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Green Economy Transition in Eastern Europe, the Caucasus and Central Asia: Progress and ways forward

ENVIRONMENT DIRECTORATE
ENVIRONMENT POLICY COMMITTEE

GREEN Action Task Force

**Green Economy Transition in Eastern Europe, the Caucasus and Central Asia: Progress
and ways forward**

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Abbreviations

CBA	Central Bank of Armenia
CEPA	Comprehensive and Enhanced Partnership Agreement
CSO	Civil society organisation
DES	Department of Environmental Supervision
DFI	Development finance institution
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental impact assessment
ELD	Environmental Liability Directive
EMS	Environmental Management Systems
ENPE	European Network of Prosecutors for the Environment
EPMIB	Environmental Protection and Mining Inspection Body
ESG	Environment, Social and Governance
GDP	Gross domestic product
GEDF	Georgian Energy Development Fund
GGI	Green Growth Indicators
GHG	Greenhouse gas
IED	Industrial Emissions Directive
MEPA	Ministry of Environmental Protection and Agriculture of Georgia
MPWI	Multi-purpose water infrastructure
MSME	Micro, small and medium enterprises
NAP	National Adaptation Plan
NBG	National Bank of Georgia
NbS	Nature-based solutions
NDC	Nationally Determined Contribution
NPD	National Policy Dialogue
NGO	Non-governmental organisation
O&M	Operation and maintenance
OPTIC	Optimising Public Transport Investment Costs
PEEM	Public Environmental Expenditure Management

PRTR	Pollutant Release and Transfer Register
R&D	Research and development
SDGs	Sustainable Development Goals
SEA	Strategic environmental assessment
SEEA	System of Environmental-Economic Accounts
SME	Small and medium-sized enterprises
TPES	Total Primary Energy Supply
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
VSL	Value of statistical life
WFD	Water Framework Directive
WSS	Water supply and sanitation
WTO	World Trade Organization

Executive summary

Overview

Since the collapse of the Soviet Union, the countries of Eastern Europe, the Caucasus and Central Asia (EECCA)¹ have been undergoing profound changes, while pursuing their transformation towards market economies and democratic societies. On average, the region had maintained relatively good economic growth rates over the past two decades (3.4 % on annual average from 2001 to 2021). However, various external and internal shocks, such as the global financial crisis in the late 2000s, drops in commodity prices and political instability, have affected economic growth rates.

The most recent shocks have been the COVID-19 pandemic, and the Russia's invasion of Ukraine. The impact of COVID-19 pushed down gross domestic product (GDP) growth rates by 5-13 percentage points across all EECCA countries in 2020. Despite signs of improvement shown for 2022, the war in Ukraine has led the countries to a significant recession.

EECCA countries have also been on long journeys to pursue economic development that is environmentally sustainable. All EECCA countries have adopted the 2030 Agenda for Sustainable Development and the Paris Agreement and translated them into national strategies and policies. The countries have introduced a number of policies, instruments and approaches that strengthened environmental protection and laid the ground for a greener economy. To finance required actions, many EECCA countries have mobilised domestic and international finance, and also begun aligning the policy objectives of financial-sector development with their national climate and environmental targets. Several indicators have also shown signs of progress in resource productivity and environmental quality.

However, the pace of progress towards a green economy has not been fast enough. The regions' CO₂ and energy productivity is much lower than the EU averages. Exposure of the population to fine particulate matter (PM_{2.5}) remains high with associated premature deaths due to PM_{2.5} pollution.

Lack of progress has often been due to political instability or ongoing conflicts, which stifle policy reforms and implementation. Tackling those challenges go beyond the remit of environmental governance. But in many cases, the slow progress is due to slow reform in the environmental sector. Many environmental policies in the region still rely on administrative and regulatory instruments that are often still based on the Soviet approaches. Insufficient economic incentives fail to stimulate innovation and business models for greener production and consumption. High cost of capital, inefficient use of domestic finance, direct and indirect subsidies to environmentally harmful activities or lack of good quality green investment projects are also important challenges.

Key messages

The Eighth Environment for Europe (EfE) Ministerial Conference – held in Batumi, Georgia, in 2016 – confirmed that the EECCA countries' are committed to improving the environment and advancing action towards sustainable and green economic development. The Ninth EfE Ministerial Conference in October 2022 provides a basis for evaluating progress and identifying future priorities for action.

This report presents key achievements in a green economy transition in the EECCA region, in particular since the Batumi EfE Conference in 2016. It also presents examples of co-operation between the EECCA countries and their partners carried out under the GREEN Action Task Force, hosted by the Organisation for Economic Co-operation and Development (OECD). Those examples show that the progress can be made with tangible results on the ground by mobilising a broad range of stakeholders. They also show that policy objectives and targets on the green economy transition can be more ambitious and realistic, and the implementation can be more efficient, effective and socially inclusive. Five key messages emerge from the report:

- **The transition to a green and net-zero economy should be significantly accelerated, and the context of Russia's war in Ukraine provides additional reasons for this fundamental transformation.** Countries are looking into shifting from the reliance on fossil fuel from Russia to renewables due to high and unpredictable prices and supply issues. With the intensifying impacts of climate change, global policy pressures towards more ambitious climate action are likely to continue, including in the EECCA region.
- **Mainstreaming climate and environmental considerations in infrastructure investment strategies and decisions is key and should be done at multiple levels.** This should include upstream sustainable infrastructure planning, project prioritisation, financing and delivery, and the development of enabling policy and regulatory frameworks. EECCA countries should also link national and sub-national plans for a green economy transition to the broader, long-term infrastructure investment strategies. High-quality environmental impact assessments (EIAs) for major infrastructure projects and strategic environmental assessments (SEAs) could also help EECCA countries to better evaluate policies and investment programmes.
- **The green economy transition requires greater co-operation between different sectors and stakeholders, and across levels of governance.** For example, water resource management touches all areas of the economy and EECCA countries' effort in the green economy transition. The countries should further enhance several aspects of their strategies and legal frameworks on water, economic instruments for water management, finance mobilisation, and multi-stakeholder dialogues and promotion of multi-purpose water infrastructure.
- **EECCA countries should improve legislation and policy instruments that provide enough incentives for companies to comply with environmental legislation or go beyond compliance.** Compliance assurance actions should focus, first and foremost, on promoting compliance. The institutional set-up for compliance assurance should also be strengthened through increased co-ordination and streamlining human and financial resources, better information systems and equipment, and measures to tackle corruption.
- **EECCA countries should further strengthen public financial management and mobilise finance from the private sector (domestic and international) to support a green economy transition.** EECCA countries could improve budget-related information, facilitate inter-ministerial co-operation, and promote green stimulus measures as part of post-COVID economic recovery measures. EECCA countries should also enhance capacity to prepare public investment programmes that are properly costed and supported by specific implementation measures. Reforming fossil-fuel subsidies and support is also a key policy measure to rationalise public finance, tackle climate change, reduce pollution and contribute to long-term energy security in the region. The role of central banks and financial regulators in the EECCA region should also be elevated. This would help ensure financial sector regulations and capacity development activities are aligned with the country's national objectives on sustainable development.

The GREEN Action Task Force provides a unique platform that supports the EECCA countries in their transition to a green economy. The report highlights some possible future directions of work under the Task Force for addressing remaining gaps in capacity, governance arrangements, policy frameworks and access to finance in the region:

- Supporting EECCA countries in accelerating and enhancing action for green recovery from recent external shocks and contributing to energy, environmental and natural resource security.
- Putting greater emphasis on support for the EECCA countries' efforts towards implementing the Paris Agreement on climate change, and the post-2020 Global Biodiversity Framework.
- Making EECCA countries' financial systems environmentally, socially and economically sustainable.
- Strengthening engagement with development finance institutions and other development partners active in the EECCA region, and potentially with those outside the region.
- Continuing and reinforcing Task Force work to address persistent gaps in ensuring compliance with adopted strategies and policy frameworks to ensure a green economy transition of the region.

1. Progress on the green economy transition in Eastern Europe, the Caucasus and Central Asia, and future directions of the GREEN Action Task Force work

This section highlights key messages from the main chapters of the report on progress towards a green economy and remaining challenges in the countries of Eastern Europe, the Caucasus and Central Asia (EECCA). It also discusses a possible future direction of work under the GREEN Action Task Force hosted by the OECD. This aims to promote further policy reform and scale up financing for a rapid, ambitious and inclusive transition towards a green economy in EECCA countries.

Progress towards a green economy in Eastern Europe, the Caucasus and Central Asia

Since the collapse of the Soviet Union, the countries of Eastern Europe, the Caucasus and Central Asia (EECCA)² have been undergoing profound changes, while pursuing their transformation towards market economies and democratic societies. These countries have retained some of their Soviet-period specialisations. However, most EECCA economies underwent important structural changes, trade liberalisation and privatisation. For example, the importance of the service sector has drastically increased in most of the EECCA economies (Gevorkyan, 2018^[1]).

Countries of the EECCA region have been on long journeys to pursue economic development that is also environmentally sustainable. The last decade witnessed an accelerated awareness of, and more ambitious response to, local environmental impacts of the traditional path of economic development, and those of global trade. All EECCA countries have adopted the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change (OECD, 2021^[2]). The Eighth Environment for Europe Ministerial Conference – held in Batumi, Georgia, in 2016 – was an important step. It confirmed the EECCA countries' commitment to improving environmental protection and advancing action towards sustainable development (UNECE, 2016^[3]). These national-level commitments suggest that EECCA countries recognise the need for structural and institutional reforms in their economies and governance to support their rapid, ambitious and just transition towards a green economy.

Policy frameworks and governance arrangements towards a green economy

Many countries of EECCA have set and updated national targets to guide their transition towards a green economy, including on environmental protection, climate change and natural resource management. For instance, **Kazakhstan, Kyrgyz Republic (hereafter “Kyrgyzstan”), the Republic of Moldova (hereafter “Moldova”), Ukraine and Uzbekistan** have developed overarching national strategies and programmes on green economy. The adoption of the Concept on Transition to Green Economy of **Kazakhstan** dates to 2013, followed by the ongoing implementation of three major stages of actions towards 2050 (Kazinform, 2018^[4]). **Tajikistan** is developing its national green economy strategy at the time of writing (Government of Tajikistan, 2021^[5]). These high-level strategies and programmes have faced various implementation challenges. However, they have provided the EECCA countries with a foundation for integrating environmental considerations into broader sectoral development policies and targets, as well as mandates of government institutions in each country.

All EECCA countries have also adopted their national targets of climate action through their **Nationally Determined Contributions (NDCs)** (Table 1.1). Many of the countries have also raised the levels of ambition of the climate mitigation targets through NDC update processes (OECD, 2021^[2]). Further, countries such as **Armenia, Kazakhstan, Ukraine and Uzbekistan** have developed their targets on net-zero carbon emissions. **Kazakhstan, Georgia and Uzbekistan**, for example, have also started developing long-term low-emission development strategies (OECD, 2021^[2]; Government of Georgia, 2021^[6]). Most EECCA countries have also started developing National Adaptation Plans (NAPs). Among them, **Armenia** submitted its NAP to the UN Framework Convention on Climate Change in May 2021 (Government of Armenia, 2021^[7]). In addition to national-level strategies, **the five Central Asian countries** established a process of developing a regional climate change adaptation strategy. This aims to promote transboundary co-operation to strengthen climate resilience in the region (Green Central Asia, 2021^[8]).

EECCA countries have also significantly advanced their efforts to modernise broader environmental policies and legislation at both strategic and technical levels. For example, **Armenia, Georgia, Moldova and Ukraine** have been reviewing their legislative and institutional arrangements on

environmental regulations, monitoring of implementation, and tools for enforcement and compliance promotion for further improvement (EU4Environment, 2021^[9]; EU4Environment, 2021^[10]).

There is clear evidence of progress on development of national-level environmental policy frameworks in the region. Uzbekistan adopted a series of environment-related laws such as the Concept on the Environmental Protection until 2030, Strategy on Municipal Waste Management for the period 2019-2028 and Strategy for the Conservation of Biological Diversity for the period 2019-2028 (UNECE, 2020^[11]). The revised Environmental Code of **Kazakhstan**, adopted in 2019, has enhanced application of the “polluter pays” principle through environmental permits. The amendment aimed to ensure that polluters will take more appropriate measures to prevent negative impacts on the environment in cost-efficient ways (OECD, 2019^[12]). **Georgia** has adopted a new law on environmental liability, and continues legislative reforms, including on industrial emissions and risk-based methodologies. The country has also adopted a Law on Environmental Liability that aims to define the legal regulation on issues related to environmental damage, based on the polluter pays principle (Government of Georgia, 2021^[13]). To assess progress and effectiveness of environmental policies, several EECCA countries in partnership with the UN Economic Commission for Europe conducted Environmental Performance Reviews over the past decade: Uzbekistan in 2020, Kazakhstan in 2019, Tajikistan in 2017 and 2012, Belarus in 2016, Georgia in 2016 and Moldova in 2014 (UNECE, 2022^[14]).

Table 1.1. Climate action: Status of NDC updates, net-zero targets and NAPs in EECCA countries

Country	Has mitigation ambition been increased in updated NDC?	Has a net zero target been set? (type of policy document, covered sectors, target year)	LT-LEDS communicated to UNFCCC?
Armenia	Yes	Yes (in NDC, economy-wide, 2050)	No
Azerbaijan	Unclear	No	No
Belarus	Yes	No	No
Georgia	Yes	No	Under development
Kazakhstan	No	Yes (in declaration, economy-wide, 2060)	Under development
Kyrgyzstan	Yes	No	No
Moldova	Yes	No	No
Tajikistan	Yes	No	No
Turkmenistan	Unclear	No	No
Ukraine	Yes	Yes (in policy document, economy-wide, 2060)	Yes (2018)
Uzbekistan	Yes	Yes (in declaration, energy sector, 2050)	Under discussion

Note 1: UNFCCC=United Nations Framework Convention on Climate Change. LT-LEDS = Long-term low emission development strategy, NDC=Nationally Determined Contribution

Note 2: For further details, see Chapter 3

Source: Based on (OECD, 2021^[22]) and updated

The development of those national strategies and policies has in many cases also been accompanied by the creation of several inter-ministerial co-ordination mechanisms. They aim to facilitate cross-ministerial dialogue on the integration of green and environmental considerations into development policy processes. **Georgia** has added “Sustainable Development” to the official name of its Ministry of Economy. **Moldova** and **Kyrgyzstan** created inter-ministerial committees that co-ordinate policy processes on greening economic development in their respective countries. These are also

examples of initiatives that have attempted to place the green agenda closer to economic and financial decision-making bodies.

There has been a positive development in strengthening environmental ministries and agencies in some EECCA countries, although the governments were undergoing frequent changes. For example, within the new governmental structure, adopted by the Parliament of **Moldova** in 2021, the Ministry of Environment was restored as a separate institution. It has become the central body for development and promotion of national environmental protection policies and rational use of natural resources. The ministry has approved 62 posts, doubling its staff. Conversely, 29 experts work on the environment within the Ministry of Agriculture, Regional Development and Environment. **Ukraine** undertook prolonged institutional reform of environment administration. During that time, the Ministry of Environment was first merged with the Ministry of Energy, and a separate Ministry of the Ecology and Natural Resources was re-established. **Kazakhstan** also re-established the Ministry of Ecology, Geology and Natural Resources in 2021.

Emerging trends that drive the green economy agenda in EECCA countries

Several countries of Eastern Europe and the Caucasus³ have been aligning their environmental policies with EU laws and standards in the context of the EU Association Agreements, and for Armenia, a Comprehensive and Enhanced Partnership Agreement (Andrusevych et al., 2020_[15]). These Agreements have also provided countries such as **Armenia⁴, Georgia, Moldova and Ukraine** with a framework for enhanced political and economic links with the European Union and approximation towards far-reaching legislation, including the EU's Water Framework Directive (OECD, 2021_[16]). The EU Industrial Emissions Directive (IED) and the Environmental Liability Directive (ELD) have driven efforts to improve environmental legislative set-ups for compliance assurance in many Eastern Europe and Caucasus countries (EU4Environment, 2021_[17]). Eastern Europe and Caucasus countries have been reforming environmental permits for large emission sources in compliance with the EU IED. This has meant greening small and medium-sized enterprises (SMEs) and translating recommendations into actual changes to environmental regulations (EU4Environment, 2021_[17]). In this context, **Azerbaijan and Moldova** launched their online self-assessment tools for greening SMEs to help them assess their environmental performance, increasing competitiveness by reducing their costs (EU4Environment, 2021_[17]). **Armenia** launched a project to assess how implementation of the EU Best Available Techniques reference documents (EU BREFs) on extractive waste can improve the environmental management in the mining sector (EU4Environment, 2021_[17]).

EECCA countries have integrated green stimulus measures into their response to the COVID-19 pandemic and their broader recovery packages (Neuweg and Michalak, forthcoming_[18]). Analysis under the Green Action Task Force identified approximately USD 360 million allocated to green recovery measures in the EECCA region between 2020 and February 2022 (Neuweg and Michalak, forthcoming_[18]). Selected examples are highlighted below:

- **Uzbekistan** invested in infrastructure for improved water supply and sanitation, as well as irrigation, through its Anti-Crisis Fund (OECD, 2021_[19]). The country has also provided financial support for energy efficiency improvements in industry.
- **Azerbaijan** supported activities to restore degraded lands for sustainable dryland agriculture (Neuweg and Michalak, forthcoming_[18]).
- **Armenia** created a short-term employment programme in the agricultural sector. It provided work for vulnerable communities, while improving resilience and water quality through reforestation of riparian zones (OECD, 2021_[19]).
- **Moldova** supported development of villages in the Coşnița area as sustainable tourism destinations, improving service delivery to the local community (OECD, 2021_[19]).

- The Rural Development Agency of **Georgia** incentivised its beneficiaries to adopt resource and energy efficiency practices (OECD, 2021^[19]).
- **Georgia** and **Moldova** also provided finance support to micro, small and medium enterprises that qualified as innovative and green (Neuweg and Michalak, forthcoming^[18]).

Efforts to scale up financing for green economy transition in EECCA

In recent years, EECCA countries such as Armenia, Georgia, Kazakhstan, Kyrgyzstan and Ukraine have embarked on efforts to align the policy objectives of financial-sector development with their national climate and environmental targets. EECCA countries have increasingly recognised the importance of mobilising private-sector finance for sustainable investment. They have also been developing policy frameworks and capacity to use funding from governments and development finance institutions (DFIs) more wisely to catalyse private-sector investment.

A functioning, stable and deeper banking sector is a precondition for economic growth and investment promotion in general, and provides an important basis for green finance mobilisation. In **Kyrgyzstan**, a sustainable finance roadmap forms an integral part of the country's Green Economy Development Programme adopted in 2019, and sets out plans for the country's transition towards a green economy (SBN, 2020^[20]). **The National Bank of Georgia** (NBG) adopted a Roadmap for Sustainable Finance in **Georgia**; the NBG Principles on Environment, Social and Governance (ESG) Reporting and Disclosure; and a Sustainable Finance Taxonomy (NBG, n.d.^[21]). **Kazakhstan** established the Green Finance Centre under the Astana International Financial Centre. The centre issued a Statement of Commitment to Sustainable Finance Principles. It has developed various standards such as AIX Green Bond Rules and led the issuance of green bonds in the country (AIFC Green Finance Centre, n.d.^[22]).

Kazakhstan was the first country in the EECCA region to issue a green bond but other countries soon followed suit, such as Armenia, Georgia and Ukraine. Uzbekistan also issued the Sustainable Development Goal (SDG) Bonds to finance projects supporting the country's efforts to achieve the SDGs. The SDG bonds have been used to finance, among others, some water supply and sanitation projects. Between the second half of 2020 and early 2022, eight green bonds issued in the region – two in each of the four countries – amounted to about USD 2 billion (OECD, forthcoming^[23]). The OECD study on the use of green bonds in the EECCA regions shows that in total about USD 2.2 billion was raised through these bonds, with the bulk coming from issues by two Georgian and two Ukrainian entities on international markets. This underlined the strong interest at the time by investors in sustainability-related exposures in the region. The green bond issued on the local markets in Armenia and Kazakhstan raised relatively limited amounts, though demonstrated the local green finance framework and, in the case of an Armenian bank, the capacity to generate and refinance a portfolio of green assets. (OECD, forthcoming^[23]).

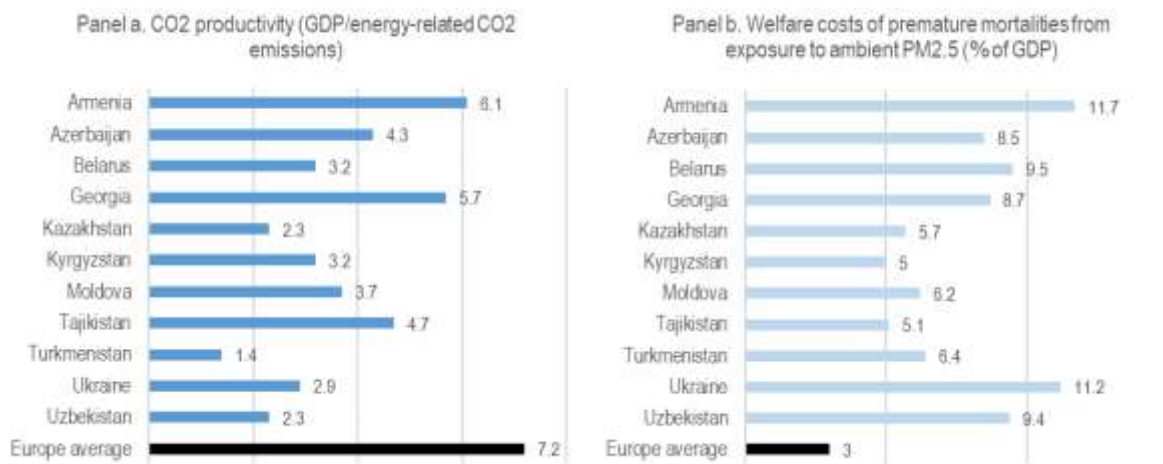
While capital markets in EECCA countries are not yet contributing significantly to financing green investments, green bonds are becoming an asset class in their own right. Green bonds have begun to gain traction in the region as a complement to bank financing (OECD, forthcoming^[23]). The regulations and the market infrastructure supporting the expansion of local capital markets are being developed and improved to support issuers and investors. However, this issuance is still limited, only nascent and takes part in the corporate sector, with little engagement by governments to date. Based on the experience of other countries, issuance of sovereign green bonds can send the right signals to market participants and help transform bond markets to finance the green transition.

Improving environmental footprint of economic activities in EECCA

In line with those policy reforms, several indicators have shown signs of progress in resource productivity and environmental quality in the EECCA region. However, a significant improvement remains necessary. EECCA countries have collected data based on the Green Growth Indicators in

partnership with the OECD. The Indicators chart some of the environmental footprint of economic activities in the region. For instance, carbon and energy productivity has continued to increase. This means that EECCA countries' economic growth partially decoupled from carbon dioxide (CO₂) emissions and use of energy. Although progress is encouraging, there remains much room for improvement. EECCA countries' CO₂ and energy productivity is much lower than the EU countries' average (Figure 1.1). Exposure of the population in the region to fine particulate matter (PM_{2.5}) remains high. Associated welfare costs of premature deaths due to PM_{2.5} pollution represent up to 12% of gross domestic product (GDP) equivalent in some of the EECCA countries, which is considerably higher than the European average of 3.0% (OECD, 2022^[24]).

Figure 1.1. CO₂ productivity (Panel a) and welfare costs of premature deaths due to PM_{2.5} pollution (Panel b) in the EECCA region and European average



Source: OECD.stats Green Growth Indicators, <https://stats.oecd.org/>.

Remaining challenges and further opportunities for green and inclusive growth in the region

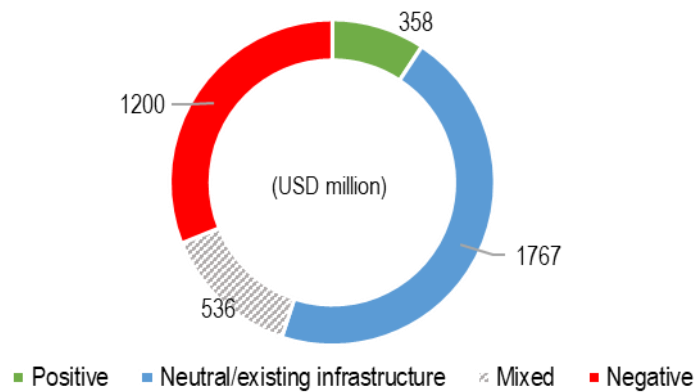
Despite steady progress since 2016, the achievement of EECCA countries' national targets towards a green economy transition is still facing a range of political and technical challenges. Many of them go far beyond the remit of environmental administration. For example, political tensions continued between Armenia and Azerbaijan, with episodes of military clashes. Meanwhile, Georgia and Moldova each experienced high levels of instability in domestic politics following anti-government protests in 2020 and elections in 2021. Similar social protests occurred in Belarus, Kazakhstan and Kyrgyzstan. These prolonged conflicts and tensions create an unstable base for policy, institutional and legal developments. This can stifle any progress on making and implementing policy. In 2022, large-scale aggression by the Russian Federation results in the humanitarian and economic crisis in Ukraine.

Access to affordable financing, and effective use of it, has consistently been among the greatest challenges to planning and implementing action on the countries' efforts for a green economy transition (OECD, 2018^[25]). This challenge is further constrained by the slowed economic growth rates and protracted geopolitical uncertainty in the EECCA region. There have been signs of a slowdown in the COVID-19 recovery in the region since 2021 (World Bank, 2022^[26]). Reduced economic activities and trade, inflationary pressures, debt sustainability concerns and rising interest rates have all made it even more

challenging for countries to access affordable financial resources, including those for green investment. Russia’s invasion of Ukraine has amplified the challenge through the sharp declines in remittances, commodity trades, migration, and investor confidence and foreign direct investment across the whole region (World Bank, 2022^[26]; EBRD, 2022^[27]).

According to assessments of COVID-19 recovery packages, funding is more likely to have a mixed or negative impact on the environment than a positive one. These assessments, conducted under the GREEN Action Task Force, show total COVID-19 recovery funding volume allocated to measures with a mixed or negative impact on the environment is almost five times larger than for those with a positive impact. As shown in Figure 1.2, only approximately USD 360 million went to recovery measures with a positive environmental impact from the beginning of the COVID-19 crisis in 2020 to February 2022. The data also show that more than USD 1.7 billion was allocated to measures with a mixed or negative environmental impact (Neuweg and Michalak, forthcoming^[18]). Almost USD 1.8 billion was allocated to existing infrastructure or to measures that are unlikely to have a sizeable environmental impact. However, they perpetuate business-as-usual economic activities and do not contribute to the transformative changes needed to shift towards a green economy.

