



*Connecting countries
Driving progress
Improving lives*

Innovation for Sustainable Development Review of Moldova: Main findings and recommendations

Thursday, 16 December
14:00 – 16:00 (EET)

Roundtable to discuss main findings and
recommendations of I4SDR of Moldova



Context and background for the I4SDR of Moldova



- ✓ Requested by the Government of Moldova, 3 elective topics (chapters 4-6);
- ✓ Implemented with financial support from the Government of Sweden (SIDA);
- ✓ Mobilized international expertise on science-industry linkages (Prof. Slavo Radosevic, UCL, UK), technology transfer (Lisa Cowey, WIPO, EU), and diaspora (Prof. Aleksandr Gevorkyan, St John's University, USA), as well as local support (experts Sergiu Porcescu and Diana Russu);
- ✓ Due to the pandemic, fully virtual fact-finding mission with more than 50 online meetings with stakeholders from Moldova, and a focus group on innovation and technology transfer infrastructure;
- ✓ Peer review by national and international stakeholders (e.g., OECD, JRC, IOM, FAO), as well as internal UNECE review;
- ✓ Finalization of the manuscript (editing, design) and upcoming submission for publication.

Main findings and recommendations by chapters



UNECE



- ❖ **Chapter 1:** Economic overview
- ❖ **Chapter 2 :** Innovation performance overview
- ❖ **Chapter 3:** Enhancing the national innovation system and its innovation governance
- ❖ **Chapter 4:** Boosting science-industry linkages and technology commercialization
- ❖ **Chapter 5:** Developing innovation and technology transfer infrastructure
- ❖ **Chapter 6:** Leveraging the diaspora for innovation-driven sustainable development

1. Economic overview



UNECE

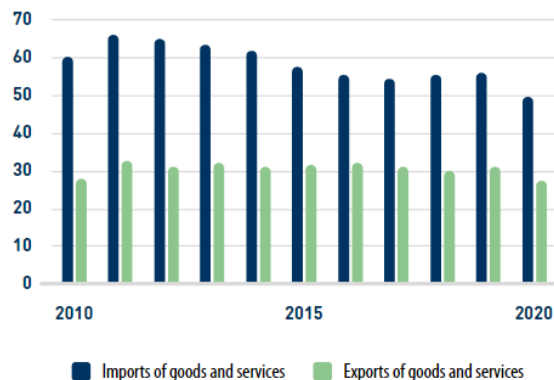


Main messages

- Moldova has a small but open economy with substantial potential for growth.
- Sustaining and boosting ongoing growth will be challenging as the drivers of growth in the first decades of transition run out of steam.
- Productivity growth has declined and now significantly impacts the economy's competitiveness.
- The Moldovan economy is vulnerable to external shocks, which are key constraints to innovation-led productivity growth.
- Using trade and investment to boost innovation and productivity growth is central to Moldova's economic competitiveness and sustainable development in line with circular economy (CE) principles.
- Innovation is the driving force behind long-term sustainable development.
- Moldova has untapped potential to diversify and increase the value of its exports.
- Foreign direct investment (FDI) levels are volatile, below potential and should be better leveraged to create substantial innovation spill-over effects throughout the broader economy.

Figure 1.5 · Trade and merchandise exports of Moldova

a. Imports and exports (% of GDP, 2010–2020)



b. Merchandise exports decomposition, 2019 (as % of merchandise exports)

