



**SUSTAINABLE  
INFRASTRUCTURE  
PARTNERSHIP**



PANORAMA OF SPANDARYAN RESERVOIR IN SYUNIK REGION OF ARMENIA ©Sun\_Shine/Shutterstock.com

# EECCA

**ROLE OF NATIONAL  
ENVIRONMENTAL FUNDS  
IN PROMOTING GREEN  
INVESTMENTS: THE EASTERN  
EUROPE, CAUCASUS AND  
CENTRAL ASIA (EECCA)  
REGION**



2022

The International Good Practice Principles for Sustainable Infrastructure

set out ten guiding principles that policymakers can follow to help integrate sustainability into infrastructure planning and delivery. They are focused on integrated approaches and systems-level interventions that governments can make to create an enabling environment for sustainable infrastructure. This case study illustrates specific aspects of one principle in a country context, showing good practices and challenges, and considering potential for advancement or replicability.

## GUIDING PRINCIPLE 8: FISCAL SUSTAINABILITY AND INNOVATIVE FINANCING

Infrastructure development should be developed within frameworks of fiscal transparency, financial integrity and debt sustainability.

### BACKGROUND

















With abundant natural mineral resources, the Eastern Europe, Caucasus and Central Asia (EECCA) countries are important economic contributors to the global mining and industrial sectors. Mineral resource extraction also plays an important role in export earnings, employment and public revenue via taxes and public extraction companies at the national and sub-national levels. In fact, some EECCA countries are ranked high in the International Council of Mines and Metals' (ICMM) 2020 mining contribution index (see Figure 1 for economic and climate indicators of EECCA countries), which measures the significance of the mining sector's contribution to national economies (ICMM 2020, p. 3). Despite these economic benefits, the mining sector through its various processes and infrastructures<sup>1</sup> has caused negative environmental impacts on soil, water, ecosystems and air in the region. In addition, mining emits greenhouse gases through transportation and energy use. EECCA countries are already experiencing significant negative effects of climate change: they have all recorded an increase in the average annual temperature and face various climate challenges, such as changes in the duration of the seasons and the amount and distribution of precipitation, increasing numbers of droughts and floods and a decrease in water supplies (Climate Action Network Eastern Europe, Caucasus, and

Central Asia 2020, p.4). This has created an acute need to address environmental and climate issues in these countries, while sustaining and bolstering economic growth by such means as introducing new and green technologies and increasing the efficiency of resource use for infrastructure.

Set among these industrial and climate circumstances in the region, Environmental Funds<sup>2</sup> were initially one of the main sources of domestic public environmental finance providing subsidies to priority environmental actions in the 1990s. These "traditional" extra-budgetary Environmental Funds were first established in the late 1980s in most of the then-Soviet Union Republics, except in Armenia, Georgia and Tajikistan. The "traditional" funds referred to here: (i) manage public resources earmarked for environmental improvements; (ii) are capitalized mostly by the revenue generated by pollution charges and fines; and (iii) are comprehensive, that is, financing a broad range of environmental or green activities (water management, waste management, air quality improvements and biodiversity protection). Over the last 15 years or so, those Funds have undergone fundamental transformations as they were extra-budgetary, outside public scrutiny and often inefficiently managed (Organisation for Economic Co-operation and Development [OECD] 2019b, p. 3). There were also broader pressures from

1 The mining sector and its infrastructure can cause negative environmental outcomes through: the immediate impact of the mine – the hole that is dug, the tunnels that are built and the soil and water that are displaced; the impacts on the wider ecosystem – how water is used or contaminated by mining activity, how habitats are disturbed or destroyed by associated roads and other transportation infrastructure and how biodiversity suffers; and the impacts that occur as by-products of the mining processes – air pollution and electricity use derived from transportation, machine operation, etc.