Figure 1.2. Total COVID-19 recovery funding allocated by environmental category (from 2020 to February 2022)



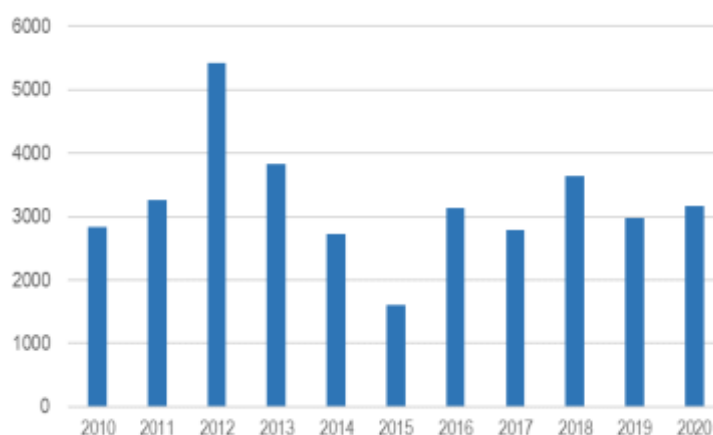
Source: OECD EECCA Green Recovery Database.

Reforming fossil-fuel subsidies and support is a key policy measure to tackle climate change, reduce pollution and contribute to long-term energy security in the EECCA region. However, progress on subsidy reforms remains slow. The COVID-19 crisis made the countries painfully aware of the need to mobilise significant additional funds to support their health systems and economies. Both economic activity and energy prices dropped in 2019 and 2020. However, total government support to producers and consumers of fossil fuels in the Eastern Europe and the Caucasus region increased by more than 6% over the same period (

Figure 1.3).

Figure 1.3. Trends on fossil-fuel subsidies in Eastern Europe and the Caucasus countries

[Million USD]



Note: Inventory records tax expenditures as estimates of revenue that is forgone due to a feature of the tax system that reduces or postpones tax relative to a jurisdiction's benchmark tax system (and to the benefit of fossil fuels). Hence, tax expenditure estimates could increase either because of greater concessions, relative to the benchmark tax treatment, or because of an increase in the benchmark itself. In addition, international comparison of tax expenditures could be misleading due to country-specific benchmark tax treatments.

Source: OECD Fossil-Fuel Subsidies database, www.oecd.org/fossil-fuels/data/.

Ambitious long-term strategic plans for fulfilment of requirements under the EU Association Agreements and international environmental commitments have also revealed significant legislative and institutional challenges (OECD, 2021^[16]). On water management, for example, it is unlikely that Georgia, Moldova and Ukraine will fully meet their stated policy targets by 2030, if the countries follow a business-as-usual application of policy frameworks (OECD, 2021^[16]). Challenges are numerous, including legal and regulatory gaps; insufficient implementation of adopted actions; and insufficient capacity and head count of national experts on subject areas. Other barriers include inconsistent development and application of economic policy instruments and co-ordination challenges due to fragmented institutional frameworks. These areas have all been leading to inefficiencies in water management, and broader environmental management, in the countries (OECD, 2021^[16]).

There is also considerable scope for promoting infrastructure projects that will boost investment and employment in EECCA countries, while addressing energy security concerns and contributing to decarbonisation. The governments of EECCA and their development partners have been increasing their efforts to develop sustainable infrastructure projects to improve energy efficiency and integrate renewables into the energy supply. In most cases, however, the current projects do not reach the scale needed for transformation and perpetuate regional dependency on fossil fuels (OECD, 2019^[28]; OECD, 2021^[29]). In the transport sector, most EECCA countries are investing more intensively in road projects than in other modes of transport. At the same time, they are underspending on maintenance and modernisation of rail assets. This means that railway systems in these countries continue to be inefficient (OECD, 2019^[28]; OECD, 2021^[29]).

Water infrastructure in EECCA countries is also generally under-developed, and suffers from constrained access to funding for promoting environmentally and economically sustainable water management. Any infrastructure is often in poor condition due to chronically under-funded maintenance and repair, and lack of systematic rehabilitation. Poor water policy frameworks in the region often increase future financial liabilities and further demand for finance for operational and capital expenditure. In this way, they also contribute to lack of funding. In addition, outdated design and construction standards have led to building significantly over-sized water supply and sanitation systems in rural areas. Meanwhile, counter-productive incentives remain in place to build assets in areas prone to water-related natural hazards.

Environmental and climate policies need to be adaptive to the increasingly diverse country contexts and evolving socio-economic, geopolitical and climatic conditions in the region

The transition to green and net-zero economy requires significant acceleration and the context of the war in Ukraine provides additional reasons for this fundamental transformation. Priority should be given to moving away from the reliance on fossil fuels, building more efficient and less polluting industries, and energy and transport systems. The housing stock, schools and hospitals should also improve their energy efficiency and use low-carbon material. EECCA countries should also strengthen their capacity to reform policies, develop infrastructure, provide social safety net and conserve biodiversity so their economies, populations and ecosystems better address negative impacts of climate change.

Efforts to support the transition to a green economy should be context-specific. This requires consideration of economic, environmental and geopolitical risks to individual EECCA countries, as well as their experience of known and tested approaches to manage the risks. The economies of EECCA, once under the common system of the Soviet Union, are becoming increasingly diverse in their own socio-economic contexts and development pathways. For instance, the Eastern Europe and Caucasus sub-region is increasingly aligning environmental policies with those of the European Union. Central Asia's economic, trade and political ties with Russia have remained strong, while the countries have been deepening relations with the People's Republic of China through the Belt and Road Initiative. In addition to the differences between the two sub-regions, each EECCA country has a specific economic structure, political priorities, development needs and institutional arrangements. For example, EECCA countries have pursued various pathways to respond to the COVID-19 crisis and advance recovery efforts [See, for example, Annex 1 of OECD (2021^[30])].

Uncertainties stemming from various sources make it challenging for EECCA countries to assess and select policy and investment options that can support their green economy transition. For example, the socio-economic and geopolitical impacts of the war in Ukraine create many uncertainties. EECCA countries, like others across the world, also face a great degree of uncertainty as to how climate change may translate into impacts on the ground. Uncertainty in broader socio-economic and technological contexts in the region compounds political and climate uncertainties, greatly affecting decisions in support of a green economy transition.

Climate change is already affecting socio-economic systems in the EECCA region to varying extents, presenting a dynamic and uncertain future (Botta, Griffiths and Kato, 2022^[31]). In Central Asia, one of the most vulnerable regions to climate risks, climate change scenarios suggest that surface temperature in the region could rise from 3°C to 7°C on average for 2071-2100 compared to 1950-2001 (Liu, Liu and Gao, 2020^[32]). Choices of policy measures and infrastructure developments for an increase of 3°C could differ significantly from those for a 7°C increase. The negative impacts of a changing climate are occurring, and likely to increase, on top of socio-economic challenges to managing water, energy and land in the region. Similarly, Eastern Europe and the Caucasus countries are also becoming increasingly vulnerable to the impacts of climate change, such as damages from frequent extreme weather events (Kampel and Gassan-Zade, 2021^[33]).

Future direction of the GREEN Action Task Force work

The long-standing collaboration between the countries of EECCA and the OECD through the GREEN Action Task Force has produced the country- and region-specific evidence to inform the environmental and climate-related policy reforms over the past decades. Collaboration relates to, for instance, pragmatic policy options, investment needs for their implementation and effectiveness of the policies in light of the EECCA countries' green economy programmes, environmental legislation, NDCs

and other strategic documents on sustainable development. The Task Force has also developed and provided EECCA countries with a range of practical tools to support policy decision making. These include Green Public Investment Programmes, a web platform on Green Growth Indicators and the Water-Hydropower-Agriculture Tool for Investments and Financing (WHAT-IF).

Country ownership of policy reforms is crucial and future work of the Task Force should build on the progress in EECCA countries over the past decades. Work should continue to help countries address remaining gaps in institutional capacity, governance arrangements and access to finance. The Task Force shall continue to act as a provider of robust evidence tailored to the region. This includes evidence on practical examples of policy measures in support of green economy transition, policy-relevant Green Growth Indicators and financial flows that support or undermine green economy activities.

The Task Force should continue, and reinforce, the effort to make its knowledge products even more relevant to policy processes in the individual countries, and readily accessible to stakeholders in the governments and their development co-operation partners across the EECCA region. Various approaches should continue to be enhanced, such as policy dialogues and policy reviews. The Task Force could also envisage activities such as pilot testing of policy recommendations and facilitation of cross-regional exchange for scalability and replicability of good practice throughout the region.

The work programme of the Task Force for 2023-24 envisages supporting national-level policy dialogues on greening the economies of EECCA, and enhancing administrative capacity for environmental management and cross-ministerial co-ordination for green growth. The Task Force will continue to facilitate knowledge sharing and in-country development of “smarter” regulation of environmental performance, especially on climate change mitigation and air pollution abatement. Another focus is on strengthening the economic and financial dimensions of water management through analytical work and the multisector National Policy Dialogues on water.

Work on sustainable finance and investment will also continue. The Task Force will continue supporting the development of green domestic public expenditure programmes and financial instruments. Further, while capital markets in EECCA countries are not yet significantly financing green investments, the Task Force has started exploring use of green bonds as an asset class to promote sustainable finance in some countries. Further upstream in the infrastructure investment cycle, the Task Force will also promote sound decision making in strategic planning and analyses of investment projects to prioritise sustainable infrastructure for low-carbon development in the region.

Beyond 2023-24, EECCA countries and their partners, including the GREEN Action Task Force, can do more to make the countries’ action on green economy transition more ambitious, equitable and efficient, while also keeping the action practical and doable. Several opportunities exist for the Task Force to enhance its support for the EECCA region for the several years leading up to the tenth Environment for Europe Ministerial. Possible future directions for the Task Force to further strengthen its support for EECCA countries and their development co-operation partners are highlighted below.

Support EECCA countries in enhancing action for the next several years to exploit the opportunities for green recovery from recent external shocks

The Task Force work should adapt to emerging and future changes in political, socio-economic, technological and climatic conditions. Among the most notable examples is addressing the impacts of the COVID-19 pandemic. These impacts have triggered the most severe recession in the economies of EECCA in recent years. The pandemic has caused enormous damage to people’s health, jobs and well-being, which will continue to be felt in the months and possibly years to come. The Task Force should continue to provide countries in the region with the necessary support for a green and inclusive recovery from the impacts of current and future external shocks. Its support could aim at, for instance, improving enabling policy frameworks and hands-on capacity development for scaling up investment in renewable

energy, low-emission transport, energy efficiency, and Nature-based solutions (NbS) for climate action and biodiversity conservation.

The Task Force should therefore continue to help countries enhance their COVID-19 recovery packages and broader policy frameworks to close investment gaps for high quality, reliable and sustainable infrastructure services. They may focus on, for instance, electricity generation and distribution, mobility, drinking water and sanitation, and waste management, to name a few issues. The Task Force work could help countries apply some of the important principles to facilitate access to finance for infrastructure investment that is environmentally and socially sustainable, knowledge-based and resilient to unforeseen future shocks. Such principles include:

- better alignment of planning with national priorities and international long-term goals
- better prioritisation of projects that maximise economic, environmental and social benefits
- better governance of infrastructure projects to achieve green outcomes
- better mobilisation of finance (OECD, 2019^[28]; OECD, 2021^[29]).

Future work of the Task Force could also consider the medium- and long-term repercussions of the war in Ukraine. In co-ordination with various national, regional and international actors, the Task Force could help assess the impacts of the war on national economies, regional relations and countries' environmental sustainability agendas. The Task Force could also provide policy support for the post-war reconstruction and its environmental integrity, where relevant. The Memorandum of Understanding on Strengthening Co-operation between the OECD and Ukraine, which defined the co-operation framework, has been extended until 2025 (OECD, 2022^[34]). The Task Force could further elaborate its support in line with the OECD-Ukraine Action Plan (in support of Ukraine's own Recovery Plan) for the next several years (OECD, 2022^[34]).

Contribute to energy, environmental and natural resource security

The Task Force should also put more emphasis on energy, food and natural resource security in a changing climate in the EECCA region. As in many other regions, energy, food and natural resource security has always been among the top political priorities in the EECCA region. The war in Ukraine has generated another shock to confidence and growth in the countries, putting the post-pandemic recovery at risk. Climate change is also likely to pose even greater challenges to food availability, access and affordability in many EECCA countries. This is especially true for the most vulnerable and excluded segments of society who often face discrimination. The Task Force should work with policy makers and development partners in the EECCA region to understand interlinkages among issues related to energy, food, and natural resource management and climate risks. To achieve this, the Task Force should aim to provide practical solutions to those compounded challenges, while building the resilience of socio-economic systems to enhance energy, and food and natural resource security.

The Task Force should further support the countries in promoting climate and environmental policy reforms in a socially inclusive manner. The pandemic and the war in Ukraine have led to severe trade disruptions, decline in remittances, high food prices and insecurity of energy supplies in the region. In many cases, these impacts have made life more difficult for the most vulnerable of society. Green recovery policy packages could simultaneously aim to boost employment rates and wider social benefits, while phasing out ageing production methods that are polluting. The Task Force has already started analytical work to support the EECCA governments in understanding their populations' current and future well-being. One study looked at the fiscal, environmental and social impacts of energy subsidy reform in Moldova with a particular focus on energy affordability (OECD, 2018^[35]). The Task Force can build on this analysis. Ultimately, EECCA countries can integrate it into decision-making processes to increase the political and social support for more ambitious climate action and environmental policies, and to overcome barriers for change.

Put more emphasis on support for the EECCA countries' efforts towards the post-2020 Global Biodiversity Framework

The draft post-2020 Global Biodiversity Framework calls for urgent, transformative action to address biodiversity loss across the world, including in EECCA. This framework is expected to be adopted at the 15th Conference of Parties to the Convention on Biological Diversity. The new Global Biodiversity Framework is likely to affect national and regional policy processes on biodiversity conservation and natural resource management within all Parties, including EECCA countries. The past collaboration between EECCA countries and the GREEN Action Task Force has already included certain aspects of ecological conservation, including work related to water quality and environmental compliance, as well as a recently launched Sustainable Infrastructure Programme in Asia.

The Task Force could put greater emphasis on ecological sustainability in its future work. The Task Force should work more closely with EECCA countries and development partners to ensure that protection, restoration and sustainable use of ecosystem services is an integral part of its support for a green economy transition in the region. Environmental degradation, population growth and lifestyle choices in the EECCA region increase demand for natural resources. The Task Force should align its support for a green economy transition with regulations to protect the environment and restore, manage and conserve ecosystems.

A range of past and ongoing work at the OECD on biodiversity and Nature-based solutions (NbS)⁵ could inform development of activities under the Task Force. The role of the natural environment in strengthening climate resilience and transitioning to net-zero greenhouse gas (GHG) emissions is increasingly recognised. The GREEN Action Task Force can build on various OECD analyses and good practice insights for biodiversity policy generated over the past decades. One priority area for the OECD is to support its member and partner countries in reforming government support, including subsidies, that is harmful to biodiversity. This priority could also be applied to the GREEN Action Task Force [See OECD (n.d._[36])].

NbS activities emerging with the Task Force should be enhanced across overall work areas. The Task Force plans to explore possible application of NbS to improve water management in the Eastern Europe and the Caucasus countries, as well as financing opportunities for NbS. The Sustainable Infrastructure Programme in Asia also plans to support EECCA countries for infrastructure planning that considers protection of natural capital, ecosystem services and biodiversity. Similarly, the Energy, Water and Land-use Nexus project will develop a handbook with a focus on finance for NbS in Central Asia over the next five years. It will aim to foster understanding among policy makers of potential NbS opportunities and how they could be financed.

Make financial systems in the EECCA countries environmentally, socially and economically sustainable

The Task Force should strengthen its engagement with finance, economy and planning ministries in the EECCA countries in addition to environmental and sectoral ministries and agencies. Over the past several years, the Task Force has continuously deepened its co-operation with the economy and planning ministries. The economy and finance ministries in the region are increasingly involved in developing national green economy strategies or more specific policies or regulations. This includes sustainable public procurement, sustainable finance and subsidies reforms. The Task Force work could also help finance and economy ministries improve regulatory frameworks and institutional capacity to attract investments in infrastructure and businesses with appropriate environmental and social safeguards.

The Task Force work on sustainable finance could inform further efforts by economy and finance ministries to integrate green economy considerations into their budget planning and help rationalise fiscal policies and strategies. A range of relevant Task Force work has already taken place.

This includes work on green public investment programmes, fossil-fuel subsidies, environmental funds (especially in Ukraine and Moldova) and green financial systems (especially Georgia and the Kyrgyzstan), among others. One priority is to monitor and assess current and planned spending towards overall investment needs. This could build on, for example, the investment needs assessments in Armenia and Georgia conducted under the Task Force (OECD, 2018^[37]; EU4Environment, 2021^[38]).

The Task Force could support other areas to promote sustainable finance in the EECCA region. Other potential areas of support include greening public financial management; linking environmental and climate considerations to development of domestic financial systems; and encouraging national DFIs to promote investment in green economy transition through de-risking instruments. The Task Force can continue to help the EECCA countries co-ordinate and plan for improved financing strategies across line ministries and levels of government.

The Task Force could also support interested EECCA countries, especially their financial regulators and central banks, in strengthening their domestic financial systems so that they are greener and more socially inclusive. The Task Force could support development of national roadmaps, taxonomies that define sustainable economic activities, voluntary or mandatory disclosure principles on reporting on environmental, social and governance related financial and non-financial information. Past collaborations between central banks (Georgia and Kyrgyzstan) and the Task Force could be a good practice to replicate.

The Task Force can further help the EECCA countries develop financial-sector regulations and market infrastructure to support expansion of local capital markets. The Task Force can assess country-specific opportunities to access capital markets to support green investments. As mentioned earlier, there have been encouraging signs of the effectiveness and feasibility of green bonds and an increasing interest within the region (e.g. Armenia, Georgia, Kazakhstan, Ukraine and Uzbekistan) (OECD, forthcoming^[23]). The Task Force could help interested EECCA countries explore approaches to seize the momentum and address challenges to further scaling up green bonds in the region.

Strengthen engagement with DFIs and other development partners active in the EECCA region, and potentially with those outside the region

The Task Force should deepen and broaden its engagement with DFIs to help EECCA countries further mobilise sustainable financing from various sources – international, domestic, public and private. The Task Force has been working with domestic and international DFIs on various projects focused on green finance over the years. This engagement can be further deepened to help governments and businesses in the region identify project concepts for domestic and cross-border investments in sustainable development infrastructure and business activities, environmental data and information and associated capacity development activities. By working with DFIs and relevant market participants, the Task Force’s analytical work should also help project developers and owners better understand and access suitable financial instruments, such as grants, loans, bonds, de-risking instruments.

The Task Force should further explore approaches to strengthen exchange among the private sector, financial institutions, government bodies, civil society organisations and development partners. The OECD has been working with a number of development partners under several programmes, such as EU4Environment projects, the EU Water Initiative Plus for Eastern Partnership Countries, and the Sustainable Infrastructure Programme in Asia. This collaboration has enabled the Task Force to harness different expertise of the participating partners for addressing multi-faceted, inter-linked issues faced by EECCA countries to promote their green economy transition. The Task Force should build on and broaden engagement with international development partners and regional institutions within EECCA.

Multi-stakeholder engagement across different actors and sectors, including the private sector, would help the EECCA countries integrate environmental and climate considerations into policies in support of enhancing competitiveness and economic. The Task Force has launched a new programme in Central Asia to support the private sector, financial institutions and government agencies in identifying financing opportunities. One area, for example, is agribusinesses in support of the energy, water and land-use nexus (OECD, 2021^[39]). The Task Force is also developing sustainable trade-related agricultural and industrial value chains in Eastern Europe and the Caucasus region. Such private-sector engagement would also inform the development of pragmatic and “smarter” environmental regulation that is both effective for environmental protection and realistic for businesses.

Opportunities exist for the Task Force to engage with a broader range of OECD member countries and non-OECD countries outside the EECCA region. Such engagement can promote exchange of lessons learnt and good practices outside the region that can be applied to EECCA countries. Experience in cross-sectoral co-operation in integrated resource management in Latin America or West Africa, for example, could bring practical insights into government officials in Central Asia.

Continue and reinforce Task Force work to address persistent gaps in ensuring compliance with adopted strategies and policy frameworks to ensure a green economy transition of the region

The Task Force has been working with EECCA countries on environmental compliance assurance systems for more than two decades to strengthen their capacity. To achieve a range of environmental and climate targets set by EECCA countries, countries need to take practical action, and monitor compliance with relevant regulatory frameworks. While past Task Force work has led to significant improvements in these areas, capacity and policy gaps persist. The Task Force should ramp up its effort to support the countries in getting the basics right to ensure compliance with adopted environmental regulations.

Further work by the Task Force with the countries should help them ensure that legislative frameworks for compliance assurance are up-to-date and fit-for-purpose, and provide sufficient incentives for voluntary compliance and sanction for non-compliance. Such support could help countries introduce legislation on integrated environmental control and environmental liability, as well as fulfilment of Association Agreement provisions on compliance assurance. The Task Force can help improve the institutional set-up for compliance assurance. This could focus especially on newly established environmental inspectorates and their co-ordination with other governmental authorities, skills development, information systems and equipment, and anti-corruption measures. The Task Force could continue to help countries improve their environmental inspections and other tools for monitoring compliance, including self-monitoring mechanisms. It could also help strengthen enforcement of compliance, including design and application of penalties for non-compliance, environmental liability provisions and environmental insurance mechanisms. Finally, the Task Force work could support EECCA countries with more promotion of voluntary compliance through, for instance, better information, training and incentives for adopting green practices.

2. Recent socio-economic and environmental trends towards sustainable development in EECCA

This chapter provides a brief snapshot of recent macroeconomic development in Eastern Europe, the Caucasus and Central Asia, including the impacts of the COVID-19 pandemic and issues related to ongoing recovery. It also shows how the war in Ukraine is affecting the country's ecosystems and human health, as well as the policy environment for green reforms in the region more broadly. As a precursor to more in-depth discussion in Chapters 3, 4 and 5, it also highlights key environmental challenges in the region and recent progress to address them using selected Green Growth Indicators.

Recent macroeconomic development

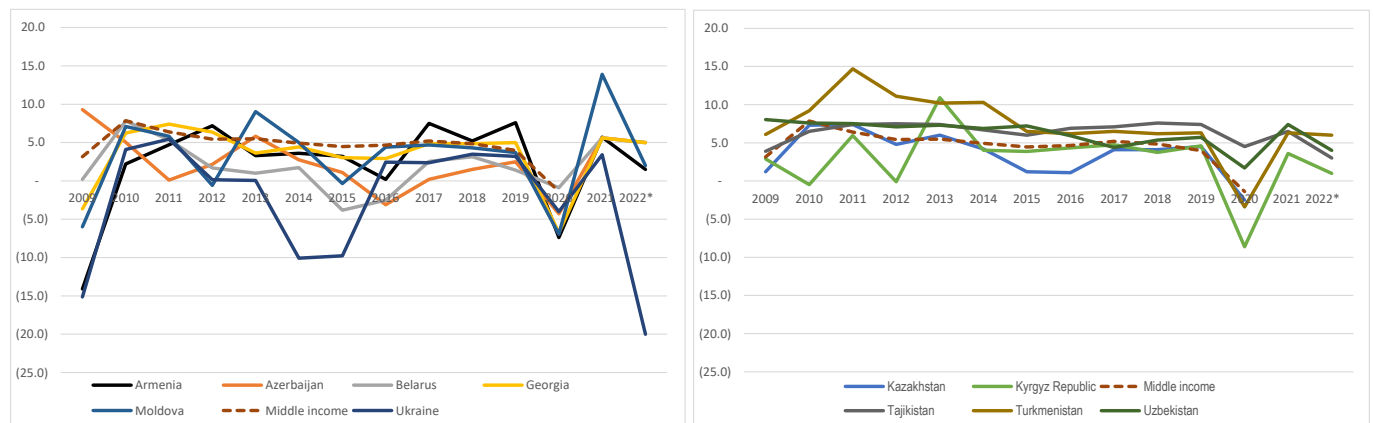
Since the collapse of the Soviet Union, the countries of Eastern Europe, the Caucasus and Central Asia (EECCA)⁶ have been undergoing profound changes, while pursuing their transformation towards market economies and democratic societies. Even as they conserved some of their Soviet-period specialisations, most of the region’s economies underwent major structural changes, trade liberalisation and privatisation. For example, the share of the service sector in the economy has dramatically increased in most EECCA countries (Gevorkyan, 2018_[1]).

On average, the EECCA region had maintained relatively good economic growth rates over the past two decades (3.4 % on annual average from 2001 to 2021) (World Bank, 2022_[40]). However, the macroeconomic situations surrounding the EECCA region have been turbulent over the past decade (Figure 2.1). The global financial crisis in the late 2000s, drops in commodity prices and political instability in Armenia, Ukraine and Kyrgyzstan, for example, have all affected economic growth rates in EECCA countries.

The most recent external shocks to EECCA economies are the COVID-19 pandemic and its economic consequences, and Russia’s invasion of Ukraine launched in 2022. The impact of COVID-19 pushed down gross domestic product (GDP) growth rates by 5-13 percentage points across all EECCA countries in 2020 (Figure 2.1). While year-on-year GDP growth started to pick up again to more than 3% in the region for 2022 (World Bank, 2022_[26]), the war in Ukraine has led to a significant recession. It is forecasted now for almost all EECCA countries and likely to worsen depending on how the conflict in Ukraine evolves (World Bank, 2022_[26]; EBRD, 2022_[27]; Kammer et al., 2022_[41]). The GDP contraction of -0.2% that is projected for EECCA countries,⁷ excluding Ukraine, for 2022 could be downgraded further.

Figure 2.1. GDP growth rates between 2009 and 2022 in Eastern Europe, the Caucasus and Central Asia

Left: Eastern Europe and the Caucasus / Right: Central Asia (% per annum)



Source: (Kammer et al., 2022_[41]).

The post-COVID-19 recovery and Russia’s war in Ukraine are forcing the EECCA region to make decisions under significant uncertainties associated with a complex combination of challenges. They include increased commodity and energy prices, pressure on energy security, refugee flows, and significantly reduced remittances and tourist inflows. These emerging challenges also compound longer-term development policy agendas, such as eradication of poverty and discrimination, gender equality and provision of social security. At the same time, countries are trying to address climate change, biodiversity

loss and other environmental degradation. These emerging and protracted challenges require EECCA countries to re-evaluate how governments run their economies and pursue various development agendas.

Effects of the Russian invasion of Ukraine on climate and energy policies across the EECCA region

Prior to the Russian invasion of Ukraine, EECCA countries had already made significant progress on aligning their environmental and climate policies with global efforts to reduce greenhouse gas (GHG) emissions and adapt to the negative impacts of climate change. The countries had also adopted a variety of policy and fiscal instruments to support recovery from the COVID-19 pandemic combined with the goals of building robust, resilient and sustainable economies (OECD, 2021^[30]).

The war in Ukraine has caused tens of thousands of casualties, an associated humanitarian crisis, a large number of besieged and displaced people both within Ukraine and abroad, and significant negative economic impacts. The environment, natural resource base and infrastructure have not been spared by the war [See Box 2.1 and OECD (2022^[42])].

The war in Ukraine has also created major policy challenges and already led to a geopolitical and economic reconfiguration across most of the EECCA countries. This new situation has already led to sanctions on Russia by OECD countries (and Russian countersanctions), as well as trade disruption and the significant increase in energy and commodity prices (Berlin Economics & OECD, 2022^[43]).