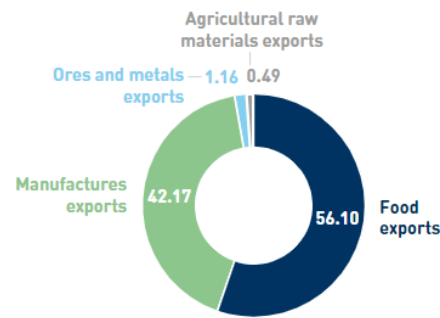
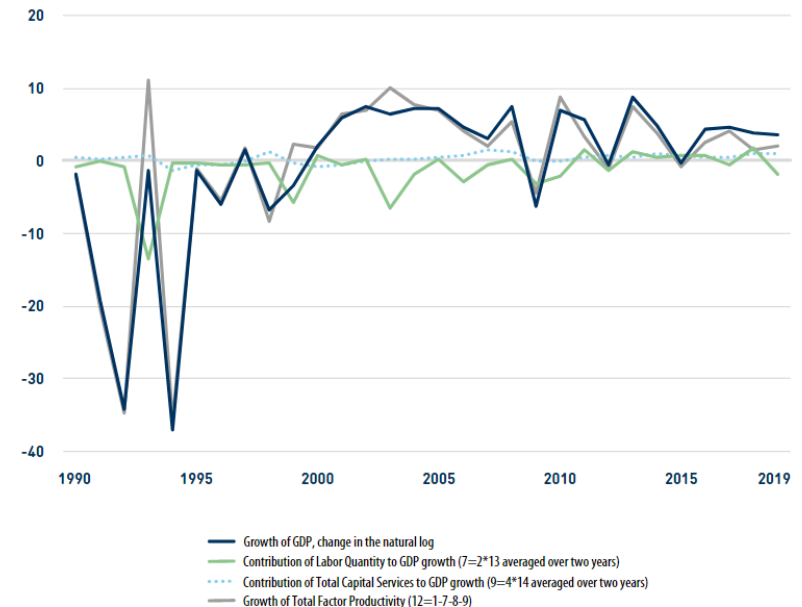


Figure 1.2 · Productivity decomposition of economic growth, 1990–2019



2. Innovation performance overview

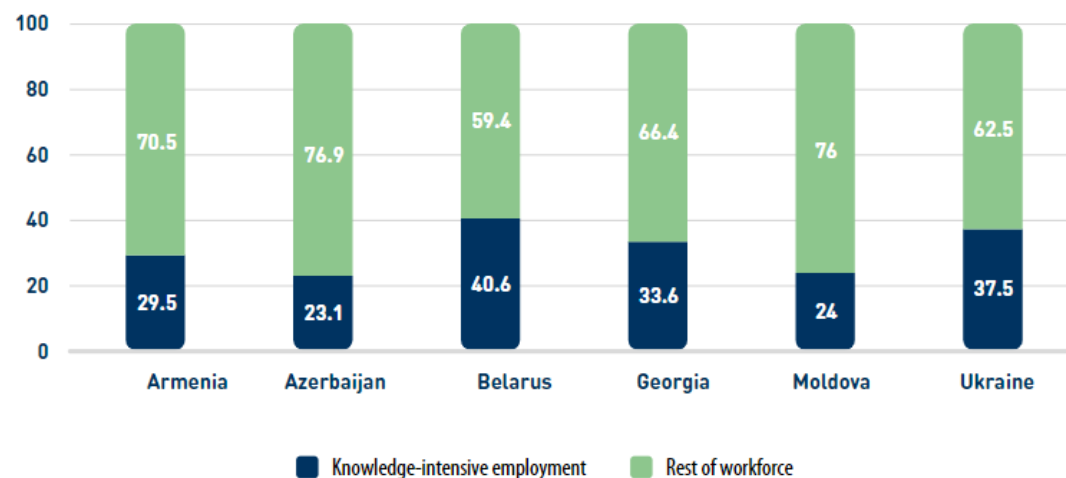


UNECE

Main messages

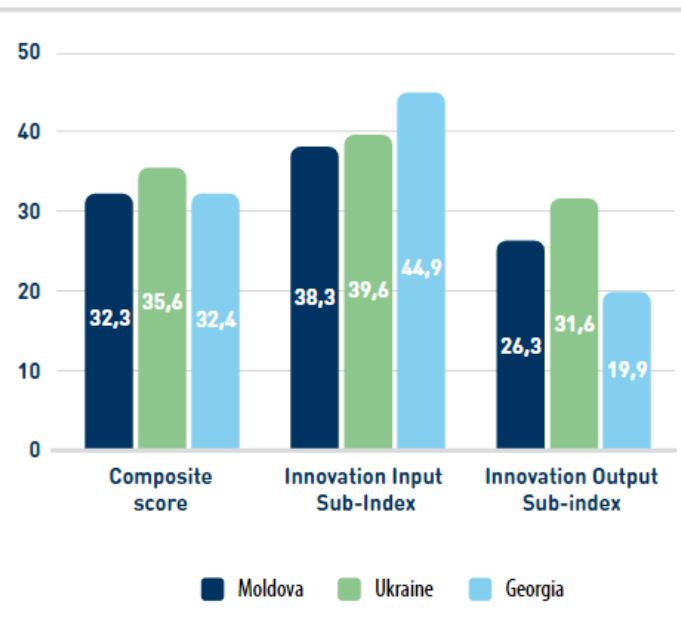
- Despite reforms to promote innovation and entrepreneurship, there is limited systematic innovation across the economy.
- A leading constraint to innovation is the limited ability of the private sector to innovate as firms have inadequate absorptive capacity.
- Limited firm absorptive capacity also appears to constrain positive spillover effects from trade and investment flows.
- Enhancing the private sector's overall absorptive capacity is crucial to innovative development and, in particular, to promoting innovative entrepreneurship.
- Forging and incentivizing science-industry linkages is an important step to boosting innovation.
- In addition to addressing the above issues, establishing the right incentives to align the education system with market needs is essential to address the widely reported skills mismatch.

