is insufficient investment in the green transition, especially in the education sector. Examples of such countries include Armenia, Egypt, Kosovo, Moldova, Lebanon, and Tajikistan. In these nations, governments rely heavily on non-governmental funding sources, with international organisations playing a pivotal role in driving changes in both the industry and education sectors.

In most countries, governments predominantly rely on state funding to align their education systems with the needs of the green economy, making international cooperation a crucial driver for transformation in both the industry and education sectors. While the energy sector exhibits more private sector initiatives in investing in renewables and employee training, such efforts should extend across all economic sectors, as sustainability impacts every facet of the economy.

### **Evolving labour markets across sectors**

The green transition is transforming employment across various sectors and skill levels. By 2035, most sectors are expected to see an increase in highly qualified workers, while medium-level qualifications are anticipated to remain relatively stable, and low-qualified positions are projected to decrease (see table 2). Nevertheless, the green transition and the adoption of new green technologies will impact all workers, necessitating upskilling and reskilling to remain relevant in the job market.

It's important to note that individuals with high qualifications may find employment in a variety of roles, including as technicians and in elementary occupations. For example, in

the construction sector, the most populous occupation, there's an increasing demand for highly qualified workers, compared to the situation two decades ago (Cedefop 2023). As countries transition from fossil fuel to renewable energy production, there is an expected growth in the demand for medium-skilled energy workers (e.g., solar photovoltaic/wind turbine/biomass systems installers and technicians) and high-skilled labour (e.g., engineers) (ILO, 2019).

This suggests a shift in the occupational structure towards more highly skilled profiles, a trend consistent with all ETF studies on the future of skills. Recent data analysis reveals that in most countries, the labour force is predominantly composed of medium-skilled workers (ILO, 2019).

ETF studies have also highlighted a growing demand for T-shape skills, which means being specialised in a specific technology or area vertically while having the capacity to apply it horizontally across different jobs, with a broad knowledge of multiple disciplines. Multidisciplinarity has emerged as a significant trend across various economic sectors. While substantial reskilling is needed, some job losses are also anticipated, especially among low-skilled workers in traditional energy sectors (see Table 4). Naturally, each economic context is unique, and each country must develop detailed projections of employment opportunities to ensure they benefit the local population.

Among EU neighbouring countries:  
Highest share of

Low-Skilled Workers	Tunisia – 6.91 %
Medium-Skilled Workers	Armenia – 74.11 %
High-Skilled Workers	Israel - 51.55 %

*Table 2. Workers by Skill Levels in ETF Partner Countries  
Source: Created by PPMI based on ILO data*



Skill Levels	Nature of Change	Example Occupations	Example from partner countries in need of those skills
Low-skilled level occupations	Generic change, i.e., environmental awareness; adaptations to work procedures, use of new materials, compliance with environmental regulation (e.g. labour law)	Refuse/waste collectors, dumpers	Morocco is a regional leader in green transition; the shift of employment towards a more sustainable economy is mainly determined by increased provision of green jobs in agriculture and fisheries, where a large majority of workers have a low skill level
Medium-skilled level occupations	Emergence of new green occupations; Substantial changes to some existing occupations in terms of technical skills and knowledge	New occupations: wind-turbine operators, solar-panel installers Changing occupations: roofers; technicians in heating, ventilation and air conditioning; plumbers	Bosnia and Herzegovina, as a fossil fuel-dependent country, will require effort to retrain coal sector workers to transit to other sectors. Most demanded professions are expected to be wind turbine technicians and workers specialised in selling, installing and maintaining rooftop solar panels.
High-skilled level occupations	High focus on new green occupations. Significant changes to some existing occupations in terms of technical skills and knowledge	New occupations: agricultural meteorologists; climate-change scientists; energy auditors and consultants; carbon-traders Changing occupations: building facilities managers; architects; engineers	To address climate change issues and increase its competitiveness at the global level, Israel will require more high skilled workers with scientific knowledge, especially in some sectors such as agri-food and ICT. Kazakhstan faces a shortage of workers with the skills and knowledge in the field of information technologies.