Climate and energy policies of EECCA countries, among other policy domains, may face significant alterations due to the impacts of the war through multiple channels. Key results of a recent analysis of the effects of the war in Ukraine on climate and energy policies in the EECCA region are highlighted below (Berlin Economics & OECD, 2022^[44]).

- First, energy price developments severely affect the EECCA countries' economies. Russia is a major exporter of oil, oil products, natural gas, coal and nuclear fuel. The war led to an increase in global crude oil prices. The price of natural gas and coal has risen even more compared to the oil price.
- Second, the price increase for food and metals has had a significant negative impact on the economies of the EECCA countries, and the rest of the world; Ukraine and Russia are major producers of a variety of metals and agricultural goods. Transport of products from Ukraine has been facing severe disruptions due to military actions on the country's territory and Russia's blockade of trading routes. The European Union has partially sanctioned Russian steel. Meanwhile, Russia has banned exports of several agricultural commodities. The impact of the shortage of food exports available on the market is particularly affecting low-income countries that depend on imports from Russia or Ukraine.
- Conversely, many EECCA countries rely on metals and mining for large parts of their GDP and exports (e.g. Armenia, Kyrgyzstan, Tajikistan and Uzbekistan). For them, higher prices might incentivise production increases in the short- to mid-term. This could adversely impact GHG emissions and implementation of climate policies.
- Third, the global macroeconomic situation for most economies across the world has changed drastically. Prior to the invasion, EECCA countries were already facing supply constraints and inflationary pressures due to compromised supply chains since the start of the COVID-19 pandemic. Since Russia's aggression, the economic outlook for all EECCA economies except Azerbaijan has been revised downwards due to trade disruptions, high food prices and insecure energy supplies.

- Public debt has significantly increased since the start of the pandemic. A weaker regional macroeconomic situation could complicate the countries' effort towards more ambitious national climate policies. Debt aggravates financing of climate-related investments from domestic sources. Yet lower growth may lead to lower GHG emissions in the short term (at the expense of improved economic and social conditions).
- Fourth, since the invasion, OECD Member countries are aiming to reduce dependence on Russian energy. In the short term, this means oil-producing countries will need to produce more domestic energy or try to diversify energy carrier import partners. In the long term, it means reducing overall fossil-fuel consumption by increasing decarbonisation.

Russia supplies a significant part of the energy mix of most EECCA countries. Parts of their energy infrastructures are even owned by Russia. All countries cover a significant share of their energy supply with oil products, and most countries (except Kyrgyzstan and Tajikistan) have relatively high levels of natural gas in their energy mix. Kazakhstan is heavily reliant on coal, while Kyrgyzstan and Tajikistan rely on a mix of coal and hydropower. Hydropower also plays an important role in Georgia and to a lesser extent in Armenia. In the Central Asian countries, coal is mostly domestically extracted, while Armenia, Georgia and Moldova have almost no domestic fossil-fuel production.

Countries maintaining strong relations with Russia face a somewhat complex set of incentives. These countries may face lower fossil prices, which weakens incentives to reduce fossil consumption. However, remaining price risks and political uncertainty in long-term relations with Russia have already led to the emergence of a new energy security paradigm. This emphasises the risk of depending on fossil imports from a single supplier (Berlin Economics & OECD, 2022^[43]).

Energy export industries in Azerbaijan and Kazakhstan have so far had windfall revenues due to high oil and gas prices. This increases the incentive to further expand export volumes. They could do this by increasing production, if faster extraction is possible. They could also conserve energy domestically as the opportunity cost of forgone export revenues has increased. However, export transmission capacity is limited. Consequently, an expansion of production cannot be directly translated into a further increase of exports (Berlin Economics & OECD, 2022^[43]).

The emerging energy security concerns – high long-term fossil-fuel prices and increased price uncertainty – are expected to continue driving expansion of renewable energy sources in the medium- to long-term. Many countries in the region are working to strengthen their energy independence. Increasing energy efficiency and domestic energy production, in particular from renewable energy sources, provide an attractive alternative (Berlin Economics & OECD, 2022^[43]). This holds especially true for Moldova and Ukraine, as well as Georgia. These countries have applied for EU membership and, therefore, need to implement more stringent EU regulation.

Box 2.1. Examples of environmental impacts of Russia's war in Ukraine

Ukraine had made steady economic and environmental progress in recent years (OECD, 2022^[34]). Russia's war in Ukraine has been attacking such progress, setting back hopes for an independent, green and sustainable Ukraine. The economic impacts have also been significant. Recent estimates of the damage to housing, infrastructure and other non-residential buildings exceed USD 100 billion (Kyiv School of Economics, 2022^[45]).

Apart from human casualty and economic damages, the war has also led to significant environmental destruction. Forests, land and marine ecosystems to water, sanitation and waste management infrastructure have all been damaged. This widespread and severe damage is bringing immediate and longer-term consequences for human health and ecosystems in Ukraine.

Strikes on refineries, chemical plants, energy facilities, industrial depots or pipelines have caused leaks of toxic substances, fires and building collapses and severely polluted the country's air, water and soil. This pollution can cause longer-term health threats like the risk of cancer and respiratory ailments. The Ukrainian Ministry of Environmental Protection and Natural Resources estimates that approximately 1.4 million people in Ukraine have no access to safe water. A further 4.6 million people have only limited access, due to damaged water supply infrastructure. Ukraine has also begun enhanced epidemiological surveillance of cases displaying cholera symptoms.

The amount of waste has dramatically increased. It includes damaged or abandoned military vehicles and equipment, shell fragments, civilian vehicles, building debris or uncollected household or medical waste, due to military operations. Some of this waste is toxic, including shell fragments, medical waste, or building debris containing asbestos, polychlorinated biphenyls (PCBs) and heavy metals.

The Ministry of Environmental Protection also estimates that 900 protected natural areas of Ukraine have been affected by Russia's military activities. This means that approximately 30% (an estimated 1.2 million ha) of all protected areas of Ukraine suffer from the effects of war.

Source: OECD (2022), Environmental impacts of the war in Ukraine and prospects for a green reconstruction, www.oecd.org/ukraine-hub/en/; Ministry of Environmental Protection and Natural Resources (2022), "Digest of the key consequences of Russian aggression on the Ukrainian environment for June 9-15, 2022", <https://mepr.gov.ua/news/39320.html>; and Ministry of Environmental Protection and Natural Resources (2022), "Damage to natural reserves and protected ecosystems", <https://mepr.gov.ua/en/news/39144.html>;

Main trends in greening the EECCA economies: State of play in 2022

This section provides a snapshot on how the environmental footprint of economic activities in the region has evolved over the past few years. Then, it is followed by Chapter 3, which will highlight a number of policy developments and challenges related to the journey of EECCA countries towards a green economy.

The OECD developed a measurement framework, called "Green Growth Indicators" in 2011, to track the progress towards green economy. The frame work consists of four main areas: productivity; natural asset base; quality of life; and policies. These indicators answer such questions as: Are we becoming more efficient in using natural resources and environmental services? How does greening growth generate economic opportunities? Is the natural asset base of our economies being maintained? Does greening growth generate benefits for people? See OECD (n.d.^[46]) for further details of the Green Growth Indicators Framework and related publication and materials.

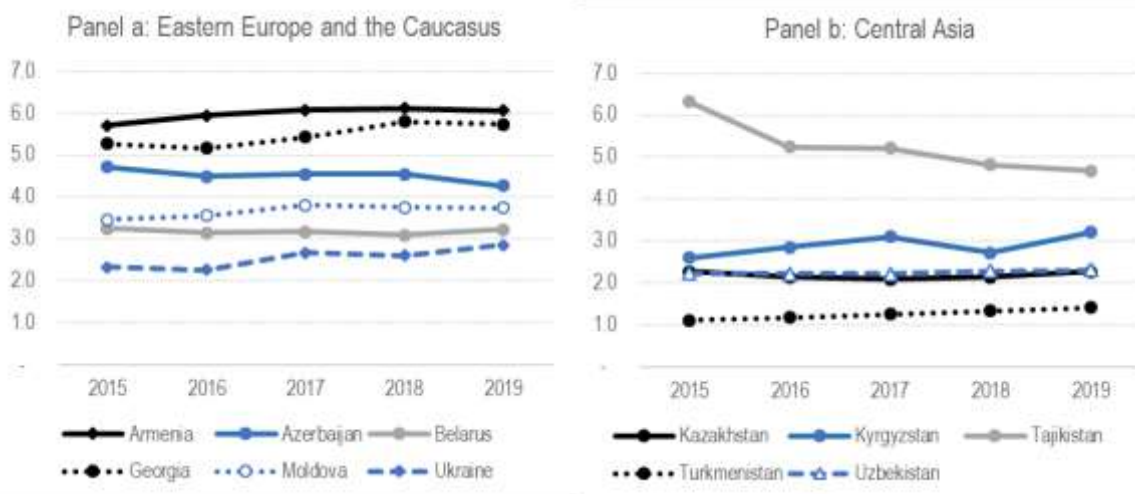
In the EECCA region the work on Green Growth Indicators started in 2012. Kyrgyzstan was the first country to pilot-test this set, followed by Armenia, Azerbaijan, Moldova and Ukraine since 2013 (see Box 2.2). Two

regional reports have been developed. In 2019, Kazakhstan became the second among Central Asian countries, developing the GGIs and integrating the measurement of green growth into the regular reporting and planning system.

The Green Growth Indicators have been used to collect environmental data for the EECCA countries. This, in turn, can help the countries track and communicate progress in greening their economies, inform decisions and demonstrate accountability to national and international stakeholders. It can also raise public awareness about the links between economic growth and environmental protection, and compare progress between countries.

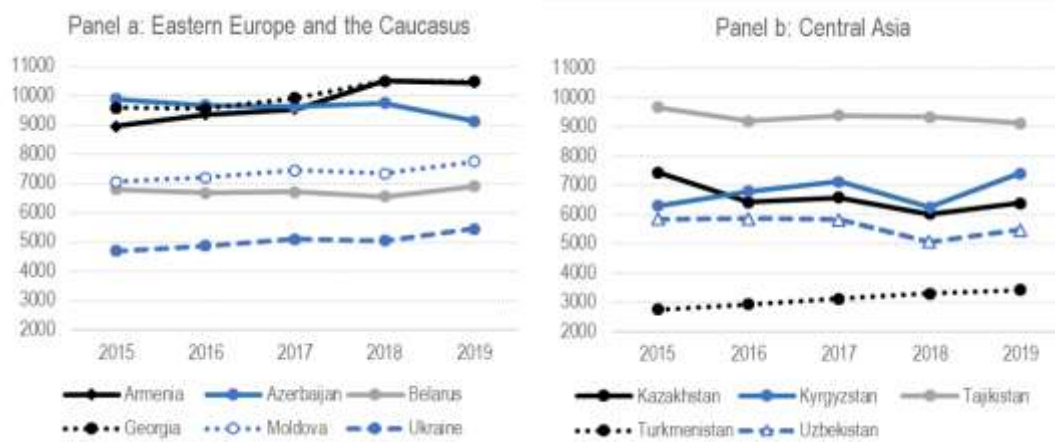
Carbon and energy productivity, resource productivity and multifactor productivity⁸ capture the efficiency with which economic activities (production and consumption) use energy, other natural resources and environmental services. In many EECCA countries, such as Armenia, Georgia, Kyrgyzstan, Moldova, Ukraine and Turkmenistan, both carbon dioxide (CO₂) and energy productivities of the economies have improved substantially over the past five years. This means that economic growth partially decoupled from CO₂ emissions and use of energy. Higher CO₂ and energy productivity reflect a less polluting, more resource-efficient economy. However, pressure remains as CO₂ and energy productivity continue to be much lower than the European average (7.23 USD/kg of CO₂ in 2019). Some EECCA countries perform even less well than the world average (3.68 USD/kg of CO₂ in 2019) (Figure 2.2 and Figure 2.3).

Figure 2.2. CO₂ productivity (GDP per unit of energy-related CO₂ emissions: USD per kg of CO₂, 2015 price)



Note: CO₂ productivity is measured based on production.
 Source: OECD.stats Green Growth Indicators, <https://stats.oecd.org/>.

Figure 2.3. Energy productivity (GDP per unit of TPES: USD, 2015 price)



Note: TPES=Total Primary Energy Supply.

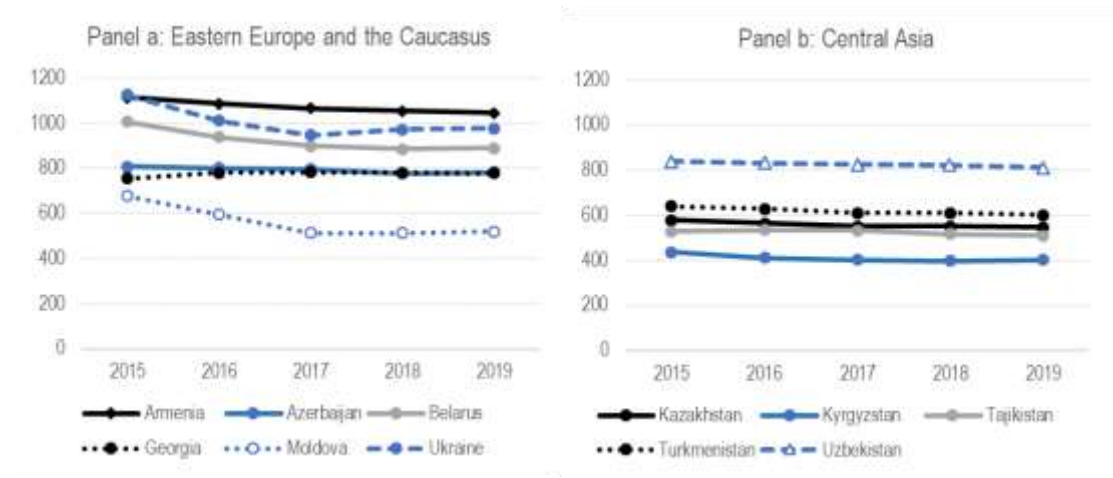
Source: OECD.stats Green Growth Indicators, <https://stats.oecd.org/>.

Indicators on environmental quality of life allow EECCA countries to monitor how environmental conditions and environmental risks interact with the quality of life and well-being of people. These indicators also point out how the amenity services of natural capital support well-being. Further, they can show the extent to which income growth is accompanied (or not) by a rise in overall well-being.

One indicator, for example, tracks fine particulate matter (PM_{2.5}), one of the most serious pollutants globally from a human health perspective. In EECCA countries, exposure of the population to PM_{2.5} remains high. However, mortality (premature deaths) attributed to PM_{2.5} exposure has generally decreased in all countries over the past few years (Figure 2.4). Still, this mortality level is significantly higher than the EU average (382.5 per million inhabitants). Armenia and Ukraine have the most attributed deaths relative to population, with about 1 000 per million inhabitants in 2019.

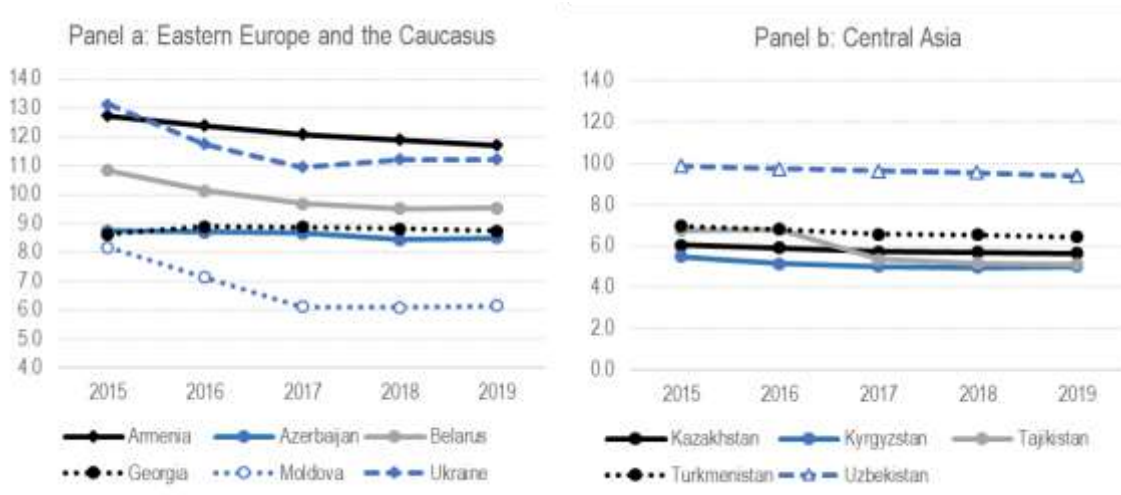
Associated welfare costs of premature deaths due to PM_{2.5} pollution represented in the EECCA region are also significant, despite the general trend of a decreasing rate over the past few years (Figure 2.5). In particular, welfare costs from premature deaths in Armenia, Ukraine and Uzbekistan are 10-12% of GDP equivalent. This is three to four times higher than the EU average of 3%, and double the worldwide rate (5.8%).

Figure 2.4. Mortality from exposure to ambient PM_{2.5} (per 1 000 000 inhabitants)



Source: OECD.stats Green Growth Indicators, <https://stats.oecd.org/>.

Figure 2.5. Welfare costs of premature mortalities from exposure to ambient PM_{2.5} (percentage of GDP)



Note: This indicator uses estimates of premature mortality and morbidity attributable to ambient PM_{2.5} air pollution to value the economic cost in dollar terms. This estimates the major health damages of population exposure to ambient PM_{2.5} from exposure-response relationships that have been established by global research on air pollution and health. The cost of premature deaths is estimated from the value of statistical life (VSL). VSL is a measure of how much individuals are willing to pay for a reduction in the risk or likelihood of premature death. VSL is influenced by income level and other factors; it is unique for each country.

Source: OECD.stats Green Growth Indicators, <https://stats.oecd.org/>.

The economic opportunities and policy responses indicators presented in this section aim at capturing the economic opportunities associated with green growth. They can help assess the effectiveness of policy to promote green technology and innovation, environmental goods and services, investment and financing, prices, taxes and transfers. In the EECCA countries, more economic opportunities associated with green growth can be unlocked. This includes investment in environmental protection, development of environmentally friendly technologies and removal of fossil-fuel subsidies that can reduce fiscal deficits, make renewable energy more competitive, and lower carbon and air pollution.

In this context, the recent inclusion of the Eastern Europe and Caucasus countries in the OECD-IEA database on fossil-fuel subsidies is an important milestone in transparency (OECD, 2021^[47]). It also recognises the efforts of the governments of the Eastern Europe and Caucasus countries to disclose information on the size of their support to the energy sector. Further discussion and data can be found in Chapter 5.

Box 2.2. Good practice example: Using Green Growth Indicators for better policy making in Moldova and Ukraine

Some of EECCA countries have developed national sets of Green Growth Indicators (GGIs), which provides useful lessons for further improvement of the application of the Indicators across the region. In 2021, Moldova and Ukraine updated their national sets of GGIs with support of the EU-funded EU4Environment programme. This was an opportunity to assess the countries' progress towards a green economy in the recent years, with data sets up to 2020.

In Moldova, this was a first attempt to evaluate the implementation of the National Programme on the Promotion of Green Economy and its Action Plan 2018-20, based on GGIs. It also provided insights for the development of several strategic policy documents – the Program on the promotion of Green Economy and its Action Plan 2022-27 and the Environmental Strategy 2030.

The report revealed the positive trends, such as increase in efficiency of using natural resources (increase in carbon, energy and water productivity), maintain of natural asset base (slight increase in afforestation and protected areas), improve in quality of life (decrease of exposure of the population to fine particulate matter, increase in people's access to safely managed drinking water services). The analysis also draws attention of policy-makers to the remaining challenges which require further action, such as increase in the forest share, improve waste management and recycling, reduce water pollution, promote eco-innovation, green jobs, enhance energy efficiency, reduce greenhouse gas emissions, and scale up green investment.

To give more visibility to the analysis and its policy messages, a dedicated **online platform** on GGIs was created, first of its kind among the EECCA countries. The platform is hosted by the Ministry of Environment's website, and available in English and Romanian languages.

The results of this analysis were also presented to the Inter-ministerial Working Group for the promotion of Sustainable Development and Green Economy in Moldova, which is the high-level co-ordination body on green economy promotion in the country. It was established jointly by the Ministry of Economy and Ministry of Environment in 2015.

In Ukraine the special focus of the analysis was on monitoring implementation of the national environmental policy of Ukraine using GGIs. The analysis aimed to carry pilot monitoring of the implementation of the Law of Ukraine "On Main Foundations (Strategy) of the State Environmental Policy of Ukraine for the Period till 2030. The analysis revealed the positive results of the steps taken by the country towards a green economy in the recent years. Examples include increase in efficiency of using natural resources (increase in carbon and energy productivity), protection of natural asset base (increase of protected areas, decreasing pressure on freshwater resources), improve in quality of life (decreasing emissions of all pollutants, increasing share of households equipped with sewerage in rural areas).

The analysis also draws attention of policy makers to the areas which need further improvements – household waste, share of forest cover, dynamics of the protected species, degradation of agricultural lands, a high level of air pollution and associated mortality and economic costs, low research, and development expenditures. This exercise took place in light of the country's commitments under the EU Association Agreement and engagement towards EU Green Deal.

Source: EU4Environment (2022), Towards Green Transformation of the Republic of Moldova: State of Play in 2021. Monitoring progress based on the OECD green growth indicators; EU4Environment (2022), Towards a Green Economy in Ukraine Work in Progress – 2019-20.

3. Progress on mainstreaming green economy in national strategies and plans in EECCA

This chapter highlights progress on mainstreaming of green growth considerations in national strategies and plans in selected thematic areas in the EECCA region. The chapter also provides examples of reforms in institutional arrangements to promote such mainstreaming in the countries. It also includes a focus on EECCA countries' on-going effort for greening their recovery from the COVID-19 pandemic.

For Eastern Europe, the Caucasus and Central Asia (EECCA) ⁹ countries to achieve their climate goals and Sustainable Development Goals (SDGs), each government must send a clear and strong signal of its commitment through ambitious and implementable national targets. Those targets must also be supported by roadmaps with specific actions towards them, integration of climate and environmental considerations into sectoral policies, and effective mechanisms to monitor and ensure implementation and compliance.

This and the following chapters highlight examples of progress in EECCA countries in collaboration with the GREEN Action Task Force. It also provides recommendations for the Task Force to tackle remaining challenges in the coming years. In particular, this chapter focuses on national-level targets and policy frameworks on green economy transition and climate action and greening the countries' efforts for recovery from the COVID-19 pandemic.

Setting national targets and policy frameworks towards a green economy in EECCA

Many EECCA countries have set and updated national targets to guide their transition towards a green economy, including on environmental protection, climate change and natural resource management. Effective implementation of actions to achieve the targets face a number of technical and political challenges. Yet, these targets have provided EECCA countries with a foundation for integrating environmental considerations into broader sectoral development policies and targets, as well as mandates of government institutions in each country. For instance, **Kazakhstan, the Kyrgyz Republic (hereafter “Kyrgyzstan”), the Republic of Moldova (hereafter “Moldova”), Ukraine and Uzbekistan** have developed their overarching national strategies and programmes on green economy. The Concept on Transition to Green Economy of Kazakhstan which was adopted in 2013 has been followed by the ongoing implementation of three major stages of actions towards 2050 (Kazinform, 2018^[41]).

Even under the COVID-19 pandemic, many EECCA countries have continued to advance the green economy agenda (OECD, 2021^[2]). In 2021, in collaboration with the OECD, **Kazakhstan** adopted a new Environmental Code to replace its 2007 version. The changes, developed in collaboration with the OECD, aimed to strengthen, for example, protection of forests and soils, environmental education and awareness raising, research and development on green technologies and management of radioactive waste (WECOOP, 2021^[48]). **Tajikistan** is developing its national green economy strategy, aiming for adoption by the end of 2022 (Government of Tajikistan, 2021^[5]). **Kyrgyzstan** was also reviewing implementation of its Programme for the Development of Green Economy for 2019-2023 at the time of writing. This review aims to identify implementation gaps, adjustments needed following socio-economic changes and areas of improvement for the future.

All EECCA countries have also adopted national targets of climate action through their Nationally Determined Contributions (NDCs) (Table 3.1). Many have also raised the levels of ambition of their climate mitigation targets through NDC update processes (OECD, 2021^[2]). Further, several EECCA countries such as **Armenia, Kazakhstan, Ukraine and Uzbekistan**, have developed their targets on net-zero carbon emissions. **Kazakhstan, Georgia and Uzbekistan**, for example, have also started developing long-term low-emission development strategies (OECD, 2021^[2]; Government of Georgia, 2021^[6]).

Most EECCA countries have also started developing National Adaptation Plans (NAPs). Among them, Armenia has already approved its NAP and a list of measures for 2021-25. The country submitted its NAP to the UN Framework Convention on Climate Change in May 2021 (Government of Armenia, 2021^[7]). In addition to national-level strategies, the five Central Asian countries established a process for developing a regional climate change adaptation strategy. This will promote transboundary co-operation to strengthen climate resilience in the region (Green Central Asia, 2021^[8]).

Table 3.1. Climate action: Status of NDC updates, net-zero targets and NAPs in EECCA countries

Country	Updated NDC status	Increased ambition in updated NDC?	Net-zero target? (sectors, year)	LT-LEDS communicated to UNFCCC?	Number of measures to formulate and implement NAP
Armenia	Update drafted, approved and submitted to the UNFCCC	Yes (set 2030 target, maintained 2050 target)	Yes (in NDC, economy-wide, 2050)	No	12
Azerbaijan	Under development	Unclear	No	No	3
Belarus	Update drafted, approved and submitted to the UNFCCC	Yes	No	No	0
Georgia	Update drafted, approved and submitted to the UNFCCC	Yes	No	Nearing finalisation	1
Kazakhstan	Update drafted and under review	No	Yes (declaration, economy-wide, 2060)	Under development	1
Kyrgyzstan	Update drafted, approved and submitted to the UNFCCC	Yes	No	No	3
Moldova	Update drafted, approved and submitted to the UNFCCC	Yes	No	No	9
Tajikistan	Update drafted, approved and submitted to the UNFCCC	Yes	No	No	3
Turkmenistan	Update under development	Unclear	No	No	2
Ukraine	Update drafted, approved and submitted to the UNFCCC	Yes	Yes (in policy document, economy-wide, 2060)	Yes (2018)	0
Uzbekistan	Update drafted, approved and submitted to the UNFCCC	Yes	Yes (declaration, energy, 2050)	Under discussion	3

Note: UNFCCC=United Nations Framework Convention on Climate Change. The UNFCCC's annual summary of progress on NAPs tracks 23 measures in the process of formulating and implementing a NAP.

Source: Updated and based on (OECD, 2021^[2]).