Figure 2.8 · Knowledge-intensive jobs, as a percentage of the workforce, 2020 (Per cent)



Global Innovation Index (GII), 2021

(Scores^c, Moldova and comparator economies)



3. Enhancing the national innovation system and its governance



UNECE



Main messages

- The Moldovan Government has expressed a clear political commitment to supporting innovation, a position that is reflected in its efforts to establish different innovation support mechanisms. At the same time, the national innovation system remains nascent and in need of further nurturing, especially in the areas of financing and facilitating local innovation initiatives.
- Innovation governance in Moldova is still evolving and is currently somewhat underdeveloped and not as streamlined as it could be. While key legislative and institutional building blocks are in place, policy efforts are fragmented across a number of ministries and agencies that lack systematic synergies. Furthermore, all levels of government and the institutions that play a role in innovation lack the capacities to effectively design, implement and monitor innovation policies that include and systematically engage with all the relevant stakeholders.
- The above-mentioned issues are likely to persist as innovation policy lacks a strategic cross-government coordination mechanism able to guide and align innovation policy efforts towards effective innovation promotion and support at both the national and sub-national levels.
- Public-private dialogue to help formulate inclusive and relevant policies is not yet systematic but could be readily strengthened by building on the existing stakeholder-engagement mechanisms which includes civil society organizations, academia and private sector representatives.
- Innovation activity in the public sector has been limited to efforts on the digitalization of government services and processes. As such, substantial scope for further improvement and reforms remain in connection with eGovernment and efforts to drive the demand for innovation through public procurement (i.e. innovation-enhancing procurement).

3. Enhancing the national innovation system and its governance



UNECE

Recommendations at a glance: Enhancing innovation policy governance

Recommendation 3.1: Reform and complement the institutional and legislative framework for innovation policy based on a broad definition of innovation and the imperative to build and nurture effective innovation systems.

Actions	Priority	Time-frame	Roles
3.1.1. Adopt a holistic approach to innovation policy governance.	①	Medium-term	The Ministry of Finance (MoF), Ministry of Economy (MoE) as well as the Ministry of Education and Research (MER)
3.1.2. Enhance the legal framework for financing innovation.	②	Short-term	The MER and Invest Moldova Agency
3.1.3. Ensure that the legislative, institutional and public finance frameworks enable innovation policy initiatives at the sub-national level.	③	Medium-term	The MER and Ministry of Infrastructure and Regional Development (MIRD)

Recommendation 3.2: Strengthen processes and institutional capacities throughout the policy cycle, in particular, regarding stakeholder dialogue and effective policy monitoring and evaluation.

Actions	Priority	Time-frame	Roles
3.2.1. Strengthen public-private dialogue to ensure systematic and constructive engagement of non-government stakeholders affected by innovation policy.	②	Medium-term	The MIRD, MER, MoE and National Agency for Research and Development (NARD), other relevant ministries and agencies
3.2.2. Make better use of online platforms for public consultations to ensure more systematic engagement of stakeholders in formulating innovation policy.	③	Long-term	The MER and all the Government
3.2.3. Improve the monitoring of policy implementation through increased public administration capacity and external evaluations.	①	Short-term	The MER, NARD all the Government

3. Enhancing the national innovation system and its governance



UNEP



Recommendation 3.3: Enhance policy coordination and alignment across all levels of government to improve the targeting and effectiveness of policy actions.