Table 3: Anticipated changes in skills demand

Source: Created by PPMI based on ILO data and ETF country reports

## A fair and equitable green transition for workers

The transition to green energy, as estimated by IRENA, offers a significant opportunity to generate employment, primarily within medium-skilled occupations. However, to realise this potential, proactive government intervention is essential. While the move towards a greener economy and the growing demand for green skills hold promise, concerns arise about the fairness of these transitions for various societal groups. This shift has the potential to perpetuate inequality and disadvantage specific communities, possibly failing to improve conditions for low-skilled workers (Valero et al., 2021).



These concerns stem from limited access to essential resources, such as social protection, education and training programmes, and required technologies for active participation in the green economy. Factors like increased digitalisation, high migration rates, and discrimination against disadvantaged groups exacerbate these issues.

In the Western Balkans and the Eastern Partnership region, influenced by their socialist past, apprehensions about the social fairness of past transitions also persist. For instance, in Montenegro, the term 'transition' often conveys the closure of industries without the creation of new jobs.

Low-skilled workers may face particular barriers during the green transition, as shifts in key employment sectors can disproportionately impact them. Traditional energy sectors, like coal mining and oil drilling, typically employ low-skilled workers, making their transition to new green energy occupations challenging. Additionally, the increasing automation and advanced technologies within green jobs often demand higher and medium skill levels, potentially further disadvantaging low-skilled workers (OECD, 2017).

Furthermore, the prospects for low-skilled workers during the green transition may be constrained and dependent on the location and specific requirements of the green energy sector nearby. Young people not in employment, education, and training (NEET) may also encounter challenges without appropriate measures, including skill development initiatives, career guidance, and social protection to support their upskilling.

Reflecting global trends, women in EU neighbouring countries remain underrepresented in labour markets, especially within energy sectors and education programmes that equip them with green transition skills (e.g., STEM programmes). While the renewable energy sector shows a more encouraging picture, with one-third of employees being women (IRENA, 2022), gender-sensitive policies and training opportunities are lacking in many countries, hindering women's equal participation. For example, Georgia, Israel, and Kyrgyzstan have the highest levels of women's participation in various energy

sectors, while Jordan and Egypt have the lowest share of women participating in renewable energy fields (7% and 9%, respectively). In the construction sector, women's participation remains below 10% in both the EU and EU neighbouring countries (Eurostat, 2021a).

Migrant workers face barriers hindering their access to equivalent education and training opportunities compared to native workers. These barriers may include language and cultural obstacles that impede their participation in green transition training programmes. Additionally, they often encounter difficulties in having their prior learning and qualifications recognised, resulting in a significant proportion of migrants working in the informal labour market. This is particularly relevant for countries with high migrant populations, such as Jordan, Lebanon, and Türkiye.

Rural communities may find limited opportunities for involvement in the green transition compared to their urban counterparts. This limitation is attributed to restricted access to education and training programmes, insufficient infrastructure for green energy projects, and inadequate investments in rural areas. This is especially pertinent in countries with high levels of rural employment, where the majority of the population is engaged in agriculture and has limited access to technological advancements, as well as reskilling or upskilling opportunities (e.g. Georgia, Moldova, Egypt, Jordan, and Bosnia and Herzegovina).

People with disabilities face challenges due to limited inclusion in education and training programmes and the labour market. Data on the employment of workers with disabilities in green economy-related fields are mostly unavailable due to limited monitoring systems. However, available data for six countries (Armenia, Israel, Lebanon, Moldova, Palestine, and Serbia) indicate that Israel has the highest level of employment of people with disabilities at 5.47%, while Serbia has the lowest at 0.46%.