Box 3.1. Good practice example: EECCA countries' effort to modernise environmental policies and legislation

EECCA countries have significantly advanced their efforts to modernise broader environmental policies and legislation at both strategic and technical levels:

- **Armenia, Georgia, Moldova and Ukraine** have been reviewing their legislative and institutional arrangements on environmental regulations, monitoring of implementation, and tools for enforcement and compliance promotion for further improvement (EU4Environment, 2021^[9]; EU4Environment, 2021^[10]).
- **Uzbekistan** adopted a series of environment-related laws such as the Concept on Environmental Protection until 2030, Strategy on Municipal Waste Management for the period 2019–2028 and Strategy for the Conservation of Biological Diversity for the period 2019–2028 (UNECE, 2020^[11]).
- **Georgia** has adopted a new law on environmental liability, and is continuing legislative reforms, including on industrial emissions and risk-based methodologies. The country has also adopted a Law on Environmental Liability that aims to define the legal regulation on issues related to environmental damage, based on the polluter pays principle (Government of Georgia, 2021^[13]).

To assess progress and effectiveness of environmental policies, several EECCA countries in partnership with the UN Economic Commission for Europe, conducted Environmental Performance Reviews over the past decade: Uzbekistan in 2020, Kazakhstan in 2019, Tajikistan in 2017 and 2012, Belarus in 2016, Georgia in 2016 and Moldova in 2014 (UNECE, 2022^[14]).

Developments in multilateral policy agendas influencing the EECCA countries' approach to a green economy transition

The abovementioned progress on policy development in EECCA countries has also been driven by the international policy related to sustainable development and climate action, as well as approximation to the EU legislative frameworks. Selected examples of international and regional policy developments over the past few years are highlighted below.

The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development is a global commitment to eradicate poverty and achieve sustainable development by 2030, ensuring that no one is left behind. Sustainable Development Goal (SDG) 13 is dedicated to taking urgent action to combat climate change and its impacts, while SDG 6 is dedicated to clean water supply and sanitation. Action on green economy transition in EECCA and across the world is nevertheless relevant to most of the 17 SDGs. It includes action on responsible consumption and production, sustainable ocean and terrestrial ecosystems, sustainable cities, environmental protection, poverty eradication, economic growth, health and well-being, and land use.

The Paris Agreement

The Paris Agreement is a global response to climate change with a focus on adaptation, mitigation and finance. It sets the goal of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C. The global goal on adaptation focuses on enhancing adaptive capacity, increasing resilience and limiting vulnerability. The

agreement also aims to make finance flows consistent with a pathway towards low-carbon and climate-resilient development.

All EECCA countries have adopted their national targets of climate action through their Nationally Determined Contributions (NDCs). Many have also raised the levels of ambition of climate mitigation targets through NDC update processes (OECD, 2021^[2]). Most EECCA countries have also started the process of developing National Adaptation Plans (NAPs).

The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets

Under the Convention on Biological Diversity (CBD), the Strategic Plan for Biodiversity 2011-2020 aimed to halt biodiversity loss and enhance the benefits it provides to people. It also highlighted climate change as a major pressure on biodiversity, while recognising the role of biodiversity in supporting adaptation to climate change. Twenty Aichi Biodiversity Targets are organised under five Strategic Goals. An agreement on the Post-2020 Global Biodiversity Framework is expected at the 15th meeting of Conference of Parties (COP 15) in December 2022, setting new targets for the coming years.

The EU Association Agreements

Several countries of Eastern Europe and the Caucasus have been aligning their environmental policies with EU laws and standards in the context of implementation of the EU Association Agreements (Andrusevych et al., 2020^[15]). For instance, Armenia, Georgia, Moldova and Ukraine have been working to strengthen political and economic links with the European Union and approximation towards legislation such as the EU's Water Framework Directive (OECD, 2021^[16]). The EU Industrial Emissions Directive (IED) and the Environmental Liability Directive (ELD) have driven efforts to improve environmental legislative set-ups for compliance assurance in many Eastern Europe and Caucasus countries (EU4Environment, 2021^[17]). Meanwhile, Eastern Europe and Caucasus countries have been reforming environmental permits for large emission sources in compliance with EU IED, greening small and medium-sized enterprises (SMEs) and translating recommendations into actual changes to environmental regulations (EU4Environment, 2021^[17]).

Reforming institutional arrangements to promote a green economy transition

Many EECCA countries have restructured government ministries and agencies. Within these processes, countries have strengthened the status, mandates or functions of the environmental ministries and agencies:

- **Moldova:** within the new governmental structure, adopted by Parliament in 2021, the Ministry of Environment was restored as a separate institution. It has become the central body for the development and promotion of national policies in environmental protection and rational use of natural resources. The ministry has approved 62 posts, doubling its staff. Conversely, 29 experts work on the environment within the Ministry of Agriculture, Regional Development and Environment.
- **Ukraine:** after prolonged institutional reform of environment administration, during which the Ministry of Environment was first merged with the Ministry of Energy, Ukraine re-established a separate Ministry of the Ecology and Natural Resources.
- **Kazakhstan:** The Ministry of Ecology, Geology and Natural Resources in 2021 was re-established; it had been part of the Ministry of Energy and the Ministry of Agriculture since 2019.

- **Kyrgyzstan:** As part of government restructuring in 2021, Kyrgyzstan changed the State Committee on Ecology and Climate into the Ministry of Natural Resources, Ecology and Technical Supervision.

The development of national-level strategies and policies on a green economy transition has in many cases also been accompanied by the creation of inter-ministerial co-ordination mechanisms. These mechanisms aim to help integrate cross-ministerial dialogue of green and environmental considerations into development policy processes. **Georgia** has added “Sustainable Development” to the official name of its Ministry of Economy. **Moldova** and **Kyrgyzstan**, respectively, created inter-ministerial committees that co-ordinate policy processes on greening economic development. The Government of **Ukraine** established an inter-service governmental working group on the European Green Deal in January 2020 (Holovko, 2021^[49]). The official high-level dialogue between Ukraine and the EU also began in 2021, led by the Ukrainian Deputy Prime Minister and the EU Deputy Director-General for European Neighbourhood and Enlargement Negotiations (Holovko, 2021^[49]). These are also examples of initiatives that have attempted to place the green agenda closer to economic and financial decision-making bodies.

Greening the post-COVID-19 economic recovery in EECCA

The COVID-19 pandemic has been a major economic and jobs crisis in addition to an enormous human health crisis. The economies of EECCA have been facing the severe recession with long-lasting repercussions for citizens, businesses and governments. The war in Ukraine has added challenges to EECCA countries’ effort for economy recovery from the COVID-19 pandemic. However, the ambition of making the economy compatible with climate targets should stay the course and not be scaled back. The countries are well aware of the urgent need to address key environmental and societal challenges, such as climate change and biodiversity loss. Furthermore, EECCA countries increasingly recognise that measures to spur low-carbon economic development should also help improve energy security. To that end, they should promote diversification of the energy mix and improved energy efficiency (OECD, 2021^[50]; Berlin Economics & OECD, 2022^[43]).

A focus on green economy in responses to, and recovery from, the COVID-19 pandemic in EECCA

In response to the COVID-19 pandemic, EECCA countries continued support for a green economy, including helping firms and industries transition towards low-carbon models. For instance, in **Georgia**, despite competing priorities and limited fiscal space, pre-pandemic plans to install clean energy in public buildings and encourage green transport alternatives continued and accelerated during the first waves of the COVID-19 pandemic. The government of **Ukraine** made support for the country’s energy sector conditional on energy efficiency improvements and the integration of renewable energy sources. For its part, Georgia’s Rural Development Agency incentivised its beneficiaries to adopt resource and energy efficiency practices. EECCA countries also integrated green stimulus measures into their broader recovery packages (Box 3.2).

Box 3.2. Good practice example: Integrating green stimulus measures into broader recovery packages in EECCA

The Green Action Task Force, hosted by the OECD, conducted several studies on green stimulus measures in the EECCA region. One study assembled a comprehensive database of measures to help identify how EECCA countries' efforts to recover after the COVID-19 crisis have influenced their green economy plans. By assessing the environmental impacts of measures put in place in response to the pandemic, the Task Force provides transparency, presents new evidence and suggests ways to strengthen green recovery efforts. Selected examples follow:

- In **Armenia**, the government created a short-term employment programme in the agricultural sector. The programme aims to simultaneously create jobs for vulnerable communities, and to improve resilience and water quality through reforestation of riparian zones.
- **Azerbaijan** supported activities to restore degraded lands for sustainable dryland agriculture.
- Georgia and Moldova provided financial support to micro, small and medium enterprises (MSMEs) that qualified as being innovative and green.
- In **Moldova**, the government supported development of villages in the Coşnița area as sustainable tourism destinations, thereby improving service delivery to the local community. It also launched a programme to support MSMEs affected by the pandemic and its economic impacts, and to accelerate the adoption of circular economy, energy efficiency and resource efficiency principles. Training, awareness raising and consulting initiatives aimed to encourage “eco-innovation” through green and circular business models.
- **Ukraine**, as part of its COVID-19 pandemic recovery package, sought to improve the energy efficiency of public buildings across the country, including hospitals and educational facilities. At the subnational level, Vinnytsia in Ukraine designed similar measures, encouraging retrofits of building stock to improve energy efficiency, and incentivising energy and resource efficiency in infrastructure projects across the region.
- **Uzbekistan** invested in infrastructure for improved water supply and sanitation, as well as irrigation through its Anti-Crisis Fund. The country has also provided financial support for energy efficiency improvements in industry.

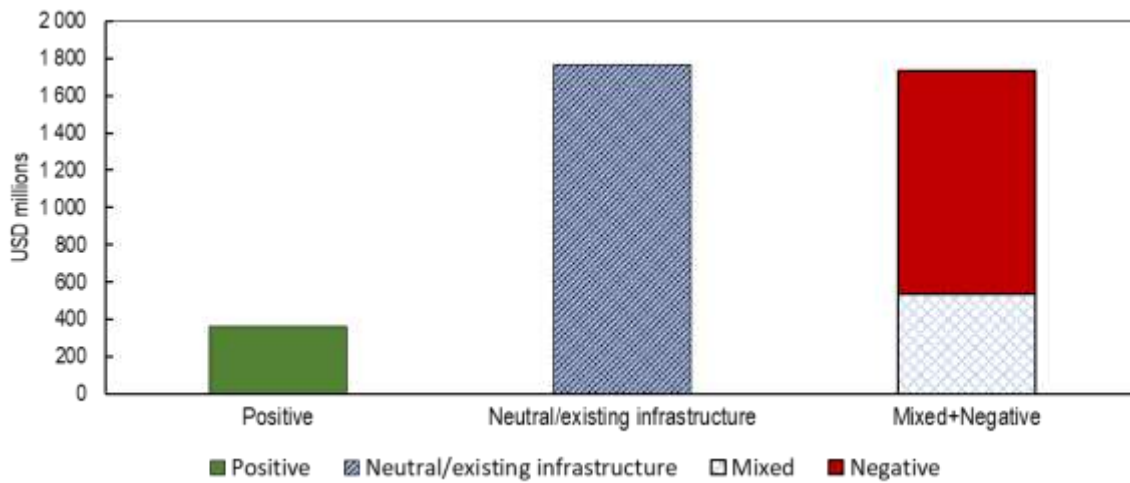
Sources: (Neuweg and Michalak, forthcoming^[18]), (OECD, 2021^[19]).

Stimulus packages still lean towards business-as-usual activities rather than towards transformational investments for green economy

OECD assessments show that more funding is allocated to post-COVID recovery measures with a mixed or negative environmental impact than to those with a positive one in the EECCA region. As shown in Figure 3.1, only approximately USD 360 million went to recovery measures with a positive environmental impact from the beginning of the COVID-19 crisis in 2020 to February 2022. Almost USD 1.7 billion was allocated to measures with a mixed or negative environmental impact (Neuweg and Michalak, forthcoming^[18]). The total funding volume allocated to measures with a mixed or negative environmental impact is almost five times larger than funding for measures with an environmentally positive impact.

Almost USD 1.8 billion was allocated to existing infrastructure or to measures unlikely to have a sizeable environmental impact. These trends however show that stimulus packages overall still lean heavily towards business-as-usual type activities, rather than the transformational investments required for green economy transition in the EECCA region.

Figure 3.1. Total funding allocated to COVID-19 recovery measures in EECCA countries by environmental category



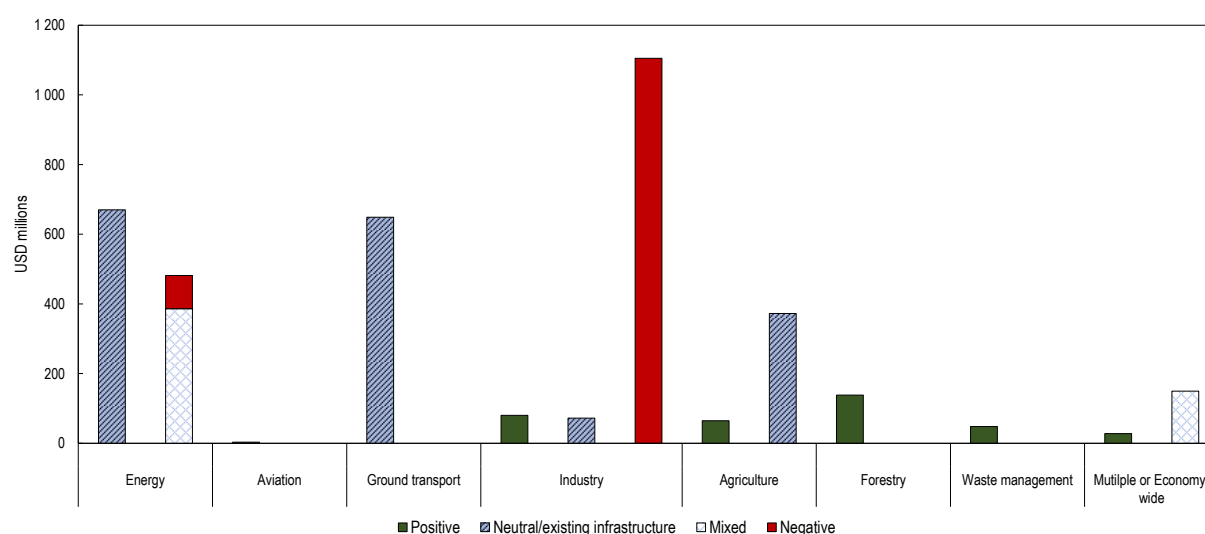
Source: (Neuweg and Michalak, forthcoming^[18]).

Broken down by sector (Figure 3.2), many such measures supported the energy industry (USD 670 million) and the ground transport sector (almost USD 650 million). The likely longer-term environmental impact of such support will be negligible. The measures only eased liquidity constraints of existing utilities and energy providers. They were not used to build new power plants, for example, or to repair existing roads. In short, they did not support the building of additional infrastructure.

At the same time, these measures help continue business-as-usual emissions (Neuweg and Michalak, forthcoming^[18]). Adequate support to keep systems running is necessary in a crisis. However, the pay-offs of such support measures will be small. Such initiatives need adequate incentives to reinvest part of the recovery money to modernise infrastructure and make it compatible with climate and energy targets. Any financial support to maintain polluting infrastructure is arguably a lost opportunity to develop low-carbon, climate-resilient alternatives.

The industry sector, closely followed by the energy sector, received the largest amount of financial support. Ground transport (more than USD 600 million) and the agricultural sector (more than USD 250 million) also received comparatively larger financial support. The aviation sector and forestry are the sectors for which the OECD study identified the least support.

Figure 3.2. Total funding allocated to COVID-19 recovery measures in EECCA countries by environmental category and sector



Source: (Neuweg and Michalak, forthcoming_[18]).

Measures with a positive environmental impact have supported projects in the industry, agriculture and waste management sectors and across the economy (Neuweg and Michalak, forthcoming_[18]). Examples include financial support to improve energy efficiency in industry in **Uzbekistan**; to restore degraded lands for sustainable dryland agriculture in **Azerbaijan** and **Uzbekistan**; to green SMEs in Moldova and finance MSMEs that are particularly innovative and green in Georgia; and to build sewerage facilities in **Uzbekistan** (Neuweg and Michalak, forthcoming_[18]; OECD, 2021_[30]).

The study also distinguishes between different types of recovery measures. It uses the following broad categories: tax reduction or other subsidies, except those for research and development (R&D); grant or loan (including interest-free loans and guarantees); regulatory change; skills and training; and R&D-specific subsidies. As the results in Table 3.2 show, most measures are grants or loans. The next biggest category is tax reduction or other subsidy, followed by regulatory changes (Neuweg and Michalak, forthcoming_[18]).

Table 3.2. Financial and policy instruments used to support COVID-19 green recovery measures in EECCA

	Positive	Neutral/ existing infrastructure	Mixed	Negative	Total
Grant/loan (including interest-free loans)	10	7	1	2	20
Research and development	1				1
Regulatory change	1			1	2
Skills training	4				4
Tax reduction/other subsidy	3	5	2	1	11

Source: (Neuweg and Michalak, forthcoming_[18]).

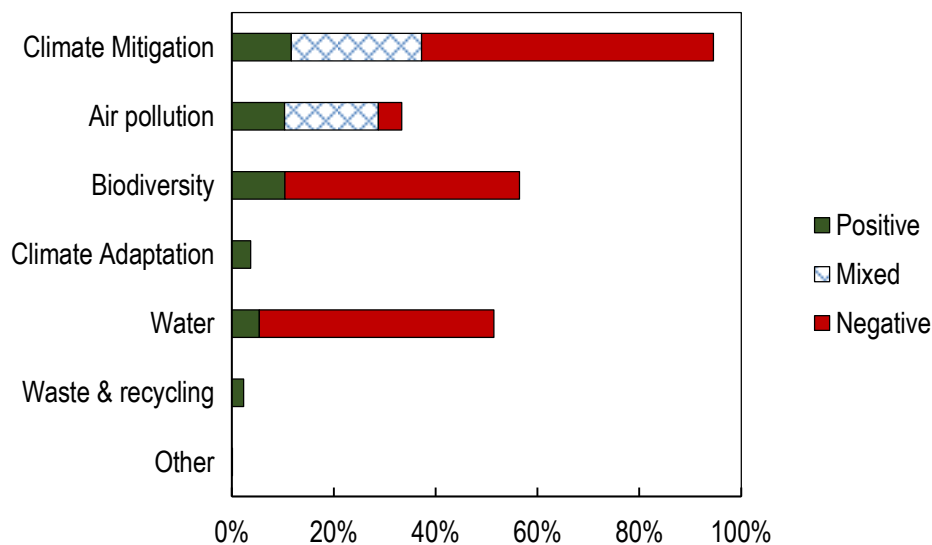
Green innovation is crucial to decarbonise economies, but the study could only identify one green R&D measure in recovery plans (Neuweg and Michalak, forthcoming_[18]). Around half of the CO₂ emissions reductions by 2050 need to be delivered by technologies not yet commercially available. The study also

identified one measure as an R&D subsidy – a capacity-building project for green hydrogen in **Ukraine**. However, only around USD 60 000 went towards this green R&D project.

Funding for green skills training amounts to only 0.11% of the total environmentally related recovery budget across the seven EECCA countries. Four measures identified by the study support green skills and training (Neuweg and Michalak, forthcoming^[18]). Skills training is essential to ensure a just transition to net-zero. Upskilling¹⁰ is also an important component of improving productivity and ensuring competitiveness in future. In addition, vocational training and re-skilling help workers to more easily absorb the structural adjustment of the economy that high energy and commodity prices may bring (OECD, 2022^[24]).

Recovery budgets with environmental consequences mainly affect climate mitigation (94%), biodiversity (58%) and water (60%) (Figure 3.3). The study also identified effects on air pollution for 31% of measures with environmental impact. Estimated effects on climate adaptation and waste and recycling were small (4% and 3%, respectively), albeit only positive. The environmental effects on climate mitigation, biodiversity and water are mainly negative. Of recovery measures, there is an estimated negative effect of 66% on climate mitigation, of 53% on biodiversity and of 53% on water. The effects on air pollution are mostly mixed (21%) compared to 5% negative and 4% positive estimated effects on air pollution.

Figure 3.3. Total funding allocated to COVID-19 recovery measures in EECCA countries by environmental dimension

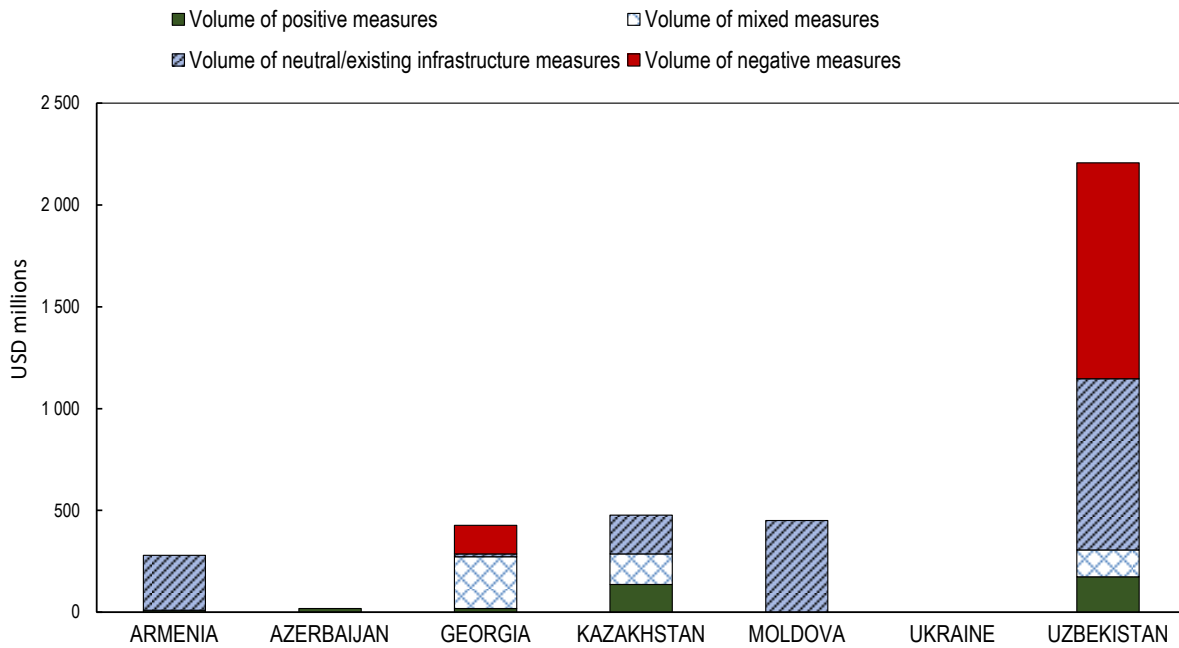


Note: For ease of understanding and clarity, the neutral/existing infrastructure category has been excluded from the analysis given the focus on environmental impact per environmental dimension here.

Source: (Neuweg and Michalak, forthcoming^[18]).

As shown in Figure 3.4, the size of green recovery measures varies by country. In Uzbekistan, the largest amounts by far (around USD 2.2 billion) were allocated to measures with an environmental impact. Uzbekistan has the largest size of both positive and negative measures.

Figure 3.4. Total funding allocated to COVID-19 recovery measures in EECCA region by environmental category and country

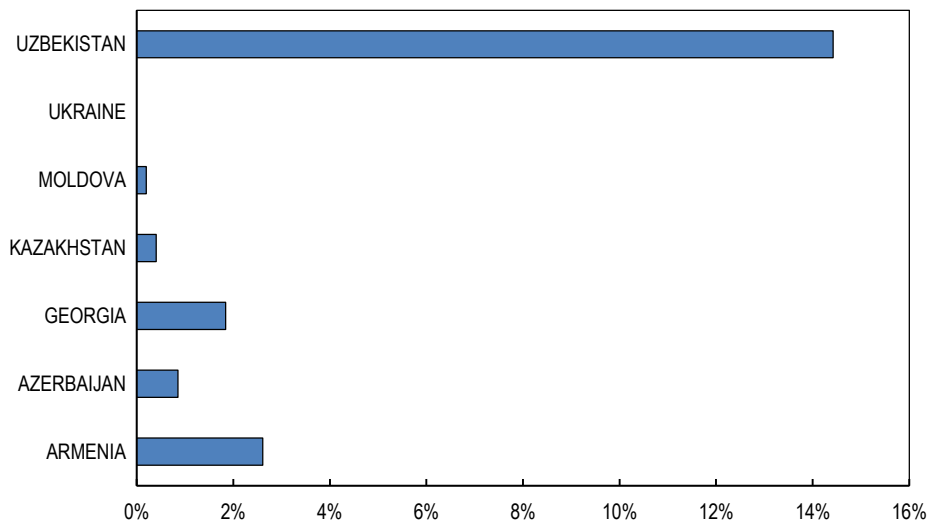


Source: (Neuweg and Michalak, forthcoming^[18]) (OECD, 2021^[51]).

Figure 3.5 shows spending with an environmentally positive effect as a percentage of total recovery packages per country. More than 14% of overall recovery spending in Uzbekistan is considered green compared to more than 2% in Armenia, almost 2% in Georgia and almost 1% in Azerbaijan.

Of the seven countries analysed, Kazakhstan put together a comparatively much larger stimulus package. However, it spent almost nothing on measures with a positive environmental impact. The assessment found little publicly available information on announced spending for the environmental measures identified in Kazakhstan, which could have affected results. In Ukraine, the assessment found only one green measure with little funding attached to it.

Figure 3.5. Volume of environmentally positive measures as percentage of total COVID-19 recovery spending in EECCA by country



Note: Some of the secondary data from the IMF was complemented with government spending reports.

Source: (IMF, 2021^[52]); (The Ministry of Finance of Ukraine, 2021^[53]); (Ministry of Finance of Uzbekistan, 2021^[54]) (Government of Moldova, 2020^[55]).

The COVID-19 pandemic severely impacted the global economy in terms of GDP, and also accelerated a re-evaluation of how economic activities are carried out. The pandemic profoundly disrupted economic activities. It forced companies and governments to revisit assumptions about in-person versus virtual tasks. As countries chart their course out of the economic downturn, they should ensure policy measures to stimulate the economy are aligned well with other important environmental and social objectives.

4. Promoting a green economy transition in EECCA: selected priority themes

This chapter discusses integration of green economy considerations into some of the key sectoral and thematic policy agendas. These include promotion of sustainable infrastructure towards a low-carbon economy and development of sustainable water management in the region. The chapter also discusses how the countries can further strengthen clear and comprehensive compliance and enforcement mechanisms for environmental regulatory frameworks.

Apart from overarching policy development on green economy transition presented in chapter 3, Eastern Europe, the Caucasus and Central Asia (EECCA) countries¹¹ have also been pursuing a range of actions on green growth at the sector and thematic levels over the past decade. Such sectoral and thematic approaches can present important and practical entry points for integrating green economy considerations into development of individual sectors and policy areas. While such sectors and thematic issues can be diverse, this chapter provides some of the key priority areas in the EECCA region, including sustainable infrastructure, sustainable water resources management and compliance and enforcement mechanisms for environmental regulations. Chapters 4 and 5 present progress made by the EECCA countries in collaboration with the GREEN Action Task Force, and remaining challenges, on respective policy areas. These chapters also highlight selected concrete examples of good practice from the region.