2 The term "Environmental Funds" describes public funds administered by each country's ministry in the region.

				
	<b>Population</b> (thousands)	<b>GDP</b> (current million USD)	<b>ICMM Rank<sup>(1)</sup></b> (out of 183 countries)	<b>Climate Risk Rank<sup>(2)</sup></b> (out of 181 countries)
	<b>Armenia</b> 2,963 (2020)	<b>\$12,641</b> (2020)	<b>57<sup>th</sup></b>	<b>52<sup>nd</sup></b>
	<b>Azerbaijan</b> 10,093 (2020)	<b>\$42,607</b> (2020)	<b>71<sup>st</sup></b>	<b>67<sup>th</sup></b>
	<b>Belarus</b> 9,379 (2020)	<b>\$60,258</b> (2020)	<b>159<sup>th</sup></b>	<b>36<sup>th</sup></b>
	<b>Georgia</b> 3,722 (2020)	<b>\$15,846</b> (2020)	<b>22<sup>nd</sup></b>	<b>38<sup>th</sup></b>
	<b>Kazakhstan</b> 18,754 (2020)	<b>\$171,082</b> (2020)	<b>17<sup>th</sup></b>	<b>40<sup>th</sup></b>
	<b>Kyrgyz Republic</b> 6,579 (2020)	<b>\$7,735</b> (2020)	<b>7<sup>th</sup></b>	<b>68<sup>th</sup></b>
	<b>Moldova</b> 2,620 (2020)	<b>\$11,915</b> (2020)	<b>178<sup>th</sup></b>	<b>78<sup>th</sup></b>
	<b>Russian Federation</b> 144,104 (2020)	<b>\$1,483,497</b> (2020)	<b>23<sup>rd</sup></b>	<b>31<sup>st</sup></b>
	<b>Tajikistan</b> 9,537 (2020)	<b>\$8,194</b> (2020)	<b>38<sup>th</sup></b>	<b>102<sup>nd</sup></b>
	<b>Turkmenistan</b> 6,031 (2020)	<b>\$45,231</b> (2019)	<b>75<sup>th</sup></b>	<b>128<sup>th</sup></b>
	<b>Ukraine</b> 44,134 (2020)	<b>\$155,498</b> (2020)	<b>46<sup>th</sup></b>	<b>64<sup>th</sup></b>
	<b>Uzbekistan</b> 34,232 (2020)	<b>\$59,929</b> (2020)	<b>16<sup>th</sup></b>	<b>80<sup>th</sup></b>

**FIGURE 1: ECONOMIC AND CLIMATE INDICATORS OF EECCA COUNTRIES**

Source: created based on University of Notre Dame Notre Dame Global Adaptation Initiative (2019); World Bank (2019); ICMM (2020); World Bank (2020a); World Bank (2020b)

international communities, governments and local citizens to improve the public finance system. Some countries closed their extra-budgetary (including environmental) funds starting in the early 2000s.

However, the establishment of Environmental Funds is now the subject of renewed interest on the part of environmental policy makers in many EECCA countries, particularly with the growing international interest in sustainable infrastructure and green budgeting, including green recovery from the COVID-19 pandemic.

## **“SPECIALIZED CLEAN ENERGY FUNDS” – A NEW TYPE OF ENVIRONMENTAL FUND WITH DIVERSIFIED SOURCES OF**

### **REVENUE AND A FOCUSED MANDATE AND SPENDING STRATEGY**

While some countries have closed their extra-budgetary funds, several EECCA countries continue to maintain their Environmental Funds and have converted them from extra-budgetary into budgetary, and within the budget, their revenues are internally earmarked for environmental activities related to infrastructure managed by the Funds. For example, the Kyrgyz Republic and Uzbekistan have established Environmental Funds at both national and sub-national level.

Alongside these traditional Funds, a new type of Environmental Fund has emerged. 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). All these Funds are state-owned and were established through an initial equity injection from the state. The main source of revenue of the Funds is also the state budget, but sources are not linked to, or reliant upon, the pollution charge system (OECD 2019b, p. 5). Instead, the Funds receive budget allocations based on their spending plans. In addition, these Funds have been supported by international development partners<sup>3</sup> and have received significant funds and technical support over the years.

Another important feature that distinguishes these Funds from the “traditional” ones is their focused mandate and spending strategy. Unlike traditional comprehensive Funds, which finance projects across all environmental media, these recent Funds support investments in infrastructure in one or two main sectors. This more focused mandate helps to concentrate resources on a few priority areas that need public support, and also allows Fund administrators to learn the relevant technologies and market prices, as well as developing the capacity to identify the most cost-effective projects that can be financed with the Funds’ resources.

Furthermore, these Funds have different revenue sources, and their disposable revenue is much higher. They have a clear governance structure and professional staff that work on day-to-day project cycle management. The Armenian and Ukrainian Funds, in particular, have also greatly benefited from external support from development partners, both financially and in terms of capacity-building and technical advice.