Actions	Priority	Time-frame	Roles
3.3.1. Establish a National Innovation Council to coordinate and strategically guide innovation policy formulation and implementation.	①	Short-term	The Government (an initiative by MER)
3.3.2. Ensure, under the oversight and guidance of the National Innovation Council, that innovation policy aligns with other sectoral policies.	②	Medium-term	The MER and all the Government
3.3.3. Systematically engage sub-national authorities (i.e. at the district, municipal and autonomous-territory levels) in innovation policy processes.	③	Long-term	The MER, MIRD and MoE

Recommendation 3.4: Accelerate innovation processes in the public sector through further eGovernment reforms and strengthen the demand for innovation via the introduction of an innovation-enhancing procurement framework.

Actions	Priority	Time-frame	Roles
3.4.1. Establish a clear framework for innovation-enhancing procurement.	②	Long-term	The MoE and State Procurement Agency
3.4.2. To accompany the ongoing e-Government reform, mandate training for public servants to enhance their digital literacy proficiency and expand other related skills.	①	Medium-term	The Academy of Public Administration and MER

4. Boosting science-industry linkages and technology commercialization



UNECE

Main messages

- The traditional science-industry links (SILs) perspective of direct transfers of knowledge from research and development (R&D) organizations to businesses does not capture all the aspects of science-industry collaboration in Moldova where such transfers are often driven by problem-solving needs rather than a desire to commercialize research results.
- In Moldova, three major sources of knowledge and technology seem to drive SILs, namely foreign firms and investors (FDI), domestic firms and public research organizations (PROs) in the national R&D system. These three groups of actors form the so-called 'triple helix' model of SILs.
- Effective technology transfers in Moldova require enhancing the linkages between TT infrastructure components, addressing bottlenecks in TT legislation, facilitating the creation of viable innovation hubs at the sub-national level and establishing TTOs able to provide feasible pipelines for TT projects.
- With its rich innovation support infrastructure, innovation activities are currently concentrated in and around the capital. Nationwide development must have adequate and locally relevant regional infrastructure to close the rural-urban gap in innovation and address regional socio-economic challenges (e.g. through infrastructure specialization based on priority areas under smart specialization).

The Moldovan triple helix model of science industry linkages

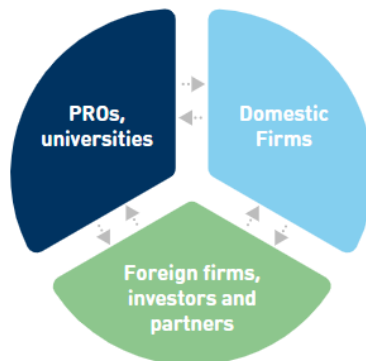
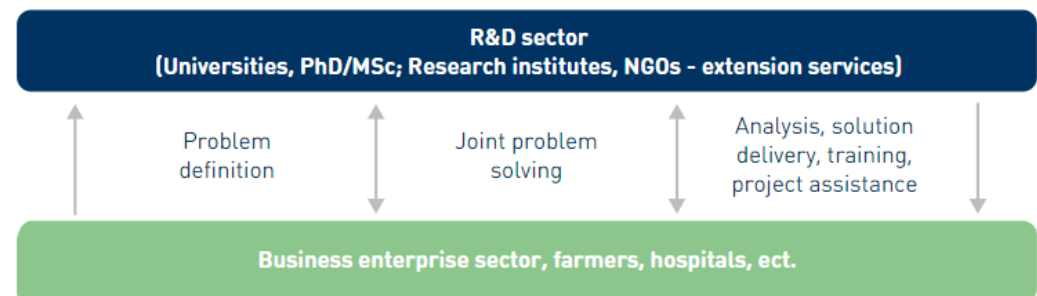


Figure 4.15 · SILs in Moldova



4. Boosting science-industry linkages and technology commercialization



UNECE

Recommendations at a glance: Boosting industry-science linkages and commercializing new technology

Recommendation 4.1: Strengthen the demand side of science-industry linkages (SILs) through targeted assistance mechanisms to increase access to and uptake of research, technology and development (RTD) services in the private sector to enhance the relevance and impact of public R&D investment.