Investing in sustainable infrastructure

Developing infrastructure systems should support economic growth and the green transition in the EECCA region

Over the past two decades, strong economic growth in many EECCA countries has been driven by the benefits of market reforms. Exporters of fossil fuels and minerals have taken advantage of relatively high commodity prices in hydrocarbon and metals. There is, however, still significant scope to support the growth by developing and implementing infrastructure projects that support a green transition. Such projects could boost investment and employment, while addressing energy security concerns and contributing to progress towards long-term objectives of the Paris Agreement and the SDGs.

On the one hand, the infrastructure gap in EECCA countries combined with the economic downturn resulting from the COVID-19 pandemic and Russia's war on Ukraine represent a major challenge in the region. On the other, EECCA countries continue to face a more fundamental challenge. They must develop infrastructure systems that support economic growth and prepare for the transition towards lower GHG emissions and greater resilience to the effects of climate change. In many EECCA countries, marked service disparities between urban and rural districts undermine economic opportunities for rural residents.

In the energy sector, most EECCA countries are primarily concerned about energy security, which can be addressed through diversification of supply. Rising energy prices and supply disruptions caused by the war in Ukraine have highlighted the reliance of many countries in the region on Russian oil and gas imports (Chapter 2). In terms of power generation, renewable energy sources and, in the cases of Armenia and Belarus, nuclear energy are important components of countries' diversification strategies. However, implementation of renewable energy development plans has been sluggish in the region. Transmission and distribution systems also need to be further improved to reduce losses. At the same, countries need to enhance demand-side energy efficiency measures, such as for heating systems and building stock.

At present, the region faces constraints to economic growth and trade on several levels. In addition to poor quality transport networks, including ageing road and rail systems, there are numerous regulatory and policy barriers to cross-border flows. Increased investment in transport infrastructure is essential to facilitate integration into global value chains. It is also needed to take advantage of the region's strategic position along emerging transport corridor initiatives. These include the EU's Transport Corridor Europe-Caucasus-Asia (TRACECA) initiative, the ADB-led Central Asia Regional Economic Cooperation Programme and China's Belt and Road Initiative.

The industry sector has also been facing the need for energy efficiency measures and renewable energy sources especially at the on-site level. As infrastructure, industrial areas and large industrial facilities have shown great opportunities to generate solutions and knowledge for the green economy transition in the EECCA region (Box 4.1). For example, eco-industrial parks and the industrial symbiosis promote the development of sustainable infrastructure and energy systems by harnessing secondary use of "waste",

recovery of wasted heat streams, material reuse, recycling, and use of renewable energy systems for the own industrial park and its tenant companies. These types of business models are still at the early stage of adoption, showing a potential to be enhanced in the region.

Box 4.1. Good practice example: Eco-Industrial parks and industrial symbiosis as tools for developing sustainable infrastructure and green transition in Ukraine and Moldova

Under the EU4Environment programme, **Ukraine**, in collaboration with United Nations Industrial Development Organization (UNIDO), selected several pilot industrial parks to demonstrate the viability of eco-industrial park approaches – “Agromash” in Zaporizhzhia, “Bila Tserkva Cargo and “Aviation Plant (BVAK)” in Bila Tserkva, and “Patriot” in Sumy.

This pilot project facilitated resource efficiency and cleaner production (RECP) assistance for the resident companies of BVAK IP in Bila Tserkva. As a result, 82 options to improve residents’ savings were identified with the potential of cutting down electricity consumption by 15%, natural gas by 20%, solid fuels by 17%, and water use by 12%. 13% of the identified RECP options have already been implemented through companies’ own investments. The annual reduction in carbon dioxide associated with these options is 365.27 t CO₂eq per year, and savings amount to EUR 67 418 per year.

A part from individual companies’ potentials in RECP, multiple opportunities are identified through the eco-Industrial park concept. In **Moldova**, several collaborations between companies were identified within an industrial park, for instance: a joint procurement of certain raw materials by neighbouring companies; supply of by-products (paint/pigments) and using waste as raw material between two companies (one company becoming a customer of another one through industrial symbiosis. Other concrete examples are the use of common car washing services; an e-waste collection hub; using end-of-life wooden pallets to make furniture across the industrial park; or the common use of electric scooters.

Source: Eco-Industrial Parks project in Ukraine (2022) – SITUATION REPORT 2022. GEIPP-Ukraine Country Level Intervention (funded by SWECO), United Nations Industrial Development Organization (UNIDO), <https://geipp-ukraine.org/en/eco-industrial-parks-ukraine-situation-report/>; SOFIES (2022), Mission report- Validation of the Findings from the FEZ Assessment conducted in the Republic of Moldova. SOFIES - EU4Environment, UNIDO.

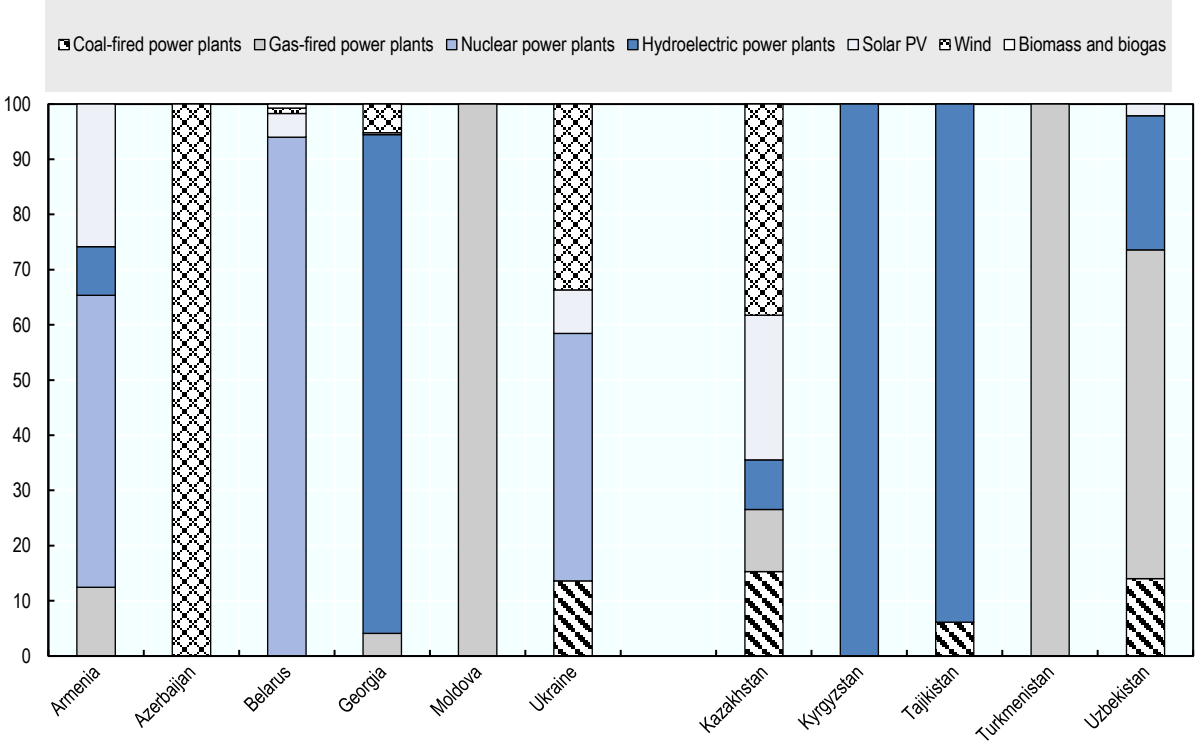
Many infrastructure projects in the region do not yet fully support sustainable development in the EECCA countries

Many infrastructure projects planned and under construction in the region do not yet fully support countries’ long-term development and climate objectives. In 2019, the OECD compiled a database tracking infrastructure projects worth approximately USD 546 billion in eight countries (Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan and Uzbekistan) (OECD, 2019^[28]). In 2020, the database was expanded to include all six countries of the EU Eastern Partnership (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine). It tracked projects in these six countries valued at USD 120 billion (OECD, 2021^[29]). The OECD analysed the projects captured in the database and reviewed strategic planning documents from across EECCA countries. In this way, it identified misalignments between planned project pipelines and stated sustainable development objectives.

Some large-scale energy projects have emerged that improve energy efficiency and integrate renewables into the energy supply. However, in most cases the slate of projects is not transformative enough and continues to perpetuate regional dependency on fossil fuels. With few exceptions, EECCA countries continue to invest heavily in power generation using fuels that dominate their existing energy mixes

(Figure 4.1). This trend contradicts stated objectives to diversify power generation capacity by integrating more renewable energy power generation capacity.

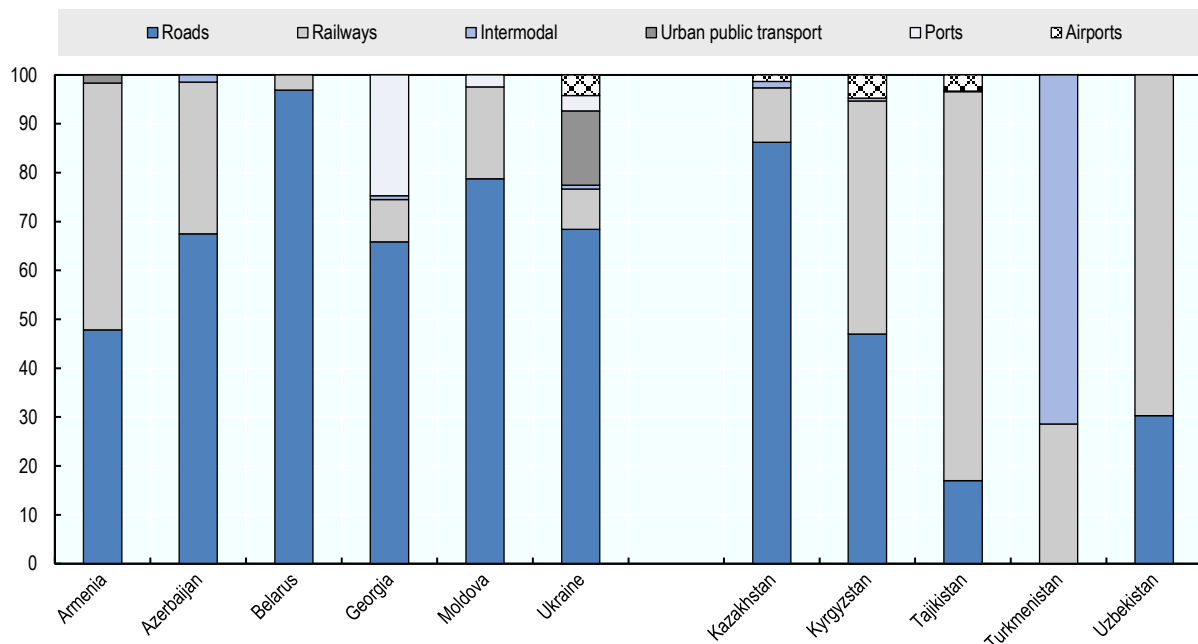
Figure 4.1. Proportion of planned and under construction power generation capacity by fuel (MW)



Note: Data for Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine from 2020; data for Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan from 2019.
 Source: (OECD, 2019^[28]; OECD, 2021^[29]).

Many transport projects in the EECCA region aim to refurbish road infrastructure and improve domestic connectivity. However, this could mean that rail systems in many EECCA countries will likely remain underinvested. To date, the modal share of cargo and passenger turnover, as well as investment priorities, shifts in favour of road transport (Figure 4.2). Most EECCA countries are investing more intensively in road projects than in other modes of transport.

Figure 4.2. Proportion of investments in transport-related projects by mode (planned and under construction) (in USD million)



Note: Data for Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine from 2020; data for Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan from 2019.

Source: (OECD, 2019^[28]; OECD, 2021^[29]).

Infrastructure challenges also exist in water sector. Infrastructure for water supply, sanitation as well as for irrigation in EECCA countries is generally under-developed. Where infrastructure exists, it is often in poor condition due to chronically under-funded maintenance and repair and a lack of systematic rehabilitation. The next section discusses some key issues about water-related infrastructure and broader policy frameworks on water resources management in the region.

Policy recommendations

Mainstreaming climate and development considerations in infrastructure investment decisions and strategies involves action on multiple fronts. They include upstream sustainable infrastructure planning, project prioritisation, financing and delivery and development of the enabling policy and regulatory frameworks, as highlighted in the following recommendations:

- **Link national and subnational level plans to the broader, long-term infrastructure investment strategy to provide more granular detail and lay out the options available to reach the country's overarching goals:**
 - Long-term economic development plans with clear priorities and targets are an important tool to guide policy makers and infrastructure planners. A cascading system of shorter-term and sector-specific strategies, development programmes and action plans at the national and subnational levels should accompany the broader, long-term strategy to provide more granular detail and lay out the options available to reach the country's overarching goals.
- **Develop long-term low-emission development strategies, as encouraged by the Paris Agreement, and integrate their objectives across other planning and policy making activities:**

- The strategy should be used to map out pathways to lower emissions and to evaluate policies, infrastructure projects and other strategies to ensure their alignment with the country's decarbonisation goals.
- **Engage with multiple state and non-state stakeholders to address inter-linked issues on climate change and other environmental issues:**
 - EECCA countries should seek to improve co-ordination mechanisms between ministries and agencies to develop integrated and cross-sectoral infrastructure strategies that account for the trade-offs and synergies between different SDGs, including climate action.
- **Bolster the systematic use of high-quality environmental impact assessments (EIAs) for major infrastructure projects and strive to use strategic environmental assessments (SEAs) to evaluate their policies and programmes:**
 - EIAs and SEAs can bridge the gap between high-level, long-term goals and near-term decisions related to infrastructure development by rigorously assessing how a given project or programme impacts efforts to achieve long-term goals.
- **Enhance capacity development, particularly in planning, modelling, project evaluation and monitoring:**
 - These capacities are essential to promote sustainable infrastructure projects across all levels of government.

Supporting sustainable water resources management and water supply and sanitation

The water sector in EECCA countries: Significant challenges today and in the future

As a horizontal issue touching all areas of the economy, water is a key pillar to support the transition to a green economy in EECCA countries and the well-being of the population. Since 2016, many EECCA countries have made significant efforts to make their national water policy frameworks more robust, pursue targeted investments and move towards the principles of integrated water resource management. Several EECCA countries have conducted National Policy Dialogues (NPDs) in collaboration with the OECD and the UNECE. These multi-stakeholder platforms have helped countries improve transparency of decision making, co-ordinate between government institutions and progress towards alignment with the Water Framework Directive (WFD) and related EU directives (OECD, 2016^[56]; OECD, 2021^[16]).

EECCA countries in collaboration with the OECD have also conducted several analytical work to understand the progress made on sustainable water management. For example, the OECD developed baselines to assess national water policy frameworks in **Georgia, Moldova and Ukraine** and current performance. This exercise also defined the long-term vision for their water sectors and fulfilment of requirements under the EU Association Agreements (Box 4.2).

Box 4.2. Good practice example: Developing a policy outlook for sustainable water management in Georgia, Moldova and Ukraine towards 2030

The OECD collaborated with **Georgia, Moldova and Ukraine** to baseline the country policy framework and current performance, as well as define the long-term vision and aspirations to 2030. This work was initiated in the context of ambitious strategic plans for their water sectors and fulfilment of requirements under the EU Association Agreements. The analysis demonstrated the likelihood of the current water policy framework to achieve the long-term objectives and desired future state of the water sector. It also identified opportunities for improving policy coherence and policies that could improve the likelihood of success.

Analysis of business-as-usual policy scenarios in the three countries identified a number of insights:

- Revenues generated with existing tariffs for water supply and sanitation (WSS) services are insufficient for improving the quality of water management.
- Where they exist, economic instruments (e.g. abstraction and pollution charges) are ineffective in driving water use efficiency and discouraging water pollution.
- Rural populations may be “left behind” with regard to WSS development.
- Water consumption patterns will remain inefficient, with wastage through distribution and use and unclear water allocation regimes.
- Water pollution is likely to increase and water quality will deteriorate with an associated impact on the loss of biodiversity.
- Governmental water resource management expenditure will likely be affected by the negative impact of COVID-19 magnifying the need to become more targeted and cost-effective.

Some scenarios also inform the programming of a recently launched EU4Environment – Water Resources and Environmental Data project (OECD, 2022^[57]).

Source: OECD (2021), Developing a Water Policy Outlook for Georgia, the Republic of Moldova and Ukraine, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/512a52aa-en>.

In the region, however, water management still faces a number of challenges. Water sector is typically fragmented with many actors involved and inadequate governance arrangements. National water strategies are generally insufficient or non-existent, while sector specific strategies (irrigation or water supply and sanitation) exist to varying degrees depending on the country. The need for policy coherence with the energy sector, agricultural reforms and socio-economic development at the river basin, national and regional levels is increasingly clear, while sound strategic planning taking into account climate change and international commitments such as SDGs can build confidence with the donor community.

Other examples of challenges include outdated design and construction standards that lead to building significantly over-sized water supply and sanitation (WSS) systems in rural areas. Some of the policy frameworks in the region have also provided counter-productive incentives to build assets in water risk-prone areas for which the governments act as the “insurer of last resort”. Poor water policy often contributes to this by increasing future financial liabilities, demand for finance and ultimately the financing gap.

Sustainable water resources management also needs a comprehensive approach that includes the demand side. There tend to be limited incentives for industries to invest in water efficiency and pollution prevention of wastewater discharges. Industries together with farming and urban areas are sources of pollution to water bodies increasing pressures on water accessibility and environmental impacts. Hence, the policy development should also target users as part of the national water management strategies,

overcoming constraints to apply enforcement and lack of incentive to prevent pollution and implement reuse and recycling of water, sustainable use of water sources and water efficiency in sectors like industry and agriculture. The future work should build on good examples that already exist in the region (Box 4.3).

Box 4.3. Good practice example: Better water management at user level reduce water demand and water pollution.

149. Under the EU4Environment programme, Armenia and Georgia, for example, collaborated with UNIDO to assess the benefits of resource efficiency in small and medium sized enterprises (SMEs) from several sectors, including water use. This exercise highlighted multiple good practices as below, which some of the participating SMEs have implemented, or are expected to implement, to generate improvement in water use and wastewater quality.

- In **Armenia**, a producer of toilet paper, paper towels and napkins, can reduce its environmental impacts of wastewater discharges by incorporating the recovery of dissolved material initially discharged in water streams with no treatment. By recovering this material which can be reincorporated to the production, the company will have the benefits of increasing production efficiency, reduce cost of wastewater treatment and can start the evaluation of a “closed loop” water recirculation system.
- In **Georgia**, a company dedicated to fruits and vegetables processing including juices requires high water consumption for production, cleaning and utilities. A large quantity of water was disposed from the bottles washing machines. Through the installation of water recycling technology, this water is now internally cleaned and reused, reducing significantly the company’s water consumption.

Source: REC Caucasus Armenia. (2022). Resource Efficient and Cleaner Production in-plant-assessment report. REC Caucasus Armenia, EU4Environment, UNIDO; Energy Efficiency Center of Georgia (EEC). (2021). EaP Green monitoring and Business case, EEC - EU4Environment - UNIDO.

The water sector still lacks sufficient funding to support appropriate water management activities. Poor water policy often contributes to this challenge by increasing financial liabilities, demand for finance and ultimately the financing gap. Examples include outdated design and construction standards that lead to building significantly over-sized water supply and sanitation (WSS) systems in rural areas. Some policy frameworks in the region have also provided counter-productive incentives to build assets in areas prone to water risk for which the governments act as the “insurer of last resort”.

In EECCA countries, the water sector is typically fragmented with many actors involved and inadequate governance arrangements (OECD, 2016^[58]). National water strategies are generally insufficient or non-existent. Meanwhile, sector-specific strategies (irrigation or WSS) exist to varying degrees depending on the country. The need for policy coherence with the energy sector, agricultural reforms and socio-economic development at the river basin, national regional level is increasingly clear. At the same time, sound strategic planning that considers climate change and international commitments such as the SDGs can build confidence with the donor community.

A number of socio-economic, demographic and climatic factors also affect water management challenges. For instance, competition for water resources between different sectors of the economy has been increasing with rising scarcity of water in certain areas or at certain times. Water is often not efficiently allocated to priority uses or sectors where it can add the most economic value. Many EECCA countries also face high water losses, including through network distribution, as well as low water quality in some water bodies (OECD, 2016^[58]). Both issues are also exacerbated by lack of monitoring of water quantity and quality. There are also high risks to the population from outbreaks of water-related diseases. Meanwhile, water-related hazards, including floods, droughts, mud-flows and landslides, pose risks for human life, property and water infrastructure (OECD, 2016^[58]; OECD, 2021^[16]).

While EECCA countries share a common Soviet legacy, they are also linked by the transboundary watercourses that run through the region. This includes notably the Syr-Darya and Amu Darya Rivers in Central Asia and a number of rivers including the Kura, Dniester and Dniro in the Eastern Europe and the Caucasus region.

Central Asia, Eastern Europe and the Caucasus sub-regions face different water management challenges

Although part of the same system in the past, the countries in Central Asia¹² face different water management challenges compared to those in Eastern Europe and the Caucasus¹³. In Eastern Europe and the Caucasus countries, several countries have signed agreements with the European Union (OECD, 2021_[16]). For their part, Georgia, Moldova and Ukraine have signed Association Agreements, while Armenia has signed a Comprehensive and Enhanced Partnership Agreement. These agreements provide a framework for deeper political ties and stronger economic links with the European Union. Further, the European Council has decided in June 2022 to grant the status of candidate country to Ukraine and to Moldova, and to grant the status of candidate country to Georgia once the priorities specified in the Commission's opinion on the country's membership application have been addressed (European Council, 2023_[59]). They include commitments for approximation towards EU environmental legislation, including the WFD. OECD work on strategy development in Georgia, Moldova and Ukraine noted the countries have ambitious long-term strategic plans for their water sectors. These include fulfilment of requirements under the Association Agreements and international commitments including the SDGs.

Recent OECD work in Georgia, Moldova and Ukraine compared stated policy objectives to 2030 and mapped policy frameworks in each country to assess the likelihood of achieving the policy objectives (OECD, 2021_[16]). The objectives included SDG alignment, in particular the water-related SDG 6 concerning access to safe and affordable drinking water and sanitation services, and the Paris Agreement on climate change.

In Georgia, the OECD found legislative barriers are blocking progress of the draft Law on Water Resources Management; the country needs to consider future implementation and enforcement arrangements. The review in Moldova exposed a lack of financial resources and the need for better co-ordination of institutional and investment measures, aiming at economy of scale. They also identified the need to explore new financing mechanisms based on improved water demand management and taxation of water use and pollution. In Ukraine, the review identified sector fragmentation and absence of an overarching national water resources strategy to align sector priorities and strategic financing as a key challenge looking to 2030 (OECD, 2021_[16]).

For all three countries, the review recommended supporting policy reform through practical implementation, compliance monitoring and enforcement. They should give appropriate attention to supporting sustainable financing of water policy reform. In addition, they should support infrastructure development with prioritised strategic plans linked to financing and budgeting processes.

These challenges are not unique to Eastern Europe and the Caucasus. OECD work in Central Asia has indicated a variety of water management issues. These issues include lack of transboundary co-operation on water management; unbalanced and not adhered to flow regulation regimes; weak legal and institutional frameworks; lack of monitoring and evaluation; and insufficient research and development (OECD, 2021_[60]). In Central Asia, the countries also face a growing population, increased water withdrawals, and pressures stemming from climate change that are predicted to further contribute to future water scarcity.

Water management in Central Asia is complex and many challenges of 20 years ago persist today (OECD, 2021_[60]). Water scarcity coupled with governance and management challenges means the region is vulnerable to shocks, while at the same time increasingly exposed to the impacts of climate change.

Unpredictable water availability with more frequent and severe natural floods and droughts, a growing population and increasing extra-regional water withdrawals create urgency.

Regional co-operation will be at the centre of sustainable water management in Central Asia and presents significant opportunities for the future water security of the region. Improved governance frameworks, supported by national and regional monitoring of water resource availability and use, could improve water management potential significantly (Botta, Griffiths and Kato, 2022^[31]). To that end, they could leverage economic gains and deliver social benefits to improve the well-being of Central Asian citizens. Studies estimate that lack of co-operation on water management could cost the region more than USD 4.5 billion annually (Pohl, et al., 2017^[61]).

Improving the coherence of water management systems at all levels (end-user, sub-basin, basin, sector, national and regional) is required. This will include improving the accuracy of annual flow forecasts and long-term forecasts; addressing deviations from agreed water distribution plans, poor water accounting and idle discharges from hydropower and storage facilities; and harmonising water releases between energy and irrigation needs.

With water use efficiency a key challenge in Central Asia, policy makers should use water conservation techniques as a pillar to support sustainable water management (OECD, 2021^[60]). This is particularly true in the agricultural sector, which is the largest water user in Central Asia.

OECD work in Central Asia demonstrated the need to introduce economic measures to save water and leverage more effectiveness in water management and water use efficiency, and to encourage sustainability (OECD, 2021^[60]). Properly valuing water and reflecting this value in tariffs and through better use of economic instruments will be a crucial element of sustainable water management. This will build confidence and support investment in the sector.

Effective economic instruments can support national and regional strategies on water resource management in the EECCA region

OECD work has increasingly highlighted the need for economically and environmentally sound water strategies at national and transboundary levels (OECD, 2016^[58]). These strategies should be inclusive of all actors and water users, linked to economic and budgetary processes, and supported by effective economic instruments.

If properly designed and implemented, economic instruments for water management can play a crucial role in achieving water policy objectives. Such instruments include, for instance, licensing and charges for surface water and groundwater abstraction, and charging regimes for water pollution. In particular, they can provide incentives for conservation and more efficient use of water and mobilise additional financial resources for water management (by increasing revenues). In this way, they can enhance the financial sustainability of the water sector. By helping reduce the risks of water-related hazards, economic instruments can also contribute to wider economic development and sustainability (OECD, 2016^[58]). The use of economic instruments for water management in the EECCA countries needs to improve in terms of their design, implementation and enforcement.

Improved data and information is crucial for achieving water security in EECCA

With complex multi-stakeholder sectors, OECD analysis demonstrated the importance of monitoring and reporting in tracking progress, prioritising human and financial resources and securing political support for water policy reforms (Oshakbaev, Akisheva and Martoussevitch, 2021^[62]). Recent progress in **Kazakhstan**, for example, has identified water security priorities and established indicators to monitor and measure progress towards achieving water security. An OECD study found strong opportunities to mainstream water sector monitoring by linking to established data management and reporting processes

(Oshakbaev, Akisheva and Martoussevitch, 2021^[62]). This included through the identification of water security indicators that simultaneously related to the “nationalised” Green Growth Indicators (GGIs) and SDG indicators relevant to water security. Key challenges for future work in this domain included improving data collection and reporting. Moreover, water security indicators should be integrated into relevant policy documents, strategies and plans. This would secure the technical and political attention necessary to drive progress towards achieving water security and maintain linkages to established budgetary processes.

Given the horizontal nature of water and achieving water security, the OECD recommended a review of roles and responsibilities of key agencies for individual indicators. It also noted the need to improve the frequency and quality data collection and reporting systems to allow regular monitoring of the indicators. Amendments and additions should be introduced to the state statistical and sectoral reporting to help increase the frequency and quality of reporting. In addition, dedicated statistical surveys should be carried out where required.