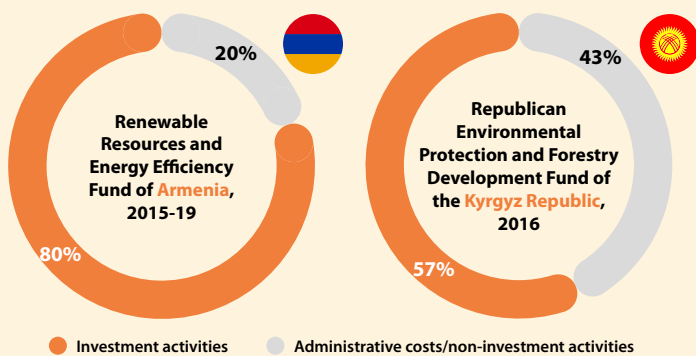
## **ARMENIA’S RENEWABLE RESOURCES AND ENERGY EFFICIENCY (R2E2) FUND**

Armenia’s Renewable Resources and Energy Efficiency (R2E2) Fund was established in 2005 by government decision. The Fund’s activities are regulated by relevant legislation and a charter. The 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 from different government bodies and civil society organizations. The Fund supports renewable energy (RE) and energy efficiency (EE) projects in more vulnerable rural communities, social organizations and public buildings. For example, R2E2 has engaged in a public tender for the construction of a solar photovoltaic (PV) system with 200-megawatt (MW) capacity, the installation of solar water heaters and PV systems in about 400 households in non-gasified communities, and the promotion of cross-border cooperation among the Black Sea countries to improve the energy saving system in buildings, as well as the exchange of knowledge and experience in the energy sector.

Currently, the main revenue sources of the Fund are budget allocations, grants from different sources (including the World Bank, Climate Investment Funds and Germany), financial income, income from different services (energy audit, consulting, energy service and company services) and project implementation fees. Between 2015 and 2019, the majority of the Fund’s budget went to energy efficiency projects in public buildings (kindergartens, schools and hospitals), whereas the Fund’s administrative costs amounted to about 20% of the total expenditure, which is significantly lower than those of the “traditional” Funds (Armenia, Renewable Resources and Energy Efficiency Fund [R2E2] 2017; Armenia, R2E2 2018; OECD 2019b, p. 11; Armenia, R2E2 2019). In comparison, the Republican Fund of the Kyrgyz Republic, one of the “Traditional” Funds, in 2016 spent about 21% of the total expenditure on water protection, 19% on the forestry sector and 17% on land protection and waste management, while the remaining 43% were allocated to administrative or non-investment activities (for example, running costs and equipment for environmental authorities, monitoring equipment, international cooperation, environmental education, training, and development of laws and regulations) (OECD 2019b, p. 9).

<sup>3</sup> International development partners include the World Bank, the Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, and KfW.





**FIGURE 2: EXPENDITURE SHARE OF INVESTMENT ACTIVITIES AND NON-INVESTMENT ACTIVITIES**

Source: created based on R2E2 (2017); R2E2 (2018); OECD (2019b); R2E2 (2019)

The R2E2 Fund disburses its resources via grants, interest rate subsidies on bank loans and soft loans to domestic commercial banks and communities. This combination of disbursement mechanisms requires strong in-house capacity and a close relationship with domestic partner banks to understand the needs of customers and make funding accessible.

Apart from identifying and financing EE and RE investments, the Fund is involved in many other activities within the sector, which presents potential challenges. Among other activities, the Fund also conducts research in the RE and EE markets, designs and implements projects, organizes public tenders, provides advisory services to clients of the Fund and organizes training. The Fund has the authority to undertake commercial activities and provide financial and legal consulting, deliver financial intermediation and trade energy equipment. To avoid spreading human and financial resources too thinly, such activities must be carefully balanced with the Fund's core financing function.