Actions	Priority	Time-frame	Roles
4.1.1. Include private sector representatives in the National Agency on Research and Development (NARD) Supervisory Board.	②	Short-term	The Government and NARD
4.1.2. Enable wider private sector access to public R&D funding and subsidies.	①	Medium-term	The Government and NARD
4.1.3. Introduce innovation vouchers to facilitate and stimulate demand for R&D in the private sector.	①	Short-term	The Ministry of Economy (MoE) and Organization for Development of Small and Medium-sized Enterprises (ODIMM)
4.1.4. Enlarge the supplier development programme to enhance the private sector's absorptive capacity.	②	Medium-term	The MoE and ODIMM

Recommendation 4.2: Strengthen the supply side of SILs by increasing funding for R&D and ensuring an inflow of young researchers within the comprehensively reformed R&D sector.

Actions	Priority	Time-frame	Roles
4.2.1. Renew the young researcher support programme as part of an overall increase in the public R&D budget.	①	Short-term	The Ministry of Education and Research (MER)
4.2.2. Gradually restructure public research organizations (PROs).	①	Medium-term	The MER
4.2.3. Differentiate universities as either research-based or vocational-education based.	②	Long-term	The MER

4. Boosting science-industry linkages and technology commercialization



UNECE



Recommendation 4.3: Enhance linkages between PROs and the private sector, including FDI-funded companies, by aligning private sector needs and commercialization potential with public R&D funding; upgrade the information and technology (IT) sector, an existing 'pocket of excellence', through closer links with higher education.

Actions	Priority	Time-frame	Roles
4.3.1. Extend NARD technology transfer projects to incentivize closer links between PROs and the private sector.	①	Short-term	The Government and NARD
4.3.2. Build the capacity of the Invest Moldova Agency to more effectively attract FDI.	②	Medium-term	The Government, Moldova's Investment Agency and FEZs
4.3.3. Enhance linkages between the FEZs and the rest of the economy.	②	Medium-term	The FEZs and MoE
4.3.4. Introduce mechanisms to link the IT sector with higher-education institutions.	①	Long-term	The MoE and MER

5. Developing innovation and technology transfer infrastructure



UNECE



Main messages

- Moldova's innovation and technology transfer infrastructure, both physical and virtual, is relatively new but encouragingly diverse in function and form, including various types of support mechanisms from industrial parks to fabrication laboratories (Fablabs). However, the linkages between these diverse infrastructure components need substantial improvement to ensure they work together efficiently.
- Traditional technology transfer (TT) infrastructure is still under-developed in Moldova and most technology transfer offices (TTOs) do not operate effectively enough to adequately fulfill their given roles. This is largely attributable to both the lack of TT infrastructure and an overall lack of skilled personnel to effectively engage in knowledge transfer (KT) tasks.
- Effective technology transfers in Moldova require enhancing the linkages between TT infrastructure components, addressing bottlenecks in TT legislation, facilitating the creation of viable innovation hubs at the sub-national level and establishing TTOs able to provide feasible pipelines for TT projects.
- With its rich innovation support infrastructure, innovation activities are currently concentrated in and around the capital. Nation-wide development must have adequate and locally relevant regional infrastructure to close the rural-urban gap in innovation and address regional socio-economic challenges (e.g. through infrastructure specialization based on priority areas under smart specialization).

5. Developing innovation and technology transfer infrastructure



UNECE



Recommendations at a glance: Developing innovation and technology transfer infrastructure

Recommendation 5.1: Optimize the **regulatory environment** to address current shortcomings and barriers to developing innovation infrastructure and introducing new products, services and processes to the market.

Actions	Priority	Time-frame	Roles
5.1.1. Review the current law on scientific and technological parks and innovation incubators to better stimulate demand and boost the project pipeline.	①	Short-term	The Government of Moldova, initiated by the Ministry of Education and Research (MER)
5.1.2. Remove product-certification barriers to eliminate excessive costs associated with double certification.	②	Short-term	The MER
5.1.3. Improve the procurement and import practices of specialized equipment for testing.	③	Short-term	The MER

Recommendation 5.2: Develop **sector-specific TT and innovation infrastructure**, linking it to national development priorities and Smart Specialization efforts.