The OECD also recommended to elaborate new or adjust existing legal regulatory acts to fine-tune data collection for monitoring national indicators of water security. This would be in line with such fundamental principles of statistics as transparency and independence. Finally, it recommended that Kazakhstan consider integrating the recommended set of priority indicators of water security into relevant strategic documents. Implementation of the recommendations would strengthen the information base for sound decision making aimed at improving water security of Kazakhstan (Oshakbaev, Akisheva and Martoussevitch, 2021^[62]).

Multi-stakeholder dialogues as a driver of the reform process

The OECD, in partnership with the United Nations Economic Commission for Europe and with financial support from the European Union and other donors, has successfully facilitated National Policy Dialogues (NPDs) on water in many EECCA countries. NPDs are policy platforms where stakeholders meet to advance water policy reforms. [See also (OECD, n.d.^[63]) for further details on NPDs.] They are driven by demand from the host countries and usually chaired by heads of government agencies, which demonstrates strong political commitment. A variety of stakeholders participate in the meetings. These range from ministries and government agencies and institutions to non-governmental organisations, development partners, the business community, parliamentary bodies and academia.

The following sub-sections provide examples of outcomes from NPDs in EECCA countries, such as legislative acts, national strategies, ministerial orders and implementation plans. The NPD platform then provides a useful peer review and consultation mechanism for monitoring implementation, collecting data and supporting analysis.

Armenia: Strategic planning to reform sanitation services

The OECD analysed Armenia’s sanitation services to propose reforms for the sector (OECD, 2017^[64]). This covered areas such as ensuring equitable access by all and identifying solutions that work for the poorest and most remote communities; generating economies of scale and scope; and reducing both investment and operational costs for the efficient delivery of sanitation services. In addition, it looked at how Armenia could move towards sustainable cost recovery for the sanitation sector by identifying how much funding can be mobilised from within the sector and how much external transfers are required. The study recommended robust strategic planning linked to appropriate financial mechanisms and supported by monitoring and tracking of progress.

The study found that Armenia’s sanitation services were inadequate (OECD, 2017^[64]). More than half (51%) of the population in rural areas used unimproved facilities, causing direct damage to the environment and exposing inhabitants to health risks (OECD, 2017^[64]). Urban areas had access but degraded sewerage-system infrastructure. This posed health hazards due to potential cross-contamination between

sewage and drinking water. Preliminary estimates demonstrated that EUR 2.6 billion of investments was required to meet Armenia's sanitation needs. About EUR 1 billion of this amount needs to be spent in the next seven to ten years (OECD, 2017^[64]). Clearly, this investment would have to be prioritised and spread over time. It would need to target use of limited resources and work to avoid further deterioration of infrastructure and increase of the financing gap.

The study showed that required investments in infrastructure would generate an approximate EUR 52 million in additional operation and maintenance costs per year (OECD, 2017^[64]). It recommended a targeted approach that focused first on areas of greatest need and/or on those that offer the best benefit to cost ratio. Subsequently, it could take incremental steps towards achievement of overall sectoral goals.

The study also identified a number of development funds that local governments might approach to fund their sanitation projects. However, it also considered alternatives to existing (or planned) financing channels. For example, it suggested there was scope for a dedicated fund for sanitation, focusing on rural areas since they faced many of the challenges.

The study recommended encouraging the National Statistical Service to strengthen its surveys. This, in turn, would support strategy implementation and prioritisation of investments and interventions. In addition, it should improve statistics on the volume of wastewater discharged without pre-treatment. Furthermore, it should include a separate question in the annual household survey to reflect household expenditure on water and sanitation. Other supporting mechanisms included ensuring the strategy is reflected in legal and contractual frameworks. This may include reforming the legal framework for sanitation i.e. developing a unified and comprehensive legal act to regulate the sanitation sector. This could be achieved through a separate legal Act or through a new chapter in the Water Code of the Republic of Armenia.

Georgia: *Strengthening economic instruments for driving the policy reform process, improving the financial health of water sectors and providing incentives for water conservation.*

After Georgia signed an Association Agreement that committed the country to align with the EU's WFD, the OECD (2018^[65]) identified three economic instruments for water resources management as candidates for future reform:

- introduction of a licensing regime and charges for both surface water and groundwater abstraction
- restoration of a licensing and charging regime for all forms of water pollution
- more rigorous enforcement of these measures, including more active monitoring and higher fines for offenders.

OECD work under the EU Water Initiative Plus for Eastern Partnership Countries (EUWI+) Programme¹⁴ from 2016 to 2021 helped Georgia progress towards charging regimes for surface water. These charges could create an incentive for water abstractors to minimise their use of water, and reduce its waste and loss in transit. Abstractors could also be encouraged to pass on these charges to final users who, in turn, have an incentive to economise on consumption. If set at adequate levels, abstraction charges can signal the real resource cost of the water. Abstraction charges or taxes are also a source of financial revenues. They enable funds to be raised either for water resources management (charges), other environmental improvements or for general public expenditure (taxes).

The OECD identified creation of a comprehensive and effective licensing regime as essential before the introduction of viable abstraction and pollution charges. Work on a draft Water Law provides the legislative grounding for this regime. However, Georgia will need to strengthen its monitoring and enforcement capacities, or in certain cases create them to support effective implementation. Other economic instruments for possible development in Georgia include:

- 1) raising tariffs for water supply, sanitation and wastewater collection and treatment to cost-recovery levels, with an accelerated programme of metering for water users. This action would

generate more funds for investment in new wastewater treatment plants, which are urgently needed to curb surface water pollution. They would also create incentives for more careful and efficient water use by consumers.

- 2) raising irrigation charges, with a more vigorous effort to collect fees to promote water use efficiency in agriculture. This is particularly important in regions exposed to seasonal low water and vulnerable to climate change.
- 3) exploring with Azerbaijan the feasibility of cost- and benefit-sharing projects to reduce pollution of transboundary rivers and lakes. Pollution of rivers and lakes in Eastern parts of Georgia is of concern both to Georgia and to the downstream parts of Western Azerbaijan.
- 4) exploring the feasibility of creating an Environmental Fund, including its scope, potential beneficiaries and the various options of financing it. Environmental Funds can be funded from various sources, which in some cases includes earmarking some proceeds from the abstraction and pollution charges.

Kyrgyzstan: Use of economic instruments for water resource management

Through NPDs, Kyrgyzstan committed to reform use of economic instruments for water resources management (OECD, 2016^[66]). The reforms would strengthen incentives for improving water use efficiency to better balance growing demand for water with available fresh water resources. In this way, it would ensure greater levels of security of water supply. The reforms could also help make the water sector more financially autonomous and less dependent on state support.

An OECD study concluded that implementation of recommendations in Kyrgyzstan would have three outcomes (OECD, 2016^[66]). First, it would help mobilise substantial additional financial resources for water resource management through fiscal revenue and tariffs. Second, it would contribute to a greater degree of financial sustainability for Kyrgyz water utilities (Vodokanals). Third, it would reduce the state irrigation system's dependence on public subsidies for operation and maintenance (O&M) of water networks (OECD, 2016^[66]).

This work led to the 2020 passing of Resolution No. 330 on a new Programme of Water Supply and Sanitation Development till 2026 in the Republic of Kyrgyzstan. In addition to the new programme, the government approved delivery and approval of a draft methodology for setting fees for surface water abstraction and for the use of surface water bodies. It also developed recommendations on estimating the monetary value of environmental damage caused to water bodies.

Box 4.4. Good practice example: Priorities identified through multi-stakeholder engagement in NPD in Kyrgyzstan

NPDs in **Kyrgyzstan** engaged a range of government officials working on water and other sectoral issues. Discussion focused on, among other issues, economic instruments for water resources management. The table below highlights stakeholder priorities identified through the NPD for economic instruments.

Economic instruments discussed through the NPD	Key findings
Surface water abstraction charges (including non-consumptive uses)	Introduction of surface water abstraction charges for both consumptive and non-consumptive uses (initially for big industries and hydropower stations only) would help generate significant additional public revenues annually (from KGS 390 million to KGS 2.5 billion per annum) and create incentives for improving water use efficiency.
Environmental pollution fees	The proposed reform of environmental pollution fees would help reduce water pollution from point sources e.g. wastewater discharges.
Tariffs for irrigation water and for urban water supply and sanitation	The financial sustainability of water services – irrigation as well as water supply and sanitation services – could be addressed primarily through the restructuring of water tariffs (introduction of two-part tariffs with fixed and variable volumetric components), as well as an increase in tariff rates.
Product tax (including import duty) on selected products that contribute significantly to diffuse water pollution in Kyrgyzstan.	Pollutants that most contribute to diffuse (non-point source) pollution of water resources included pesticides, mineral fertilisers and machinery lubricants with mineral oil. Introduction of a product tax and equivalent custom duty levied on selected products – particularly on agricultural chemicals with rates dependent on toxicity class and on lubricants – might help reduce diffuse water pollution. Additional public revenues generated by this instrument (estimated at KGS 50-85 million per annum) could strengthen more cost-effective forms of state support to agriculture and the water sector (e.g. more efficient irrigation techniques and better rural infrastructure, including rural water supply and sanitation).

Source: OECD (2016), *Reforming Economic Instruments for Water Resources Management in Kyrgyzstan*, <https://doi.org/10.1787/9789264249363-en>.

Kazakhstan: Large-scale multi-purpose water infrastructure

Increasingly, water infrastructure is used for more than one purpose, leading to the term “multi-purpose water infrastructure (MPWI)”. MPWI encompasses all constructed water systems that can be used for more than one purpose for economic, social and environmental activities. This includes dams, dykes, reservoirs and associated irrigation canals and water supply networks. Worldwide, there are more than 8 000 large MPWI systems by design. In addition, a significant number of systems operate as multi-purpose although they were designed for single purpose use.

Inspired by NPDs in Kazakhstan, the OECD explored the complexity in designing, financing, regulating and managing MPWI projects. This work aimed to inform policy and decision making and make MPWI schemes more attractive from inception. It examined several principles, approaches and instruments to enhance the sustainability of MPWI, drawing on international experience. This led to an OECD study in Kazakhstan that used a computer-based hydro-economic model to inform decision making. It identified knowledge and experience gaps, needs for further research and possible areas of future work (OECD, 2018^[67]).

Box 4.5. Good practice example: Key policy areas for increasing confidence and performance around MPWI

To make MPWI schemes more attractive from inception, decision makers and financing bodies need more confidence in multi-purpose infrastructure projects. They lack confidence due to the perceived risks of working with multiple stakeholders and competing uses for water. MPWI also has a poor track record of selecting appropriate business models for both financing, operation and maintenance (O&M). Furthermore, it has a historic underperformance in meeting financial and performance targets. Policy makers can improve confidence and performance around MPWI through addressing the areas presented below.

Policy focus area	Recommendation
Planning and decision making	Up-front strategic impact assessment and strategic environmental assessment can enhance the economic, environmental and social sustainability of MPWI projects. Costs and benefits should be analysed prior to any design. The analysis should incorporate social and environmental impacts through, for example, the use of non-market valuation techniques to understand the full cost and value of the MPWI.
Stakeholder management and competing water uses	A major challenge for MPWI is allocating water among competing users, plus distributing risks, costs and benefits fairly among stakeholders. Early stakeholder consultation and co-operation is critical for the success and sustainability of MPWI projects. Participatory tools, such as water supply agreements, approved water allocation rules, Memoranda of Understanding and policy dialogues, can be incorporated to engage key stakeholders and improve management of water with competing uses.
Business models and financial challenges	MPWI projects present specific financial challenges due to the high up-front costs and low financial returns even if overall economic returns are large. Some components might be not financially profitable under strict market conditions. The choice of a sustainable business model needs to account for specific sets of water uses, foreseen risks and externalities, risk mitigation options, the stage of project (investment phase versus routine O&M), financial viability, financing sources and available subsidies. Any proposed business model should aim to use a combination of taxes, tariffs and transfers (“the 3 Ts”), to recover at least the full supply costs of the MPWI. Split ownership, which separates profitable and unprofitable components, is an emerging model to consider. This would allow a private entity to own the bankable component, while public agencies can provide a subsidy for the project.

Source: OECD (2018), Strengthening Shardara Multi-Purpose Water Infrastructure in Kazakhstan, <https://doi.org/10.1787/9789264289628-en>

Policy recommendations

Water resource management is a horizontal issue touching all areas of the economy and EECCA countries' effort towards green economy transition. The countries could benefit from further enhancing several aspects of their strategies and legal frameworks on water, economic instruments for water management, finance and investment, and multi-stakeholder dialogues and promotion of multi-purpose water infrastructure:

- **Develop economically and environmentally sound water strategies at a national, sub-regional and regional level**
 - These strategies should be inclusive of all actors and water users, linked to economic and budgetary processes, and supported by effective economic instruments.
- **Design and implement economic instruments for water management in line with the countries' water policy objectives**
 - Well-designed and implementable economic instruments could provide incentives for conservation and more efficient use of water. They could also mobilise additional financial resources for water management (by increasing revenues), thus enhancing the financial sustainability of the water sector.
- **Put greater emphasis on legal, regulatory and institutional frameworks that enable economic instruments to serve their intended purposes**
 - Work on reform of economic instruments must be supported by an appropriate enabling environment. This should include necessary legal, regulatory and institutional frameworks supported by necessary monitoring, reporting, compliance and enforcement activities.
- **Continue and enhance multi-stakeholder National Policy Dialogues (NPDs) on water**
 - NPDs have proven to be a sustainable and effective platform to advance policy reforms in EECCA countries. NPDs with appropriate political ownership and cross-sectoral representation can inspire policy reform studies and can be fed by robust analytical work and incorporate good international practice.
- **Recognise the cross-sectoral nature of water and multiple benefits and usages of related infrastructure, and enhance approaches to make multi-purpose water infrastructure development more financially viable**
 - Decision makers and financial institutions need to have increased confidence in, the benefits and viability of cross-sectoral, multi-purpose infrastructure projects.
 - Potential projects should be well scoped from inception in consultation with all possible actors and sectors of the economy, including energy and agriculture sectors.
 - Approaches to improve confidence include, for instance, up-front environmental impact assessment and strategic environmental assessment, involving different water users, as well as water supply agreements, approved water allocation rules and Memoranda of Understanding to be developed between different actors.

Building clear and comprehensive compliance and enforcement mechanisms for environmental regulatory frameworks

Recent progress in environmental compliance assurance systems in Eastern Europe and the Caucasus countries¹⁵

A well-functioning system of environmental compliance assurance has a multitude of societal and economic benefits (EU4Environment, 2021^[9]) (see also Box 4.6). Environmental compliance assurance refers to governmental activity aimed at ensuring the compliance of regulated entities with environmental

regulations. Its main functions are to promote voluntary compliance with environmental regulations; detect and reverse non-compliance; and impose penalties for non-compliance, where applicable.

Over the last several years, the economies of Eastern Europe and the Caucasus region have adopted new environmental compliance assurance legislation or are drafting new laws. Highlights include the following:

- Risk assessment methodologies for planned environmental inspections were adopted in **Armenia** in 2019, in **Georgia** in 2019, in **Moldova** in 2018 and in **Ukraine** in 2019.
- **Georgia** adopted the Law on Environmental Liability in 2021, which aims to establish the polluters' responsibility for remediating environmental damage along the lines of the EU Environmental Liability Directive.
- **Georgia** and **Moldova** have developed draft laws on industrial emissions aimed at establishing integrated permitting and control along the lines of the EU Industrial Emissions Directive.
- **Moldova** and **Ukraine** have new legislation aimed at strengthening environmental enforcement bodies. Moldova adopted government decisions on the Inspectorate for Environmental Protection and on the Environmental Agency in 2018. Ukraine has a draft law On State Environmental Control aimed at strengthening the State Environmental Inspectorate.
- **Moldova** adopted a Government Decision on Establishing Provisions on Maintaining a Government Control Registry in 2018, which established an online database of inspection plans and results for all sectors of the economy.

Armenia, Georgia, Moldova and **Ukraine** have association and co-operation agreements with the European Union¹⁶. They have been catalysts for legislative reform in the region. Environmental provisions extend to environmental governance and compliance assurance and include requirements to approximate many EU environmental laws. To support ongoing legislative reforms in the region, the OECD helped policy makers from the Eastern Europe and Caucasus countries participate in the EU Forum of Judges for the Environment (EUFJE) 2020 annual online conference, which focused on air pollution law. In addition, the OECD is supporting development of environmental liability legislation to Moldova.

Box 4.6. Activities for environmental compliance assurance

An environmental compliance assurance system is important for social and economic well-being. It protects public health and the environment and can help countries tackle global and domestic environmental challenges. Compliance assurance helps countries prioritise use of their resources and implement environmental policies at lower overall costs. It has economic benefits through reducing business risks and increasing investor confidence, stimulating innovation, creating jobs and promoting a level playing field among companies. In addition, compliance assurance promotes rule of law and good governance, transparency and citizen participation in environmental policy (European Commission, 2016^[68])

Environmental compliance assurance consists of the following activities:

- **Promotion of environmental compliance.** This comprises communication of the importance of compliance, assistance with compliance such as through advice, guidance and technical support, and incentives and rewards encouraging companies to comply.
- **Monitoring of environmental compliance.** This comprises planned and ad hoc on-site inspections of regulated entities, ambient monitoring, reporting of violations by the public and self-monitoring by regulated entities.
- **Enforcement of environmental compliance.** This comprises administrative and criminal sanctions for non-compliance. Some countries require non-compliant entities to remedy their environmental damage. This is the case within the European Union as established by the EU Environmental Liability Directive (ELD).

The environmental regulatory and permitting regime and the institutional set-up have an impact on environmental compliance assurance. The quality of environmental regulations and permits directly impact compliance behaviour. The institutional set-up usually consists of an environmental regulatory agency and an inspectorate and other institutions such as customs, the police, specialised law enforcement and audit bodies.

New compliance assurance institutions have been set up.

Environmental control and enforcement institutions have played an important role in promoting compliance and responding to non-compliance. **Georgia's** Department of Environmental Supervision (DES) within the Ministry of Environmental Protection and Agriculture of Georgia (MEPA), which was set up in 2013, ensures state control in the field of environmental protection and the use of natural resources, except for mineral extraction, mining activity, and radioactivity. Ukraine's State Environmental Inspectorate, subordinate to the Ministry of Environmental Protection and Natural Resources of Ukraine, carries out state supervision in the field of environmental protection.

Since 2016 several new compliance assurance institutions have been created, for example:

- **Armenia's** Environmental Protection and Mining Inspection Body (EPMIB) was established in 2017. The EPMIB monitors and enforces compliance with environmental and subsoil safety legislation. In a rather unique set-up, the EPMIB's activity is co-ordinated by the Inspection Bodies' Co-ordination Bureau within the Office of the Prime Minister rather than the Ministry of Environment.
- **Azerbaijan's** State Environmental Security Service was created in 2019. It is responsible for the protection of the environment and natural resources, except for subsoil. It is subordinate to the Ministry of Ecology and Natural Resources.

- **Moldova's** Inspectorate for Environmental Protection was set up in 2018 to oversee and control implementation of regulations in the area of environmental protection and use of natural resources. The inspectorate is subordinate to the Ministry of Environment.

The OECD published reports assessing environmental compliance assurance systems of Armenia and of Moldova in March 2022 in the framework of EU4Environment programme (EU4Environment, 2021^[10]; EU4Environment, 2021^[9]). These supported the optimisation of functioning of the environmental compliance assurance institutions. It is finalising the assessment report of Georgia's environmental compliance assurance system, which is expected to be published in November 2022. Brief assessment reports of Azerbaijan's and of Ukraine's compliance assurance systems are in the pipeline for 2022-23.

Some countries have improved information management systems and others plan to do so.

Most information management for environmental compliance assurance in the Eastern Europe and Caucasus countries remains manual. However, some countries have established electronic information management systems for environmental permitting, monitoring, enforcement and sharing of environmental information:

- **Georgia** has an electronic timber resource management system, an electronic fishing system, an Ambient Air Quality Portal, a water information system and a self-monitoring electronic system. It plans to introduce an electronic licensing system for natural resources and is also testing a geoportal.
- **Moldova** has an electronic one-stop shop for permits (the Automated Information System for the Management and Issuance of Permissive Documents, the Automated Information System "Waste Management", the "E-Pescuit" electronic system for fishing permits), an electronic Registry of Control to compile data on inspection planning and results, and an "EcoAlert" electronic application for environmental alerts from the public.

Other countries have plans to develop necessary electronic information management systems in the near future:

- **Armenia** plans to digitise its environmental permitting and to install an electronic control management system in the EPMIB.
- **Georgia's** DES plans to introduce an e-system for inspection management and risk calculation.
- **Ukraine's** State Environmental Inspectorate is trying to create an internal electronic system "Environmental Inspector", which will aggregate information on issued permits, monitoring, reporting and inspections.

Initiatives to share compliance assurance information with the public and to promote voluntary compliance

The Eastern Europe and Caucasus countries have been providing information on environmental regulations and environmental compliance assurance on line, such as on official websites of ministries and environmental inspection bodies. They have also been making use of social media such as Facebook. Some of the more creative initiatives for sharing information and raising awareness include the following:

- The mandate of **Armenia's** EPMIB includes awareness-raising measures and preventive measures such as provision of free advice and other methodological assistance to regulated entities, according to the 2014 Law on Inspection Bodies. The EPMIB adopts a plan of preventive and awareness-raising measures every year.

- In **Azerbaijan**, experts organise a weekly “Expert Hour” on the Facebook page of the Ministry of Environment and Natural Resources to answer questions from citizens.
- **Azerbaijan’s** Ministry of Environment and Natural Resources presents awards to compliant companies and plans to establish a medal to reward environmental protection activity.
- **Georgia’s** Environmental Information and Education Centre, established in 2013 within the MEPA, facilitates environmental and agricultural education, raises public awareness, supports the participation of the public in decision making and ensures access to information.
- **Moldova’s** State Registry of Control, created in 2018, publishes inspection plans and results for different economic sectors.
- **Ukraine** organises events where businesses share information and experiences of greening their operations. It has recently introduced incentives for businesses to undergo environmental audits.

Planned inspections are mostly set based on risk following newly adopted methodologies

The region has adopted risk methodologies for planning inspections since 2016, with specific approaches varying among countries (Table 4.1). This is an important step towards ensuring that planned inspections focus on the highest-risk entities and that resources are prioritised.

Table 4.1. Provisions of risk methodologies for planned inspections in the Eastern Europe and Caucasus countries

Country	Name of document and year of adoption	Minimum inspection frequencies	Factors for risk determination	Other notable characteristics
Armenia	Methodology and General Description of Criteria Determining Risks-Based Decree on the Risk Assessment Conducted by the Environmental Protection and Mining Inspection Body of Armenia (2019)	<ul style="list-style-type: none"> • high-risk: once a year • medium-risk: every 3 years • low-risk: every 5 years 	<ul style="list-style-type: none"> • sectoral risk according to the type of activity • individual risk based on inspection results 	<ul style="list-style-type: none"> • the EPMIB maintains and regularly updates a risk assessment database of all economic entities
Georgia	Order of the Minister of Environmental Protection and Agriculture of Georgia on the Approval of the Methodology for Determining the Priorities for Planning the Inspection of Regulated Facilities (2019)	<ul style="list-style-type: none"> • high-risk: once a year • medium-risk: every 2 years • low-risk every 3-4 years 	<ul style="list-style-type: none"> • results of investigations and assessments • regulatory documents • an entity’s activities including the history of compliance, inspection results, self-reporting and complaints received 	
Moldova	Government Decision on the Approval of the Methodology for State Control of Entrepreneurial Activity Based on Risk Analysis in Areas within the Competence of the Inspectorate for Environmental Protection (2018)	N/A	<ul style="list-style-type: none"> • the field/subdomain of the economic activity • the history of compliance • possession of environmental permitting documents and compliance with them • location, especially in relation to vulnerable environmental objects 	<ul style="list-style-type: none"> • applies to planning annual inspections, including their frequency and intensity; deciding on the need for ad hoc inspections; deciding on an appropriate response to a complaint about regulatory non-compliance; preparing inspection questionnaires; and strategic planning of

				control activity
Ukraine	Resolution of the Cabinet of Ministers no. 182 "On Approval of Criteria for Assessing the Degree of Risk from Business Activities" (2019)	<ul style="list-style-type: none"> • high-risk: every 2 years • medium-risk: every 3 years • low-risk: every 5 years 	<ul style="list-style-type: none"> • type of activity • category of activity with a significant impact on the environment • types of violations of environmental legislation over the past 5 years • the number of violations of environmental legislation over the past 5 years • the number of unscheduled inspections of the entity during the past 5 years • the number of cases of non-admission of the state inspector by the entity during the last 5 years 	<ul style="list-style-type: none"> • Ukraine's draft Law on Environmental Control plans to add a fourth, high-risk, group of entities

Source: Author's own elaboration based on the methodology documents.

The use of self-monitoring mechanisms and Pollutant Release and Transfer Registers has expanded

All countries of Eastern Europe and the Caucasus have self-monitoring and reporting by business entities. In **Armenia**, companies must provide quarterly reports on their emissions and face administrative penalties if they do so late. In **Azerbaijan**, industry representatives must submit air, water and hazardous waste information to the statistical agency on a yearly basis. In **Moldova**, economic entities must report on emissions into water and air, as well as on generated waste, to the Environmental Agency annually. Companies in **Georgia** are required to conduct self-monitoring and submit yearly self-monitoring reports to the MEPA on air, water and waste emissions. In addition, continuous self-monitoring of air emissions is mandatory as of June 2021 for highly polluting activities. In **Ukraine**, business entities either carry out self-monitoring voluntarily or based on specifications in permits or in EIAs. Inspections by the State Environmental Inspectorate consider results of self-monitoring.

Moldova and **Ukraine** have made progress in establishing Pollutant Release and Transfer Registers (PRTRs). Moldova's electronic PRTR register was developed in 2016; 75 operators registered for it in 2017, and another 188 did so in 2018. Moldova also adopted a regulation on the national PRTR in 2018. Ukraine launched its first PRTR in October 2021 (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021^[69]). It is available to all citizens through the EcoSystem website. Moldova and Ukraine both ratified the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Moldova on 23 December 2013 and Ukraine on 2 May 2016). Armenia and Georgia signed the protocol in 2003 but have not yet ratified it. Azerbaijan has not yet signed the protocol.

Some Eastern Europe and Caucasus countries plan to update their environmental penalties with the goal of increasing their dissuasive effect

Penalties for non-compliance generally are too low to prevent non-compliance in the region. Some countries have begun revisions to relevant legislation or are planning to do so:

- **Armenia** plans to revise its legislation on environmental damages.
- **Azerbaijan** is updating its 1993 law on payments from large pollution sources.
- **Georgia** is revising its penalties for air pollution.

- **Moldova** is revising the 1999 Criminal Code's chapter on environmental crimes and the 1984 Code of Administrative Offences.
- **Ukraine's** draft Law on State Environmental Control aims to increase environmental fines.

Work on environmental liability in the region is progressing to varying extents.