**TABLE 1: SUMMARY OF COMPARISON BETWEEN “SPECIALIZED CLEAN ENERGY FUNDS” AND “TRADITIONAL” FUNDS**

	Specialised Clean Energy Funds	Traditional Environmental Funds	
		Funds consolidated into state budgets (Extra-budgetary Funds)	Budgetary Funds in operation
<b>Main Revenue source</b>	<ul style="list-style-type: none"> <li>State budget based on <u>spending plans</u></li> <li>Support by <u>the international development partners</u></li> </ul>	<ul style="list-style-type: none"> <li><u>Charges and fines on pollution</u></li> <li><u>Charges on natural resource use</u></li> <li><u>Particular products</u> (e.g. fuel, packaging)</li> </ul>	Same to the left, but internally (within the budget) earmarked for environmental activities managed by the Funds
<b>Mandate</b>	Focused mandate with spending strategy - <u>one or two main sectors</u>	<u>A broad range of environmental activities</u>	Same to the left
<b>Main Function</b>	<ul style="list-style-type: none"> <li>Support both <u>public and private sectors</u> through various financial products including:               <ul style="list-style-type: none"> <li>✓ Grants</li> <li>✓ Interest rate subsidies</li> <li>✓ Soft loans</li> </ul> </li> <li><u>Many other activities</u><sup>(*)</sup> including:               <ul style="list-style-type: none"> <li>✓ Conducts studies and scientific research</li> <li>✓ Designs and implements projects</li> <li>✓ Organises public tenders</li> <li>✓ Provides advisory services</li> <li>✓ Organises trainings</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Support investments in municipal environmental infrastructure <u>mainly through grants</u></li> <li><u>Very little financial support to the enterprise sector</u></li> </ul>	Same to the left <sup>(*)</sup>
<b>Example</b>	<ul style="list-style-type: none"> <li><b>Armenia:</b> Renewable Resources and Energy Efficiency Fund (est. 2005)</li> <li><b>Georgia:</b> Georgian Energy Development Fund (est. 2010)</li> <li><b>Ukraine:</b> Energy Efficiency Fund (est. 2018)</li> </ul>	<ul style="list-style-type: none"> <li><b>Belarus:</b> National and regional Nature Protection Funds (closed in 2011)</li> <li><b>Kazakhstan:</b> State Environmental Protection and regional Funds (closed in 2000)</li> <li><b>Turkmenistan:</b> State Environmental Fund (closed in 2008)</li> <li><b>Ukraine:</b> National Environmental Fund (closed in 2014) (but local Environmental Funds continue to exist)</li> </ul>	<ul style="list-style-type: none"> <li><b>Azerbaijan:</b> State Fund for Environmental Protection</li> <li><b>Kyrgyz Republic:</b> Republican and 4 local Environmental Protection and Forestry Development Funds</li> <li><b>Moldova:</b> National Ecological Fund</li> <li><b>Uzbekistan:</b> National Ecology, Environmental Protection and Waste Management Fund and 14 local Funds</li> </ul>

(\*) in the case of R2E2 Fund (\*) only Moldovan legislation allows the National Ecological Fund to use other instruments such as interest rate subsidies, soft and interest free loans and guarantees for loans taken from banks. It seems, however, that even the Moldovan Funds have provided only grants so far.

Note: this paper focuses only on domestic public funds in green investments and excludes funds that are exclusively financed by external development partner organisations only without the use of domestic finance and/or whose main investment focus is not clean energy, climate or environment

Source: created based on OECD (2019b)

However, the Fund has managed its resources prudentially (OECD 2019b, p. 12). It maintains intensive cooperation with many international organizations and development finance institutions, evidence that the Fund is considered a credible partner. The Fund has applied to the Green Climate Fund (GCF) to become Armenia's Accreditation Agency, and is under consideration by the GCF Secretariat. If accredited, the Fund would be able to implement much larger projects of up to US\$ 50 million each, and enlarge its investment portfolio.

## REPLICABILITY

Progress notwithstanding, shifting to a low-carbon economy still requires massive resources. While the private sector is expected to contribute significantly to financing the transition, the state has a key role to play in providing the right incentive structures and regulatory frameworks to stimulate increased demand for green and clean-energy investments. Public financial support – in the form of procurement, investment, or subsidies – is one of the main policy instruments that governments have to accelerate clean energy infrastructure investments. If used effectively, even limited public resources, including those managed through Environmental Funds, can leverage significant external and private funds and contribute to the achievement of priority climate and energy-related national objectives (OECD 2019b, p. 4).<sup>4</sup>

Over the years, the OECD has developed a number of policy tools that aim to support the efforts of governments to manage their environmental subsidy programmes in a cost-effective way and in line with international good practices. These include, among others, the Recommendation of the OECD Council on Good Practices for Public Environmental Expenditure Management (PEEM) (OECD 2006) and the Handbook for Appraisal of Environmental Projects Financed from Public Funds (OECD 2007). 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 and provides a step-by-step approach to implementing the Good Practices in real life. In the context of Principle 8 of the International Good Practice Principles for Sustainable Infrastructure (United Nations Environment Programme 2022), these guiding documents, prepared jointly with the governments in the region, serve as a basis for the development of a methodology for an in-depth review and assessment of public institutions that manage subsidy programmes to support green investments in infrastructure.