Actions	Priority	Time-frame	Roles
5.2.1. Link innovation and TT infrastructure more closely to priority sectors identified under Smart Specialization efforts.	①	Long-term	The MER, Ministry of the Economy (MoE) and Organization for Development of Small and Medium-sized Enterprises (ODIMM)
5.2.2. Encourage linkages with international actors engaged in similar TT activities and using similar innovation infrastructure abroad.	③	Medium-term	The MER and MoE
5.2.3. Develop sector-specific advisory services to encourage innovation in priority fields.	②	Medium-term	The MER

5. Developing innovation and technology transfer infrastructure



Recommendation 5.3: Support research commercialization through a **national TTO** and build **knowledge transfer (KT) skills** at each public research organization (PRO).

Actions	Priority	Time-frame	Roles
5.3.1. Establish a national TTO.	①	Short-term	The MER, PROs and higher educational institutions (HEIs)
5.3.2. Require PROs to establish a clear intellectual property (IP) policy and a Memorandum of Understanding (MoU) or similar with the national TTO.	①	Short-term	The MER, PROs and HEIs
5.3.3. Require each PRO to designate an internal partner to ensure effective communication and TT.	②	Short-term	The MER, PROs and HEIs
5.3.4. Set clear joint key performance indicators (KPIs) for both the TTO and PROs.	①	Medium-term	The MER, PROs and HEIs

Recommendation 5.4: Adopt a **clear regional focus** for innovation and TT infrastructure.

Actions	Priority	Time-frame	Roles
5.4.1. Establish a mechanism to enable funding for local physical and virtual innovation infrastructure.	②	Medium-term	The MER, Ministry of Infrastructure and Regional Development (MIRD)
5.4.2. Undertake regional Strengths, Weaknesses, Opportunities, and Threats (SWOTs) and needs analyses to design customized local support.	①	Short-term	The MER and MIRD
5.4.3. Establish stakeholder groups willing to implement actions, including via co-funding for physical infrastructure.	③	Medium-term	The MER and MIRD
5.4.4. Pilot actions and refine programmes on TT to ensure they meet existing needs and yield the intended results.	②	Medium-term	The MER and MIRD

6. Leveraging the diaspora for innovation-driven sustainable development



UNECE



Main messages

- The Moldovan diaspora is relatively young, with pre- and post-independence migration complemented by more recent migration flows. Generally, Moldovan migrants leave the country for economic reasons, often hold Romanian citizenship and are primarily employed in lower-skilled occupations. Currently, there is a lack of data to build a nuanced understanding, in terms of location, composition and so forth, of the Moldovan diaspora and this hampers efforts to fully leverage it for innovation-driven sustainable development.
- Those residing permanently abroad account for the largest proportion of highly-skilled individuals in science, technology, engineering and mathematics (STEM) as well as medicine and other knowledge-intensive occupations. These individuals are the least likely section of the diaspora to return to Moldova, however, they are often eager to contribute to development in their former homeland. As such, developing and maintaining a flexible mechanism for highly-skilled diaspora engagement could greatly benefit knowledge transfer to Moldova.
- Moldova has implemented a relatively successful and diverse policy approach towards diaspora engagement, with initiatives such as the Program on Attracting Remittances into the Economy (PARE 1+1), the Diaspora Succeeds at Home Programme (DAR 1+3), Diaspora Engagement Hub and Diaspora Excellence Groups. These bodies have enjoyed substantial support from donors and have been successful at engaging the diaspora in local development and strengthening links between diaspora members and their former hometowns.
- Despite this relative success, most diaspora engagement programmes face sustainability issues due to a lack of long-term funding, adequate resources and operational infrastructure, a situation that is compounded by wavering trust in state-led initiatives.
- To turn 'brain drain' to 'brain gain' and attract investment, a clear diaspora policy with concrete support mechanisms should be elaborated. Ideally, such mechanisms would have substantial backing from international donor organizations alongside private sector and diaspora engagement to implement effective and sustainable initiatives.

6. Leveraging the diaspora for innovation-driven sustainable development



UNECE



Recommendations at a glance: Leveraging the diaspora for innovation-driven sustainable development

Recommendation 6.1: Build a nuanced understanding of the composition, location, professions, networks and skills of Moldovans abroad by systematically collecting, updating and analysing statistics and surveys.