Georgia has emerged as a leader in the Eastern Europe and Caucasus region in terms of legislation on environmental liability. Georgia adopted a Law on Environmental Liability in 2021 and is developing relevant bylaws. The main features of this law are the following:

- The Law describes measures to prevent significant environmental damage, steps to follow in case of environmental damage, damage assessment, decision making and damage correction.
- Appendix I includes criteria for determining significant damage to biodiversity, land and water.
- Appendix II establishes activities that are particularly hazardous for the environment.
- The Law provides an opportunity for the public to comment on remedial measures for significant environmental damage.
- It requires polluting entities to undertake remediation measures for their environmental damage. They will need to produce remediation plans, the implementation of which will be overseen by the DES.
- The Law creates an environmental fund to collect environmental damage payments and spend them on environmental matters.

Moldova is also working on developing environmental liability legislation. EcoContact NGO is leading a project on revising legislation to include environmental liability provisions.

157. The OECD, under the EU4Environment programme, has organised seminars to support countries in the Eastern Europe and Caucasus region in developing capacity on compliance assurance. The programme has provided or is planning to provide the following support for establishing liability for environmental damage in the region.

- It organised training on "Identification and Assessment of Remediation Measures for Significant Environmental Damage and Preparation of a Remediation Plan" for Georgia's MEPA between 4-8 July 2022 in Tbilisi, Georgia.
- It hired an environmental law expert to provide analytical support to the EcoContact NGO in Moldova on incorporating environmental liability provisions in Moldova's legislation.
- It is organising a virtual regional capacity-building seminar on "Liability for Environmental Damage: From Policy Design to Application" on 14-15 September 2022.
- Upon the OECD's request, IMPEL has opened up to the Eastern Europe and Caucasus countries events of its project "Criteria for the Assessment of the Environmental Damage" and the "Practical Perspectives on Waste Enforcement Planning and Inspections with a Focus on Forensic and Damages Analysis Relating to Waste Crime". This included a presentation of the ongoing BIOVAL project on evaluating ecological damage (a joint project of EUFJE, IMPEL, the European Network of Prosecutors for the Environment and KU Leuven University).

Box 4.7 also provides seminars and training in various areas related to comprehensive compliance mechanisms.

Box 4.7. Good practice example: Enhance capacities in compliance assurance

The OECD, under the European Union for Environment (EU4Environment) programme, has organised training and seminars to support countries in the Eastern Europe and Caucasus region in developing capacity on compliance assurance. For instance, to support development of risk-based approaches to environmental compliance assurance in the Eastern Europe and Caucasus countries, the first EU4Environment Action regional seminar, held virtually on 25 November 2020, focused on risk-based approaches.

EU4Environment programme organised a virtual capacity-building seminar on joint environmental inspections on 23 June 2022. All countries of the Eastern Europe and Caucasus region participated. Its third regional environmental compliance assurance seminar, tentatively planned for November 2022, will focus on Inspections for Effective Monitoring and Enforcement of Environmental Compliance.

To support development of electronic information systems in the Eastern Europe and Caucasus countries, EU4Environment programme organised a capacity-building seminar on Information Systems Used by Permitting and Inspection Authorities on 23 July 2021 in collaboration with the Scottish Environmental Protection Agency.

To support ongoing initiatives on self-monitoring, EU4Environment programme facilitated the participation of Eastern Europe and Caucasus countries in the virtual IMPEL workshop “Strategies for Verification of Self-Monitoring and Reporting on Air Emissions” on 11 October 2021.

To facilitate the exchange of experiences on effective enforcement of compliance, the second EU4Environment Action regional compliance assurance seminar, held virtually on 17-18 November 2021, focused on “Policies and Tools for Enforcement of Environmental Compliance”.

Policy recommendations

The Eastern Europe and Caucasus countries will benefit from further developing several aspects of their environmental compliance assurance systems to build on the progress already achieved:

- **Continue efforts to improve the legislative base to ensure it provides enough incentives for companies to comply with environmental legislation or go beyond compliance.**
 - Eastern Europe and the Caucasus countries need to ensure that environmental laws are up-to-date and fit-for-purpose, coherent and free of discrepancies and contradictions.
 - Countries that have Association Agreements with the European Union need to accelerate the approximation of EU legislation. They must also access to best practices and capacity building, especially when introducing new concepts. These include integrated permitting and control, Best Available Techniques and environmental liability.
 - Consultation with and participation of the private sector and civil society in the development of environmental legislation should be enhanced.
- **Improve the institutional set-up for compliance assurance through increased co-ordination, streamlining, human and financial resources, better information systems and equipment, and measures to tackle corruption:**
 - Institutional co-operation between the permitting and enforcement institutions should be improved, for example, by regular communication between the two bodies, with the enforcement institution being able to comment on important environmental legislation and permits.

- Permitting and enforcement authorities must strengthen human capacity and improve their equipment, including sampling equipment and electronic technology.
- Electronic information systems must be available for key processes such as inspection planning and the logging of results, processing of environmental complaints, and tracking of violations and responses to them. In addition, it is important to share electronic permitting databases between environmental permitting and control authorities.
- Countries should redouble their efforts to ensure sufficient financing for compliance promotion and enforcement actions but must also take measures to prevent corruption in environmental control institutions.
- **Further enhance environmental inspections to make them more effective:**
 - The number of yearly planned and carried out inspections should at least be enough to cover high-risk entities and mechanisms are needed to ensure the same inspectors do not routinely visit the same sites.
 - There is room to further enhance the risk assessment methodologies for planned inspections such as ensuring a minimum frequency of visits, room for flexibility of risk assessments and a regular review of the risk assessment criteria.
- **Promote voluntary compliance through a wider range of tools:**
 - Countries are encouraged to improve online information and to undertake more proactive activities to raise public awareness of environmental regulations, penalties and institutional responsibilities in environmental compliance assurance.
 - They should apply more reward and recognition activities for compliant companies and provide incentives and explanatory activity on adopting Environmental Management Systems and green technologies.
- **Improve laboratory equipment, further develop self-monitoring mechanisms, and promote Pollutant Release and Transfer Registers (PRTRs):**
 - Equipment of laboratories that carry out environmental monitoring and sampling must be updated and improved, including automation and mobile sampling capabilities. Countries should continue creating and improving existing PRTRs.
 - Self-monitoring mechanisms must be promoted and ensured by conducting checks of regular self-monitoring reports. The report should be more frequently used in compliance assurance policy.
- **penalties for non-compliance to increase their dissuasive effect, as well as to improve transparency about their use:**
 - Penalties for non-compliance must have a sufficient deterrent effect on polluters. Environmental fees must be index-linked to inflation.
 - Comprehensive enforcement policy documents should be drawn up and made publicly available to ensure the consistency and transparency of penalties for comparable offences. They should include information on assessment and determination of offences and application of penalties, as well as any required follow-up.
- **Improve environmental liability legal provisions and application:**
 - Eastern Europe and Caucasus countries should continue adopting environmental liability provisions in their legislation to establish the responsibility of polluters to remediate

environmental damage. They must also continue creating a market for financial security instruments.

5. A focus on finance for green growth in EECCA

This chapter highlights key challenges and progress made to better use, redirect and mobilise further public and private financing to support environmentally sustainable and socially inclusive development in Eastern Europe, the Caucasus and Central Asia (EECCA) countries. It discusses how energy and fossil-fuel subsidies can be reformed to support green growth and address social implications of subsidy reforms in the region. It also highlights approaches to make public financial management more supportive of a green economy transition, including the use of environmental funds. Finally, it discusses recent developments in some EECCA countries on making domestic financial systems consistent with the Paris Agreement and the Sustainable Development Goals.

Finance is a crucial enabler for implementing action on a green economy transition in the Eastern Europe, the Caucasus and Central Asia (EECCA) countries¹⁷. Some EECCA countries increasingly recognise the scale of investment needs for their green economy transition, and have the technical understanding to estimate them. There has been an increasing awareness of the importance of better using scarce public funding and mobilising private-sector investments to support green growth in the countries over the past decade. In recent years, several EECCA countries have been advancing their policy agenda on finance mobilisation for green economy agenda from private, public, domestic and international sources.

Despite the progress, several key barriers still exist to scaling up investments in green economy transition. These comprise large up-front costs for such investments, prohibitive cost of capital, un conducive policy environments for finance mobilisation and difficulties in accessing international financing.

This chapter focuses on financing issues on which the OECD and the EECCA countries have collaborated over the past two decades. It highlights several issues from fossil-fuel subsidy reform, public financial management and catalysation of private-sector investment.

Reforming fossil-fuel subsidies to promote transition towards a green economy in EECCA countries

Phasing out fossil-fuel subsidies is a key policy instrument to tackle climate change, reduce pollution and contribute to long-term energy security in the EECCA region and beyond. Subsidies for fossil-fuel production and consumption distort costs and prices, leading to inefficiencies in the economy. This also often hinders investments in e.g. energy efficiency and renewable energy development. Such subsidies also increase fossil-fuel use, resulting in higher levels of greenhouse gas (GHG) emissions, air pollution and related health problems. These can inflict a high cost on society.

The governments of EECCA countries have historically used fossil-fuel subsidies to advance development by addressing “market failures” (OECD, 2021^[47]; Muta et al., 2021^[70]). These policy objectives include rural development and poverty alleviation, promotion of particular industries, and greater energy access, energy security and independence. These issues can be, unsurprisingly, politically sensitive. In Kazakhstan, for example, the government’s drastic cut of subsidies for liquefied petroleum gas and the resulting price hike for consumers triggered the largest protest since the country’s independence (Watters, 2022^[71]).

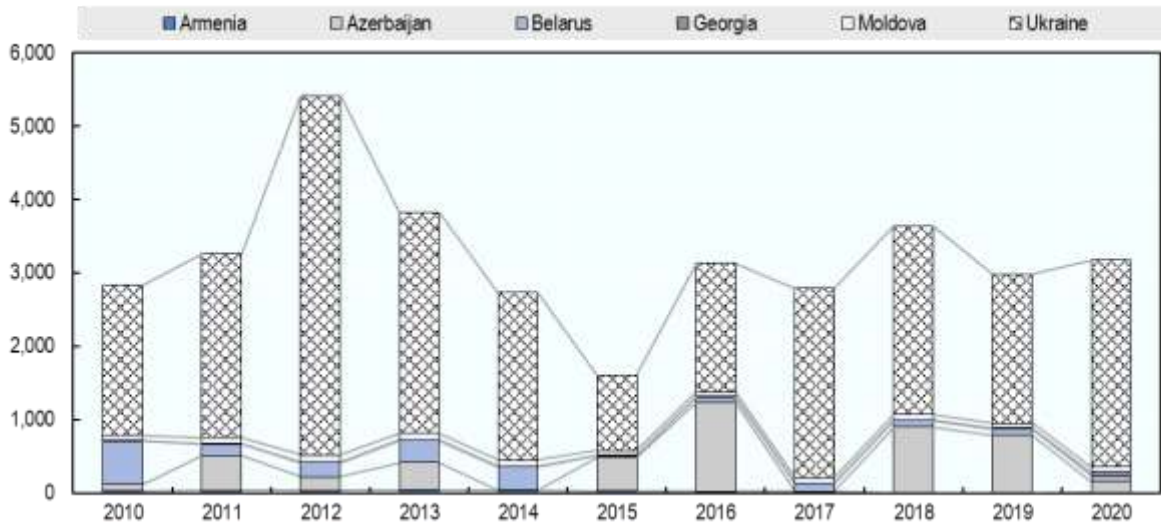
Obtaining robust evidence to support reforms of fossil-fuel subsidies is an essential building block of energy transition policies but remains a challenge in the region. Under the GREEN Action Task Force, the OECD prepared an inventory of energy subsidies in **Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova (hereafter “Moldova”)** and **Ukraine** in 2018 – the first comprehensive and consistent record of energy subsidies in the region (OECD, 2018^[72]). The study has provided enhanced transparency and a solid analytical basis that can help build the case for energy subsidy reforms in the Eastern Europe and the Caucasus countries. In 2021, the OECD conducted a new round of analysis entitled “Fossil-Fuel Subsidies in the EU’s Eastern Partner Countries: Estimates and Recent Policy Developments” as part of the “European Union for Environment” programme (OECD, 2021^[47]). These reports provide a clear overview of multiple types of fossil-fuel subsidies provided over the past decade in the Eastern Europe and Caucasus countries. Such subsidies include direct transfers of funds to producers and consumers of fossil fuels; and tax expenditure and other government revenue forgone.

Key findings and data from the Task Force work

Fossil-fuel subsidies in the Eastern Europe and Caucasus markedly fluctuated during the period 2010-2020 but in general remained at the same level in 2020 as in 2010 (Figure 5.1). The COVID-19 crisis made the Eastern Europe and Caucasus countries painfully aware of the need to mobilise significant additional funds to support their health systems and economies. Despite reduced economic activity and low energy

prices in 2019 and 2020, total government support to producers and consumers of fossil fuels in the Eastern Europe and Caucasus region increased by more than 6% from 2019 to 2020.

Figure 5.1. Quantified fossil-fuel subsidies in the countries of Eastern Europe and the Caucasus (USD million)

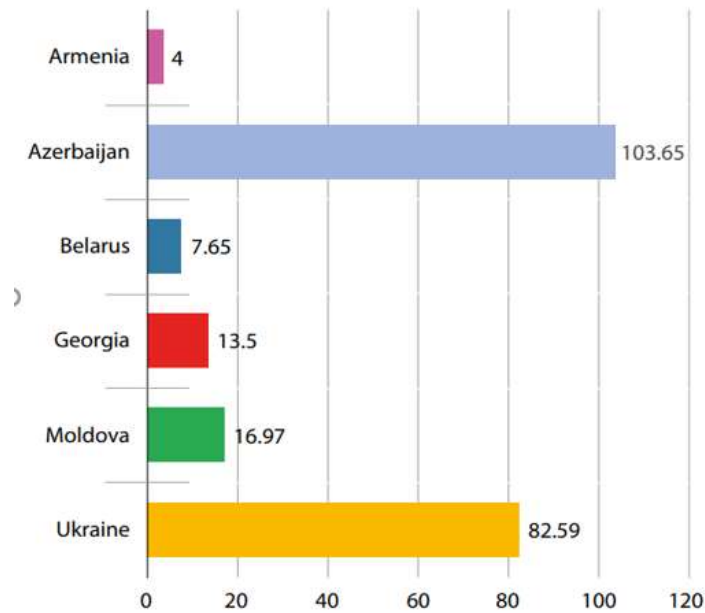


Note: Inventory records tax expenditures as estimates of revenue that is forgone due to a particular feature of the tax system that reduces or postpones tax relative to a jurisdiction's benchmark tax system, to the benefit of fossil fuels. Hence, tax expenditure estimates could increase either because of greater concessions, relative to the benchmark tax treatment, or because of an increase in the benchmark itself. In addition, international comparison of tax expenditures could be misleading, due to country-specific benchmark tax treatments.

Source: OECD Fossil-Fuel Subsidies database, www.oecd.org/fossil-fuels/data/.

The levels of fossil-fuel subsidies also vary markedly among the Eastern Europe and Caucasus countries (Figure 5.2). On a per capita basis, with about USD 104, Azerbaijan had the highest subsidies. Ukraine followed at USD 83 in 2020. Armenia had the lowest support levels of USD 4 per capita in the same year. At the sector level, more than 80% of total support was allocated to natural gas and electricity. Natural gas dominates the energy mix in the Eastern Europe and Caucasus countries and is the main fuel used in generating electricity and heat in the region. Most subsidy measures supported the residential sector in 2020 followed by support to the electricity generation sector. It is notable that Armenia and Moldova provided no support to producers (or importers in the case of Armenia) of fossil fuels.

Figure 5.2. Per capita fossil-fuel subsidies in Eastern European and the Caucasus countries (USD per capita, 2020)

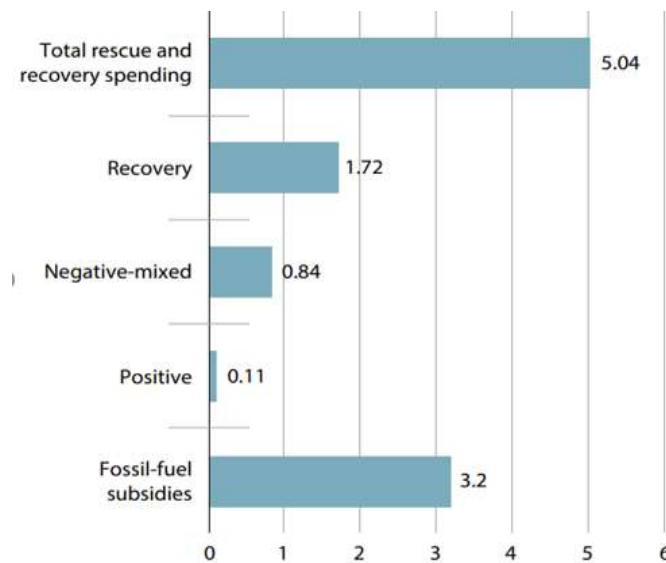


Source: OECD and IISD (n.d.) <https://fossilfuelsubsidytracker.org/>.

Fossil-fuel subsidies loomed large compared with the COVID-19 recovery packages put in place by the governments in the Eastern Europe and Caucasus region. As presented in chapter 2, rescue and recovery spending in these countries totalled about USD 5 billion in 2020 and 2021.¹⁸ Of this amount, longer-term recovery support amounted to USD 1.72 billion. Of the USD 1.72 billion, only USD 0.11 billion is estimated to have a positive environmental impact, while USD 0.84 billion was spent on measures estimated to have a mixed or negative impact on the environment.

In comparison, USD 3.2 billion of subsidies was allocated to support producers and consumers of fossil fuels in the Eastern Europe and Caucasus countries in 2020. With return to economic growth and rising energy prices in the international markets, the International Energy Agency, in its World Energy Outlook 2021, expects that consumer fossil-fuel subsidies may more than double in the coming years (Figure 5.3).

Figure 5.3. Recovery packages (2020-21) vs. fossil-fuel subsidies (2020) in Eastern Europe and the Caucasus countries (USD billion)



Source: (OECD, 2021^[19]).

Policy recommendations

Reforming fossil-fuel subsidies and support is a key policy measure to tackle climate change, reduce pollution and contribute to long-term energy security in the EECCA region. The countries could benefit from further efforts to rationalise energy and fossil fuel subsidies. Possible actions could include the following recommendations:

- **Embrace a holistic approach to reform of fossil-fuel subsidies:**
 - The governments in the region should build on reforms to date but need to design further reforms more holistically. The reform has to be well-designed and its short- and longer-term consequences need to be clearly understood. Experience from many countries shows that targeted support measures (e.g. to vulnerable households) deliver better results and ensure better energy affordability than untargeted subsidies applicable to all. Transparency and stakeholder dialogue are the cornerstone of subsidy reforms.
- **Review recovery measures put in place in response to COVID-19:**
 - In response to the crisis, governments needed to mobilise significant additional funds to support their health systems and economies. The Eastern Europe and Caucasus governments reacted quickly and sought to protect their citizens and businesses by putting in place crucial rescue and recovery packages.
 - OECD (forthcoming^[18]) shows that most such measures in the energy sector are largely concentrated in the end-use electricity sector. This is where countries and utilities have made commitments to avoid hardship during the crisis.
 - The countries can further review and incorporate green economy considerations into measures such as payment moratoria, late fee interest suspensions, additional assistance with bills or bans on disconnecting customers in arrears.
- **Undertake further study on “induced transfers”:**

- To complete the fossil-fuel subsidy picture, more analysis should be carried out on induced transfers, i.e. regulations that mandate fossil-fuel companies to sell their products to certain categories of consumers (e.g. vulnerable households) at below-market prices.
- **Improve reporting and transparency:**
 - Improving the transparency and credibility of data on fossil-fuel subsidies, including on tax expenditure in the energy sector, can help decision makers and the public at large design better reforms. Such work can create significant value if undertaken by countries on their own.
- **Draw on this analysis for international reporting obligations:**
 - The Eastern Europe and Caucasus countries report on fossil-fuel subsidies within the frameworks of the United Nations Sustainable Development Goals (SDGs) and the World Trade Organization. They may wish to consider using data and estimates in this OECD analysis as a starting point for such reporting obligations.

Enhancing public financial management for green finance mobilisation in EECCA

A crucial role for public financial management in promoting green economy transition

Development finance institutions and the private sector are expected to contribute a significant amount of financing to promoting businesses and investment in support of a green economy transition in EECCA countries. Yet, public finance still continues to play a critical role in providing the right incentive framework to stimulate increased demand for investments in support of climate and environmental action in the region. Although scarce, public finance can leverage significant external and private funds. In so doing, it can contribute to the achievement of priority policy objectives on climate, environment and broader development agendas in the region, if used in a cost-effective, transparent and inclusive manner.

There has been growing interest in green budgeting across the world. For instance, at the One Planet Summit in December 2017, the OECD launched the Paris Collaborative on Green Budgeting (OECD, 2017^[73]). This initiative works with governments, institutions and experts to embed climate and other environmental goals within national budgeting frameworks. It aims to design effective tools to assess and drive improvements in the alignment of national expenditure and revenue processes with climate and other environmental goals.

OECD work on environment-related public financial management in the EECCA region dates to the mid-2000s. The OECD has developed a number of policy tools to help governments manage their environmental subsidy programmes in a cost-effective way and in line with good international practices. Among the tools is the Handbook for Appraisal of Environmental Projects Financed from Public Funds developed under the EaP Task Force¹⁹ (the predecessor of the GREEN Action Task Force) (OECD, 2007^[74]). The Appraisal Handbook was based on the Recommendation of the OECD Council on Good Practices for Public Environmental Expenditure Management (PEEM) (OECD, 2006^[75]).

The Good Practices for PEEM provide guidance on how to design and implement public environmental expenditure, or subsidy, programmes. These good practices can also be used to evaluate the performance of Environmental Funds in terms of environmental effectiveness, management efficiency, fiscal prudence, transparency and accountability. The Appraisal Handbook complements the Good Practices for PEEM and provides a step-by-step approach to implementing the good practices in real life (OECD, 2007^[74]). The OECD also worked on green budgeting and on the integration of public environmental investment programmes into medium-term budgeting processes. This work was largely prompted by new approaches to budgeting adopted by the EECCA countries (including medium-term expenditure frameworks), as well as new approaches to aid delivery by international partners (via national country systems and sectoral and general budget support).

Progress on, and remaining challenges to, developing and financing public investments towards a green economy

Many EECCA countries began introducing medium-term budgeting processes more than a decade ago, which also involve ministries of environment (OECD, 2011^[76]). Most of the countries have extensive experience with preparing strategies and policies, as well as actual programmes to support environmental protection and resource management. These interventions, however, were often not properly costed or supported by specific implementation measures, such as financing strategies, market studies or feasibility analysis. Analytical tools, such as costing or cost-benefit and cost-effectiveness evaluation models, were rarely used in the programming process (OECD, 2011^[76]). Public investment programmes lacked clear and measurable environmental targets and benefits; performance indicators are not consistent across the years of programme implementation.

To fill these gaps, the OECD has moved a step further in its public finance work. The OECD has assisted the governments of **Kazakhstan, Kyrgyz Republic (hereafter “Kyrgyzstan”)** and **Moldova** to design

green public transport investment programmes in line with the OECD Council Recommendations on Good Practices (OECD, 2019^[77]). As part of this work, the OECD designed a model that supports the financial analysis of public investment programmes and their development. This model, Optimising Public Transport Investment Costs (OPTIC), allows calculation and optimisation of total programme costs, for both the public financier and private sector investors (see Box 5.1). The model also helps calculate the optimal level of the subsidy and the air pollution and GHG emission reductions that can be achieved through programme implementation. The model is an Excel-based analytical tool that can help the decision-making process become more objective and more transparent.

Further, credible statistical information on environment-related financial flows is an important basis to plan for, and monitor progress on, public financing for the countries' transition to a green economy. **Kazakhstan** and the OECD worked together to further improve the coverage, granularity and quality of statistical information on environment-related financial flows from the national budget and the private sector. The study examined how Kazakhstan's national statistical system works and how it can be further improved to better measure and understand financial flows that contribute to a green economy transition (OECD, 2020^[78]). This work has led to some amendments in Kazakhstan's statistical forms for investment expenditures and costs of environmental protection. These changes aim to improve granularity of green finance related information to be reported.

Box 5.1. Good practice example: Designing and implementing green public investment programmes – experience from Poland and the Czech Republic

Since 2012, the OECD has supported countries from the EECCA region in the area of energy efficiency of the housing sector (**Kazakhstan**), as well as clean urban public transport (**Kazakhstan, Kyrgyzstan and Moldova**). The OECD provided technical assistance and capacity building to public authorities in designing and costing green public investment programmes. It also supported complementary activities and requirements needed to successfully launch the programme's implementation.

One example of such technical assistance activities is a webinar entitled “Designing and implementing green public investment programmes: Experience from Poland and the Czech Republic” in 2021. The webinar was organised by the OECD organised, aiming to:

- facilitate knowledge transfer and experience-sharing between the European Union and the EECCA countries with regard to greening public expenditure
- help Moldova launch the designed green public investment programme targeted at more environment-friendly urban public transport based on the previous work
- support the initial stages of the OECD co-operation with the governments of Azerbaijan and Georgia with regard to designing and costing green public expenditure programmes, especially identifying and narrowing down a focus (sub-)sector where public support would be legitimate and cost-effective.

The webinar facilitated knowledge exchange from Poland and the Czech Republic. They had been learning how to use public resources effectively and efficiently to correct the vast environmental damages caused by the previous regime over more than 40 years. Further information can be found at: www.eu4environment.org/events/designing-and-implementing-green-public-investment-programmes-experience-from-poland-and-the-czech-republic/.

Increasing interest in dedicated public funds for climate and environmental action in EECCA

Environmental policy makers in many EECCA countries have recently expressed renewed interest in public funds to support investments that contribute to the countries' green economy transition (OECD, 2019^[79]). Such funds, or “Environmental Funds”, are generally capitalised by national budgets (and often financing from development co-operation partners). Hence, the debate on these funds can also be framed in the broader context of green public financial management. Environmentally responsive, or green, budgeting means using the tools of budgetary policy making to help achieve the country's environmental goals.

While Environmental Funds were already common in the EECCA region more than 40 years ago, they have transformed. Due to pressures to improve the efficiency and transparency of public finance systems, some EECCA countries closed down their extra-budgetary (including environmental) funds starting in the early 2000s. The revenues of these funds were consolidated into countries' state budgets (in Kazakhstan in 2000, in Belarus in 2011 and in Ukraine in 2014).²⁰ The consolidation of traditional Environmental Funds into state budgets has been ongoing. In countries where such Funds still exist, environmental authorities may find it more and more difficult to justify the need to maintain them. Reforming such Funds in line with good international practices may be one direction to go.

At the same time, new financing sources emerged and replaced the Funds, including funding from development finance institutions (DFIs). This is often blended with domestic financial resources, or DFI-supported lending products extended through domestic commercial banks [see for example OECD (2016^[80])].