**Share of female workers in relevant energy field (as of 2021)**

Country	Mining of coal and lignite	Extraction of crude petroleum and natural gas	Electricity, gas, steam and air conditioning supply
Kyrgyzstan	6.12%	20.28%	16.64%
Georgia	0%	37.16%	11.96%
Israel	NA	32.28%	26.28%
Poland	10.6%	NA	24.5%

**Highest Share of Youth Unemployment in selected ETF partner countries and EU Member States (as of 2021)**

Jordan	40.1%
Tunisia	37.8%
North Macedonia	36.1%
Spain	31.3%
Bulgaria	14.7

# Policies and actions for green transition opportunities

## Effective and transparent transition strategies

Developing transparent, coordinated, and long-term transition strategies across industries is essential for stimulating change and investments in the green transition (ETF, 2023). These policies and strategies should be complemented by coherent monitoring systems to track progress and adapt policies as necessary to achieve their goals. Successful monitoring systems for green skills require the clear identification of relevant data sources and the appropriate tools for timely and accurate data collection and integration. Currently, only a few countries have labour market monitoring instruments in place, and these often lack a focus on green skills and occupations. Collaboration among multiple stakeholders and flexible monitoring systems are essential to adapt to changing skills requirements. Tracking these developments will enable governments to integrate skills needs into their policies, ensuring alignment with green skills requirements and developments.

## Tailored education programmes

Education programmes at all levels, from primary to higher and vocational education, should provide relevant sustainability competences. However, the provision of sustainability competences varies across education levels and countries. For example, in Moldova, secondary and high schools offer elective courses such as Environmental Education and Renewable Energy Sources. In Egypt, students can access training in Green Buildings and Water Management at vocational education and training (VET) levels. Meanwhile, the Kyrgyz State Technical University offers specific skills for engineers in the energy sector, with a focus on renewable sources. Curricula across education levels, including for educators, must ensure that learners and workers acquire up-to-date skills and competences. Stakeholder involvement in the development of VET programmes and curricula can also play a crucial role in reflecting employers' needs.

## Inclusivity and equal opportunities

To ensure inclusivity and equal opportunities, education programmes must address the needs of diverse social groups, including women, NEETs, migrants, the elderly, and people with disabilities. Targeted assistance for these disadvantaged groups in upskilling and reskilling is crucial, particularly as many green jobs may have challenging working conditions. Incorporating environmental protection measures can enhance job quality. This requires planning accessible and inclusive education programmes, such as offering online materials and physical access for people with disabilities, materials and training in multiple languages, and strengthening digital infrastructure. To promote inclusive education and equal employment opportunities, countries can provide online courses,

flexible learning paths, micro-credentials, career guidance, mentorship programmes, and coordination with other support services.

### **Lifelong learning and private sector engagement:**

Provision of skills for the green transition is vital through lifelong learning, including job-relevant training for workers. However, educational strategic documents often lack this focus. Incentivising private companies to support the development of green skills for their workers, through measures like tax breaks, regulatory incentives, and certification, is essential. Social partners, representing both employers and employees, can contribute to relevant lifelong learning by identifying skills needs, designing training programmes, and promoting social dialogue. For example, Albania is introducing a work-based learning model in its VET system and involving social partners in the curriculum development process (ETF, 2020).

### **Funding for skills and international cooperation:**

In countries with limited funding availability, establishing skills funds in partnership with the private sector can be a solution. These funds play a crucial role in supporting the transition to a low-carbon future, particularly in the Global South, where there is increasing demand for medium and high-skilled workers (ILO, 2019). Skills funds help address skills gaps and provide financial support for individuals and organisations seeking to develop skills in areas like waste management, eco-friendly construction, and sustainable transportation. Large-scale partnerships, such as the Renewable Energy Pact for Skills, between private and public organisations support the reskilling and upskilling of workers by providing resources, guidance on funding options, and partnership opportunities (European Commission, 2021).