## KEY INSIGHTS



- > “Specialized Clean Energy Funds”, with a clear governance structure and focused mandates, benefit from efficiency and increased and diversified revenue sources underpinned by spending strategies and sectoral expertise. This allows them to play a significant role in promoting national environmental activities.
- > “Specialized Clean Energy Funds” offer a wide variety of financial products including grants, interest rate subsidies and soft loans to both public and private clients.
- > The OECD has developed a number of policy tools that aim to support the efforts of governments to manage their environmental subsidy programmes, including the OECD Good Practices for PEEM and the Handbook for Appraisal of Environmental Projects Financed from Public Funds.

<sup>4</sup> The role of public infrastructure funds in leveraging additional financial sources for infrastructure development with case studies from different regions is elaborated further in a report “Global Review of Public Infrastructure Funds” published by the World Bank and Inter-American Development Bank (World Bank and Inter-American Development Bank 2018; World Bank, Inter-American Development Bank 2020).

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## REFERENCES

- Armenia, Renewable Resources and Energy Efficiency Fund (2017). *Financial Statements and Independent Auditor’s Report: Armenia Renewable Resources and Energy Efficiency Fund 31 December, 2017*. <https://r2e2.am/wp-content/uploads/2018/04/Financial-statements-and-independent-auditors-report.pdf>.
- Armenia, Renewable Resources and Energy Efficiency Fund (2018). *Financial Statements and Independent Auditor’s Report: Armenia Renewable Resources and Energy Efficiency Fund 31 December, 2018*. <https://r2e2.am/wp-content/uploads/2019/05/Financial-Statements-and-Independent-Auditors-eng-2018.pdf>.
- Armenia, Renewable Resources and Energy Efficiency Fund (2019). *Annual Financial Statements and Independent Auditor’s Report “Armenia Renewable Resources and Energy Efficiency” Fund For the year ended 31 December 2019*. [https://r2e2.am/wp-content/uploads/2020/08/R2E2-Auditors-Report-2019\\_eng.pdf](https://r2e2.am/wp-content/uploads/2020/08/R2E2-Auditors-Report-2019_eng.pdf).
- Climate Action Network Eastern Europe, Caucasus, and Central Asia (2020). *Analysis of Climate Policies of the Countries of Eastern Europe, Caucasus and Central Asia*. <https://infoclimate.org/wp-content/uploads/2020/12/overview-of-climate-policies-eecca.pdf>.
- International Council on Mining and Metals (2020). *Role of Mining in National Economies: Mining Contribution Index (MCI) 5th Edition*. [https://www.icmm.com/website/publications/pdfs/social-performance/2020/research\\_mci-5.pdf](https://www.icmm.com/website/publications/pdfs/social-performance/2020/research_mci-5.pdf).
- Organisation for Economic Co-operation and Development (2006). *Recommendation of the Council on Good Practices for Public Environmental Expenditure Management*. <https://www.oecd.org/env/outreach/38787377.pdf>.
- Organisation for Economic Co-operation and Development (2007). *Handbook for Appraisal of Environmental Projects Financed from Public Funds*. <https://www.oecd.org/env/outreach/38786197.pdf>.
- Organisation for Economic Co-operation and Development (2019a). *Mining and Green Growth in the EECCA Region*. <https://www.oecd.org/greengrowth/mining-and-green-growth-in-the-eecca-region-1926a45a-en.htm>. (Accessed on 6 July 2022).
- Organisation for Economic Co-operation and Development (2019b). *Role of National Environmental Funds in Promoting Green Investments Discussion Note*.
- United Nations Environment Programme (2022). *International Good Practice Principles for Sustainable Infrastructure*. Nairobi
- University of Notre Dame Notre Dame Global Adaptation Initiative (2019). *ND-GAIN Country Index*. <https://gain.nd.edu/our-work/country-index/rankings/>. (Accessed on 6 July 2022).
- World Bank (2019). *GDP (current US\$) – Turkmenistan. World Bank Open Data*. <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>. (Accessed on 6 July 2022).
- World Bank (2020a). *GDP (current US\$) - Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Ukraine, and Uzbekistan. World Bank Open Data*. <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>. (Accessed on 6 July 2022).

World Bank (2020b). *Population, total - Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan*. World Bank Open Data. <https://data.worldbank.org/indicator/SP.POP.TOTL>. (Accessed on 6 July 2022).

World Bank, and Inter-American Development Bank (2018). *Global Review of Public Infrastructure Funds: Volume II Case Studies*. <https://ppiaf.org/documents/5983/download>.

World Bank, and Inter-American Development Bank (2020). *Global Review of Public Infrastructure Funds: Volume I Identifying Key Design Features and Success Factors for Public Infrastructure Funds*. <https://ppiaf.org/documents/5982/download>.