Comparison between “traditional” and “new” Environmental Funds in EECCA

“Traditional” extra-budgetary Environmental Funds were first established in the late 1980s in all former Soviet Union Republics except Armenia, Georgia and Tajikistan.²¹ “Traditional” Funds have three characteristics. First, they manage earmarked public resources for environmental improvements. Second, they capitalise mostly by the revenue generated by pollution charges and fines. Third, they finance a broad range of environmental protection activities (water, waste, air, biodiversity).

Several EECCA countries continue to maintain their traditional Environmental Funds. These include **Azerbaijan, Kyrgyzstan, Moldova** and **Uzbekistan**. These Funds have all been converted from extra-budgetary into national budgets. Their revenues are internally (within the budget) earmarked for environmental activities managed by the Funds. Kyrgyzstan and Uzbekistan have established Environmental Funds both at national and subnational levels, while Moldova closed its subnational-level Environmental Funds in 2017.²²

Alongside these “traditional” Environmental Funds, new types of public funds for climate and environmental action have emerged in EECCA countries. Many of the new public funds in the region target investments in energy efficiency and renewable energy. While there is no universally agreed definition of such funds, an OECD document prepared for the 2019 GREEN Action Task Force annual meeting calls them “Specialised Clean Energy Funds” (OECD, 2019^[79]). These include, for example, the Renewable Resources and Energy Efficiency Fund in Armenia (established in 2005), the Georgian Energy Development Fund (2010) and the Energy Efficiency Fund in Ukraine (2018) (OECD, 2019^[79]).

All these Funds are state-owned and were established through an initial equity injection from the state. Their main source of revenue is also the state budget, but their sources are not linked to the pollution charge system. Instead, the Funds receive budget allocations based on their spending plans. In addition, international DFIs have provided these Funds with received significant finance for investment projects and technical support over the years.

Another important feature that distinguishes these Specialised Clean Energy Funds from the “traditional” ones is their focused mandate and spending strategy. While “traditional” Environmental Funds generally financed projects across all environmental issues, these new Specialised Funds support investments in one or two main sectors, namely renewable energy and energy efficiency. Table 5.1 provides a general typology and evolution of “traditional” and “new and specialised” Environmental Funds provided in OECD (2019^[79]).

Table 5.1. Typology and evolution of Environmental Funds

Traditional Environmental Funds fully consolidated into state budgets and year of their closure	Traditional budgetary Environmental Funds in operation	Specialised Clean Energy Funds
Belarus: National and regional Nature Protection Funds (closed in 2011)	Azerbaijan: State Fund for Environmental Protection	Armenia: Renewable Resources and Energy Efficiency Fund (est. 2005)
Kazakhstan: State Environmental Protection and regional Funds (closed in 2000)	Kyrgyzstan: Republican and four local Environmental Protection and Forestry Development Funds	Georgia: Georgian Energy Development Fund (est. 2010)

Turkmenistan: State Environmental Fund (closed in 2008)	Moldova: National Ecological Fund	Ukraine: Energy Efficiency Fund (est. 2018)
Ukraine: National (special budget) Environmental Fund (closed in 2014) (but local Environmental Funds continue to exist)	Uzbekistan: National Ecology, Environmental Protection and Waste Management Fund and 14 local Funds	

Source: (OECD, 2019^[79]).

Emerging good practice in using Specialised Clean Energy Funds in EECCA

These public funds, both “traditional” and “specialised”, have been evolving into a mechanism to support environmental and climate-related projects in many EECCA countries. Table 5.1 and the underlying study (OECD, 2019^[79]) also demonstrate the diversity of institutional arrangements that governments use to manage their public environmental spending. The study underscores there is no “one-size-fits-all” solution. Depending on the economic context, the maturity of finance markets and capacities in the countries, each government selects the institutional set-up of its fund, and financial instruments that suit it best.

The recently established new Specialised Clean Energy Funds (See Box 4.2) are usually much better capitalised, better focused and better governed than “traditional” Environment Funds. They also use more sophisticated financial products and can support bigger investments (OECD, 2019^[79]). Support from DFIs, both financial and through technical assistance, may have played a role in this better performance.

Institutionally, these new Funds are considerably different than traditional ones. The new funds represent a new model that seems to be better adapted to market needs and more in line with maturing financial markets in some EECCA countries. (OECD, 2019^[79]). Box 5.2 provides an overview of three Specialised Clean Energy Funds in **Armenia, Georgia** and **Ukraine**. They have a number of different features from the “traditional” Environmental Funds. Apart from being sector-specific with targeted mandates, these Funds have a wider range of revenue sources and relatively high disposable revenues. They also have a clear governance structure and professional staff that work on the day-to-day project cycle management. The Armenian and Ukrainian Funds have also greatly benefited from external development finance, both financially and in terms of capacity building and other types of technical assistance.

Box 5.2. Good practice example: Specialised Clean Energy Funds in Armenia, Georgia and Ukraine

Of the three funds in **Armenia, Georgia and Ukraine**, the Armenian Renewable Resources and Energy Efficiency Fund is the oldest; it has been in operation since 2005. The Georgian Energy Development Fund, established in 2010, promotes investments in renewable energy. The Energy Efficiency Fund of Ukraine, which started operations in 2018, launched its first Call for Projects in mid-2019. An overview of their key features is provided below; further details can be found in OECD (2019^[79]).

Armenia's Renewable Resources and Energy Efficiency Fund

The Armenian Renewable Resources and Energy Efficiency Fund is an independent legal entity with its own governance structure, professional staff and balance sheet. The Fund is governed by a Board of Trustees, which consists of 11 members appointed for two years. Board members are representatives of different government bodies and civil society organisations.

The government of Armenia provided initial equity (approximately AMD 22.4 million/USD 46 000) to the Fund. Its main revenue sources are budget allocations, grants from bilateral and multilateral development partners, financial income, income from different services (energy audit, consulting, energy service company) and project implementation fees. On average, over 2017 to 2019, the Fund's budget has varied between USD 400 000-500 000 per year.

The Fund supports renewable energy and energy efficiency projects in vulnerable rural communities, social entities, public buildings and innovation fields. Over the past five years, the lion's share of the Fund's support, approximately USD 10 million, has gone to energy efficiency projects in public buildings (kindergartens, schools, hospitals). The Fund uses a wide variety of financial instruments to disburse its resources. These include grants, interest rate subsidies on bank loans that families with three or more children have borrowed on the financial market, soft loans to domestic commercial banks and communities and factoring, to name a few. This is an interesting combination of disbursement mechanisms that requires strong in-house capacity. The Fund works closely with four domestic partner banks in the private sector.

Georgian Energy Development Fund

The Georgian Energy Development Fund (GEDF) is a joint stock company set up in 2010 by the government of Georgia through a Government Decree and an Order of the Minister of Economy and Sustainable Development. It mainly supports development of the renewable energy market in Georgia, including investments in hydro, wind and solar energy.

The GEDF functions as a project developer, project promoter, service provider (e.g. engineering consultancy for project scoping, obtaining necessary permits and licences) and project manager. Its staff members carry out extensive research and analysis; identify project opportunities; conduct project pre-feasibility assessment and environmental impact assessment; design projects; look for investors to co-finance projects and raise funding for project implementation; organise public tenders; and manage projects for which funding has been ensured.

The GEDF often enters into partnership with investors (international financial institutions and/or private financial entities) with which the Fund establishes Joint Ventures (Special Purpose Vehicles). The Fund also functions as a public equity fund. The GEDF provides up to 30% equity on an investment project. In addition, it is supposed to always have an exit strategy and can leave the project at various stages of its development. This arrangement allows the Fund to maintain its resource base and function as a revolving Fund as well.

Ukraine's Energy Efficiency Fund

The Energy Efficiency (EE) Fund emerged from the concept of “Turning Subsidies into Investments” developed by the Ministry of Regional Development, Construction, Housing and Communal Services with support by Germany and the European Union. It sought to provide significant support to investments in energy efficiency in residential buildings as a way of reducing households’ electricity and heat consumption bills. These bills have increased significantly over the past years, leading more and more households turning to the state for support. Improved energy efficiency will lead to lower bills. This, in turn, will help reduce inefficient energy-related social subsidies provided by the state budget. Saved budgetary resources will instead be allocated to a Fund that will manage this revenue stream.

After several years of preparation, a Law on the EE Fund adopted by Parliament in 2018 established the EE Fund. According to its Charter, the Fund is governed by a Supervisory Board of two representatives of the Cabinet of Ministers, two independent members and one representative of donors. The national government provided an initial equity to the Fund and its Charter capital amounts to about EUR 58 million.

The Fund aims to support thermal modernisation, installation of highly efficient heating and cooling systems and equipment, as well as the replacement of existing systems with more efficient ones. It was designed to provide grants only and will work closely with selected private-sector and state-owned banks. The Fund will reimburse a certain amount of the cost of energy efficiency investments for which project owners have obtained loans from partnering banks.

Although the Fund’s operations are at an early stage, the legal and institutional set up is well-designed to ensure its operational integrity, political independence and transparency of the use of its resources. This new funding mechanism shows that Ukraine has recognised that its energy sovereignty depends on significant energy efficiency improvements.

Policy recommendations

EECCA countries could benefit from further efforts to enhance public financial management in support of their transition to a green economy. Possible actions include enhancement and better use of budget-related information, inter-ministerial co-operation, and promotion of green stimulus measures for post-COVID recovery, as highlighted below:

- **Improve the statistical system to measure public (and possibly private) finance flows directed to environmental protection, resource management and climate action, as well as environmentally harmful subsidies such as fossil-fuel subsidies**
 - EECCA countries’ efforts in this direction could build on existing methodologies such as the System of Environmental-Economic Accounts, the European standard statistical Classification of Environmental Protection Activities and Green Growth Indicators.
- **Use enhanced information on green finance for more granular policy analysis**
 - More precise, comprehensive and timely measurement of green finance within the budget cycle could help individual EECCA countries promote policy discussion on green economy transition on various fronts. This would include identifying sectors, sub-sectors or geographical areas where gaps between investment needs and spending are particularly large; providing an evidence base for discussion of factors that promote or inhibit green finance mobilisation; assessing effectiveness of policy or financial interventions; and developing and adopting a variety of financial instruments for green economy transition.

- **Deepen co-operation among ministries and agencies within each EECCA country**
 - Greater co-operation between the finance ministry and other sectoral ministries and agencies is also of utmost importance. Enhanced collaboration could allow for a greater level of data availability and quality, such as on foreign direct investment directed to activities that can promote the country's green economy transition.
- **Enhance capacity to prepare public investment programmes properly costed or supported by specific implementation measures, such as financing strategies, market studies or feasibility analysis**
 - Analytical tools, such as costing or cost-benefit and cost-effectiveness evaluation models, could be a good basis for such public investment programming. The OPTIC model could also help EECCA countries calculate and optimise total programme costs and estimate the fiscal impact and economic implications of such programmes on financial sustainability.
- **Use scarce public resources to demonstrate the need for public support in meeting national environmental and climate-related goals and priorities**
 - Fiscal support could directly mitigate perceived or potential risks associated with environmental and climate-related activities. This, in turn, could help EECCA countries leverage private-sector investments in such activities. In so doing, efforts to “green” public financial management should also be in line with maturing financial markets in some EECCA countries.
 - Public financial management could also support governments to manage and reform their environmental subsidy programmes in a cost-effective way and in line with good international practices.
- **Promote green stimulus measures for post-COVID recovery and addressing socio-economic challenges caused by the war in Ukraine**
 - Such work could aim at, for instance, improving enabling policy frameworks and public financial support for capacity development for scaling up investment in renewable energy, low-emission transport, energy efficiency and Nature-based solutions for climate action and biodiversity conservation. Many of them could also simultaneously aim to boost employment rates and wider social and ecological benefits and to phase out ageing and polluting means of production.

Catalysing private-sector finance for green economy transition in EECCA

The importance of the private sector for scaling up investments in green economy transition

The achievement of national targets on climate change and wider green growth agendas in EECCA countries requires massive investment from a diverse set of sources, including the private sector. The governments in the EECCA region and their development co-operation partners have provided a considerable amount of funding to climate- and environment-related projects over the past decade (OECD, 2022^[81]). Public funding alone, however, would not be sufficient to cover the countries' financial needs to achieve their climate and environmental goals in the coming decades (EU4Environment, 2021^[38]; OECD, 2020^[78]; OECD, 2019^[82]).

Deeper and more stable banking and financial sectors can greatly contribute to economic growth in the EECCA region (AFI, 2018^[83]; EIB, 2012^[84]). Domestic financial systems in EECCA countries have been growing steadily over the past years. In general, however, the financial systems of many EECCA countries remain more vulnerable to external shocks than many other regions (Kammer et al., 2022^[41]). Access to low-cost, long-term capital remains a major barrier to mobilising finance, including for climate- and environment-related projects. Businesses with financial needs still face relatively high lending interest

rates. These ranged from 11.6% in Armenia to 23.55% in Kyrgyzstan in 2019-20 (World Bank, 2022^[85]). Borrowers also often face challenges of short repayment periods and high collateral requirements (OECD, 2019^[82]; EaP GREEN Programme, 2018^[86]; OECD, 2021^[87]).

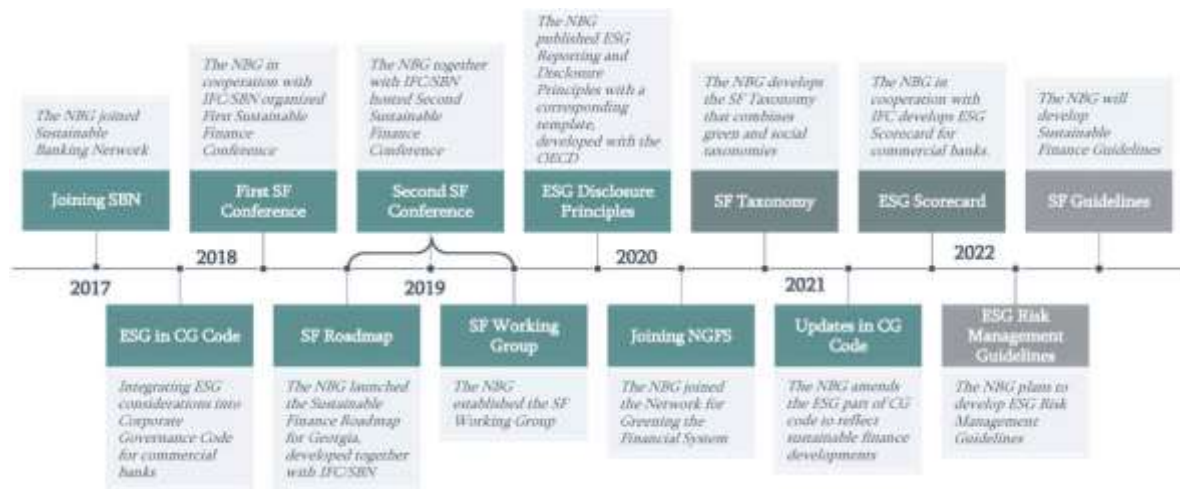
In recent years, EECCA countries such as **Armenia, Georgia, Kazakhstan, Kyrgyzstan, Ukraine** and **Uzbekistan** have begun to align their policy directions on financial-sector development with national goals on green economy transition and climate action. The role of finance and economic ministries, central banks and financial regulators in promoting sustainable finance are increasingly recognised (NGFS, 2022^[88]). A number of local commercial banks, non-bank financial institutions and associations of financial institutions across the region have joined the effort.

Initiatives in catalysing the private sector investment are increasing in EECCA countries

Some EECCA countries have made progress on developing a national roadmap, policy framework and voluntary principles on sustainable finance as part of their development strategies. In **Kyrgyzstan**, a sustainable finance roadmap forms an integral part of the Green Economy Development Programme. The programme, adopted in 2019, sets out plans for the country's transition towards a green economy (SBN, 2019^[89]). The roadmap was developed by the Ministry of Economy and the OECD through the UN Partnership for Action on Green Economy. They collaborated with the central bank, sectoral ministries and the Union of Banks of Kyrgyzstan, as well as with other development co-operation partners (Government of the Kyrgyz Republic, 2019^[90]; SBN, 2019^[89]).

The role of central banks in EECCA countries has also been elevated in some EECCA countries. This is encouraging given their crucial responsibility for developing financial sectors and supervising related regulations. **The National Bank of Georgia** (NBG), for example, adopted its sustainable finance framework that includes the Roadmap for Sustainable Finance in Georgia to outline all the planned and implemented actions under this framework (NBG, n.d.^[21]) (see also Figure 5.4). The NBG developed the Environment, Social and Governance (ESG) Reporting and Disclosure Principles with a corresponding template in collaboration with the OECD under the GREEN Action Task Force. It also started publishing the annual Sustainable Finance Report, while developing a Sustainable Finance Taxonomy and the analysis of vulnerabilities to climate risks in the financial sector (NBG and NGFS, 2022^[91]).

Figure 5.4. National Bank of Georgia Sustainable Finance Framework



Source: (NBG, n.d.^[21]), <https://nbg.gov.ge/en/page/sustainable-finance>.

While capital markets in EECCA countries are not yet contributing significantly to financing green investments, green bonds show signs of becoming an asset class in their own right. **Kazakhstan** was the first country in the EECCA region to issue a green bond, but **Armenia, Georgia** and **Ukraine** soon followed. **Uzbekistan** also issued, in collaboration with the United Nations Development Programme and the Citibank Group, the SDG Bond to finance the country's efforts to achieve the SDGs. The vast majority of projects focus almost exclusively on social development (e.g. construction of schools, hospitals), the SDG bonds also support some water supply and sanitation projects. Between the second half of 2020 and early 2022, eight green bonds were issued in the region, two in each of the four countries. This amounted to approximately USD 2 billion in total (OECD, forthcoming^[23]). The OECD is conducting a regional study on green bonds in Eastern Europe and the Caucasus countries and Kazakhstan. The study aims to assess the role that EECCA bond markets can realistically play in financing long-term green investments and helping countries achieve their climate-related targets (OECD, forthcoming^[23]).

Green bonds have begun to gain traction in the region as a complement to bank financing (OECD, forthcoming^[23]). The regulations and the market infrastructure supporting the expansion of the local capital markets are being developed and improved to support issuers and investors. However, this issuance is still limited, only nascent and takes part in the corporate sector, with rather little engagement by governments. As evidenced by the experience of other countries, sovereign green bond issuance can send the right signals to market participants and can foster the transformation of bond markets to finance the green transition.

A number of dedicated credit lines have been introduced to support green investment by businesses across the EECCA region over the past decade. However, many still find it challenging to access such green credit lines (EaP GREEN Programme, 2018^[86]; OECD, 2019^[82]). In the region, small and medium-sized enterprises (SMEs) contribute to most employment and gross value added. Hence, greening SMEs would contribute significantly to making EECCA countries' economic development both inclusive and environmentally sustainable. A key challenge is the market gap in terms of green credit for SMEs. Many banks providing dedicated green credit lines tend to serve larger customers. Moreover, loan sizes are often more than what an SME might need (e.g. loans larger than EUR 500 000). Demand-side issues have also

constrained progress in building a market for green finance for SMEs. The challenges include SMEs' weak financial literacy, poor record keeping, insufficient business planning and lack awareness of the economic benefits of green investments (OECD, 2019^[82]).

A gap in knowledge among (potential) users about the pros and cons of green investment, and their insufficient understanding on how to access and use banking services, hinder households and businesses from taking out green loans. The OECD conducted a household survey in co-operation with the Union of Banks to provide evidence on this gap (OECD, 2021^[87]). It also helped the National Bank of the Kyrgyz Republic further understand the current situations on households' access to, and use of, green finance in the country. The survey also revealed other barriers to scaling up private-sector finance for actions for green economy. These include lack of bank accounts, lack of information on banking products and insufficient information on the purpose of green financial products (OECD, 2021^[87]):

- 30% of households had taken out a loan or credit to finance one or several activities with a climate mitigation or adaptation purpose in the past five years.
- 40% did not know whether they had taken out a loan or credit to finance any of these activities, which points to a lack of understanding of green finance.
- 70% did not know whether they were interested in doing so in the near future.
- Use of formal financial services in general was low (more than 80% of respondents did not have a bank account).

There is an emerging use of risk mitigation financial instruments in the EECCA region. Armenia, for example, has developed agricultural insurance in recent years to bring more stable earnings for small farmers and improve their credit standing (KfW Development Bank, 2019^[92]). This, in turn, can enable small farmers to invest in their farms through loans to improve their productivity, while better preparing them against external shocks such as droughts and floods (KfW Development Bank, 2019^[92]). A mix of domestic funding from the Ministry of Agriculture and finance by bilateral and multilateral institutions (KfW and the Climate Investment Fund) subsidises insurance payments up to 50-60%. The insurance was designed to cover, for instance, fruit orchards and vineyards against hail, fire and spring frost (Agroinsurance, 2019^[93]).

Policy recommendations

Policy makers in the governments and financial regulators of EECCA countries can support private-sector actors in further scaling up green finance in many ways, as highlighted below. It is nevertheless important to get the basics right: adopting and reforming relevant environmental and climate legislation (e.g. on energy efficiency and renewable energy) and strengthening their enforcement, ratcheting environmental standards and reducing fossil-fuel subsidies to create market signals.

- **Elevate the role of central banks and other financial regulators in the EECCA region in ensuring financial sector policies, regulations and guidance are aligned with the country's national objectives on sustainable development.**
 - Clearer definitions of "green" activities through developing a taxonomy, principles on ESG disclosure, technical assistance for staff of financial institutions in assessing, monitoring and reporting ESG-related risks could provide a basis for advancing policy alignment. Good practices and lessons are already available from the experiences of, for instance, the National Bank of Georgia, the Central Bank of Armenia and the Astana International Financial Centre (AIFC Green Finance Centre, n.d.^[22]; SBFN, n.d.^[94]) (See also Box 5.3).
- **Improve access to green financial instruments and services while advancing further efforts to increase use of formal financial instruments:**

- A functioning financial market where households and businesses actively use financial products and services is in many ways a precondition for introducing elements of green finance.
- A comprehensive regulatory and financial framework that promotes financial inclusion, social inclusion and green finance will help implement mutually reinforcing policy actions; create synergies between economic, social and environmental goals; and achieve progress faster (OECD, 2021^[87]).
- **Assess and address broader policy issues to enable access by businesses and households to finance for green action:**
 - Financial regulators of many EECCA countries are responding to higher inflation by raising interest rates. They should, however, continue to work towards a wider range of issues on access to finance for businesses in support of a long-term green economy transition.
 - Approaches may include strengthening financial literacy, especially among small businesses and households, exploring credit guarantees for lending specifically to activities in support of green economy transition (e.g. energy efficiency and renewable energy), and promoting non-bank financing (e.g. green leasing). Limiting the social impact of higher prices of energy on the most vulnerable would be essential. The European Commission's proposal for a Social Climate Fund could provide an inspiration for initiatives to help the poorer segment of society without undermining governments' commitments to reduce GHG emissions [See further information on (European Union, 2021^[95])].
- **Strengthen awareness raising and capacity development for (potential) users of sustainable finance:**
 - Further insight on the demand side of finance would help governments and financial regulators develop policies to accelerate the up-scaling of private sector financing for green economy transition in the EECCA region. A greater understanding of, for instance, the needs of individuals, households, entrepreneurs and businesses for financial solutions would support the transition to a green and inclusive economy (OECD, 2021^[87]).
- **Support development of dedicated in-house capacity within private-sector financial institutions.**
 - Georgian commercial banks have already been working on various green finance products. They have dedicated significant internal resources to developing and promoting energy efficiency and renewable energy lending products on the Georgian market. This has included building capacity in loan appraisal (e.g. the incorporation of energy savings into cash-flow and payback analysis). It has also included renewable energy product finance; marketing; training for branch staff in promoting products; and environmental reporting (e.g. energy savings, GHG emission calculations) (OECD, 2019^[82]).

Box 5.3. Good practice example: Network of Central Banks and Supervisors for Greening the Financial System

As a global initiative, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) provides a forum for members to develop frameworks for financial policies and regulations in support of assessing climate risks. The focus of NGFS is diverse, including micro-supervision, integration of sustainability and climate risks into monetary policy frameworks, and endorsement of mandatory disclosure, among others. Membership includes the **Central Bank of Armenia**, the **National Bank of Georgia** and the **National Bank of Ukraine** from the EECCA region. The Sustainable Banking Network is another community of financial sector regulators and banking associations from emerging markets committed to work on sustainable finance, including for climate resilience.

Source: Network of Central Banks and Supervisors for Greening the Financial System: Membership www.ngfs.net/en/about-us/membership.

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¹ EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

² EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

³ The Eastern Europe countries include Belarus, Moldova and Ukraine and the Caucasus countries include Armenia, Azerbaijan and Georgia.

⁴ Armenia and the European Union signed in 2017 the EU-Armenia Comprehensive and Enhanced Partnership Agreement.

⁵ Nature-based solutions (NbS) are “measures that protect, sustainably manage or restore natural capital, with the goal of maintaining or enhancing ecosystem services to address a variety of social, environmental and economic challenges” (OECD, 2020^[97]).

⁶ EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

⁷ Calculated based on individual country GDP growth forecasts for nine EECCA countries. Turkmenistan is excluded due to lack of data.

⁸ OECD Green Growth Studies, Green Growth Indicators 2017.

⁹ EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

¹⁰ Upskilling: training employees in a particular occupation with new skills to improve how they perform their jobs. For instance, employees who use the Microsoft Excel spreadsheet program in the grant administration process might be upskilled to use robotic process automation instead (Source: OPM (2018), OPM Strategic Plan Fiscal Years 2018-2022, www.opm.gov/aboutus/budget-performance/strategic-plans/2018-2022-strategic-plan.pdf).

¹¹ EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

¹² Central Asian countries are: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

¹³ The Eastern Europe countries include Belarus, Moldova and Ukraine and the Caucasus countries include Armenia, Azerbaijan and Georgia

¹⁴ www.oecd.org/env/outreach/euwi/.

¹⁵ This section covers only Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine, since no analyses on this subject were carried out in Central Asia.

¹⁶ Armenia's Comprehensive and Enhanced Partnership Agreement with the European Union (signed in 2017, into force in 2021); the other countries have Association Agreements with the European Union: Georgia (signed in 2014, into force in 2016); Moldova (signed in 2014, into force in 2016); Ukraine, including a Deep and Comprehensive Free Trade Area (signed in 2014, into force in 2017). Azerbaijan

and the European Union are developing a comprehensive agreement to replace the 1996 partnership and co-operation agreement.

¹⁷ EECCA countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

¹⁸ Data until end of October 2021.

¹⁹ The EAP Task Force: The Task Force for the Implementation of the Environmental Action Programme of Central and Eastern Europe.

²⁰ Until 2014, Ukraine had a national (special budget) Environmental Protection Fund and numerous regional/local Environmental Protection Funds managed by local authorities. In 2014, the National Fund was closed down while the local Funds continue to exist. The resources previously allocated to the National Fund are now split between the local Funds and the general state budget.

²¹ Similar Environmental Funds were also established in several Central European countries, many of which are now members of the European Union. These include, among others, the Czech State Environmental Protection Fund, Estonian Environmental Fund, Polish National Fund for Environmental Protection and Water Management, Slovenian Environmental Development Fund.

²² Azerbaijan seems to have a national-level Fund only. However, the public information is not sufficient to state this with certainty.