## Collaboration and public awareness

Enhancing cooperation among stakeholders at the national and international levels is crucial. International cooperation can provide monetary assistance and collaboration in developing green skills competences. For instance, collaborative projects between UNDP and the Ministry of Education in Kazakhstan have been successful in developing environmental education models. Local stakeholder coordination, including businesses, social partners, civil society organisations, and local communities, can enhance innovation in the green economy and incorporate social and employment needs into green policies. Collaboration can also increase public awareness and promote the green transition. Partnerships often involve NGOs and schools to organise activities focused on environmental protection and green education. For example, the Armenian NGO “Women in Climate and Energy” conducts projects to raise environmental awareness among school students. Government agencies can collaborate with renewable energy companies to develop training programmes for solar panel installation, aligning the objectives of public and private entities. EU-level policies, such as the European Green Deal, also encourage alignment with EU standards and support the green transition in partner countries. International commitments regarding climate change and sustainable development further encourage investment in green technologies and sustainable opportunities.



The experience of ETF partner countries underscores the importance of skills in driving the green transition. In addition, several other key drivers support the greening of economies. Below key trends in the greening of the energy and construction sectors in the ETF PCs and the main drivers behind these changes are outlined.



# Key trends in the green energy and construction sectors in ETF partner countries

## Green energy sector trends

The green transition in the energy sector is crucial to achieving the goals of the Paris Agreement, such as limiting global temperature rise to 1.5-2°C. Countries are making progress toward greening their energy sectors, and partner countries are following the global trend. The main trends in the greening energy sector in partner countries are as follows:

1. Increasing share of renewable energy (RE) sources: In 2022, the contribution of RE from partner countries accounted for 3.7% of global RE generation. Among ETF regions, the Western Balkans and Türkiye stood out with 2.05% of global renewable energy generation.
2. Increasing energy efficiency: ETF partner countries have achieved different levels of energy efficiency through the implementation of various energy efficiency projects. Countries like Albania, Egypt, and Israel are characterised by the lowest TES/GDP ratio, amounting to 2.5.
3. Electrification: In some partner countries, such as Algeria (96.6% in 2020) and Israel (92% in 2021), electricity generation remains heavily dependent on fossil fuels.
4. Circular economy approach: Partner countries such as Montenegro, Kosovo, Moldova, Türkiye, Georgia, Ukraine, and Serbia have actively embraced the circular economy concept and are implementing strategies, projects, and policies to support it.

## Key trends in the green construction sector

The construction sector is one of the major contributors to climate change due to its resource-intensive nature. Given these environmental concerns, the importance of enhancing the sector's resource efficiency and environmental sustainability has grown worldwide, including in ETF partner countries. Key trends in the green construction sector include:

1. Greening buildings: Partner countries are prioritising greener construction with improved energy efficiency. For example, Uzbekistan mandates energy-efficient appliances in new housing, while North Macedonia is aligning energy and construction laws with efficiency goals.
2. Investing in greener infrastructure: In 2021, global private investment in infrastructure projects was greener compared to previous years. Countries such as Kyrgyzstan, Albania, and Egypt have made sustainability a priority when investing in strategic infrastructure projects.

3. Use and reuse of sustainable resources: The circular economy is integrated into partner countries' strategic plans. For example, Serbia's Circular Economy Roadmap focuses on the management of secondary raw materials, resource independence, and environmental security.

### **Key enablers of green transition in the energy and construction sectors**

ETF partner countries vary in their progress towards greening their economies and their commitment to achieving green economy goals. An overview of their experiences underlines that each country faces different challenges in the transition to a green economy. Nevertheless, there are several key drivers that are facilitating the green transition across all countries in both the energy and construction sectors. These factors include:

- International commitments to achieve the Sustainable Development Goals
- Enabling and articulating national-level policies and sectoral strategies
- Technological progress and innovation
- National and foreign investments in green energy technologies
- Public-private partnerships to facilitate the green transition.









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