Actions	Priority	Time-frame	Roles
6.1.1. Establish a voluntary registry of Moldovans abroad.	②	Short-term	The Diaspora Relations Bureau (DRB)
6.1.2. Identify “hub” institutions to serve as engagement platforms, particularly for the diaspora’s science-oriented members.	①	Short-term	The DRB
6.1.3. Conduct regular diaspora census exercises and other surveys.	②	Medium-term	The DRB, with potential support from the United Nations Development Programme (UNDP)

Recommendation 6.2: Consolidate, leverage and scale up existing capacities and mechanisms so they reflect international best practices for diaspora engagement while drawing upon and expanding on Moldova’s current and past experiences.

Actions	Priority	Time-frame	Roles
6.2.1. Integrate diaspora engagement across relevant policy areas through policy documents and programmes (e.g. a national development strategy).	①	Short-term	The Government of Moldova and the DRB
6.2.2. Enlarge the scope for pilot diaspora engagement initiatives among potential sector or regional hubs.	②	Medium-term	The DRB, partner groups and hometown associations (HTAs)
6.2.3. Expand and build momentum around existing formal and informal academic and professional networks.	①	Long-term	The DRB, MECR and MEI

6. Leveraging the diaspora for innovation-driven sustainable development



UNECE



Recommendation 6.3: Develop and maintain flexible engagement infrastructure to interact with the diaspora and foster synergies between diaspora development proposals and Moldova's needs.

Actions	Priority	Time-frame	Roles
6.3.1. Establish an online diaspora engagement portal that would offer direct connections and communication channels between the diaspora and Moldova-based participants.	①	Short-term	The DRB, UNDP, HTAs, MEI and tech-groups
6.3.2. Reinforce consular contacts to identify key competencies in the diaspora and establish new connections with counterparts in Moldova.	②	Medium-to-long-term	The DRB and Ministry of Foreign Affairs

Recommendation 6.4: Develop linkages between academia in Moldova and Moldovan researchers, scientists and affiliated organizations based abroad through the **establishment of a Diaspora Science Group (DSG)**.

Actions	Priority	Time-frame	Roles
6.4.1. Establish the DSG under the auspices of the DRB.	①	Short-term	The DRB and consulates abroad
6.4.2. Introduce mentorship and fellowship programmes under the guidance of, or run directly by, the DSG.	③	Long-term	The DSG, DRB, HTAs, MECR and MEI
6.4.3. Ensure the DSG actively participates in high school, university and vocational education processes in Moldova.	②	Medium-term	The DSG, DRB, MECR, UNDP and multilateral donors

6. Leveraging the diaspora for innovation-driven sustainable development



UNECE



Recommendation 6.5: Elaborate policies to maintain contact and enhance trust between the diaspora and Moldova while strategically engaging with Moldovans living abroad to benefit the homeland.

Actions	Priority	Time-frame	Roles
6.5.1. Facilitate a closer association between the diaspora and Moldovan universities by introducing and maintaining alumni networks.	①	Short-term	The DRB, MECR and higher education institutions (HEIs)
6.5.2. Minimize the overall administrative and financial burden for the diaspora engaged in development initiatives in Moldova, especially for active professionals and scientists, to encourage greater cooperation.	①	Short-term	The DRB, DSG, HTAs and Government of Moldova
6.5.3. Sustain a meaningful cultural connection with the diaspora through dedicated events and initiatives.	②	Medium-term	The DRB and HTAs
6.5.4. Enhance and maintain trust in diaspora policy development through systematic engagement with diaspora members.	③	Long-term	The Government of Moldova and DRB in partnership with HTAs and the DSG
6.5.5. Develop a transparent system of public recognition of achievements and contributions of individual diaspora members.	③	Long-term	The DRB and Government of Moldova

Next steps



- ✓ High-level launch of the official UN publication in Q1 2022 (hybrid mode, TBC)
- ✓ Translation of the publication into Russian
- ✓ Agreeing on and implementing (from 2022) a capacity-building programme as follow-up to the Review on priority topic(s) agreed with the Ministry of Education and Research

Thank you!

*Innovative Policies Development Section
Economic Cooperation and Trade Division*



UNECE

