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ERA Country Report 2024
Armenia

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Report

Research and Innovation

ERA Country Report 2024: Armenia

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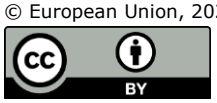

EUROPEAN COMMISSION

ERA Country Report 2024

Armenia

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Table of contents

Key takeaways

- Despite the absence of a comprehensive R&I strategy in Armenia, the implementation of three ERA Actions has seen notable progress during 2023-2024. However, the fragmentation of R&I policy objectives across different strategies hinders effective R&I policy implementation.

- Armenia has increased its public R&D funding over the last three years with the aim of investing in human capital. Increasing the salaries the researchers is a major component to improve the attractiveness of research careers, in line with ERA Action 4. Nevertheless, Armenia's overall investments in R&D remain considerably below EU average at 0.21 percent of GDP.

- Funding for research infrastructure and equipment has more than doubled between 2022 and 2022.

- New procedures for state financing of science and research activities, approved in February 2025 provide major changes to the funding and evaluation system of research organisations. It introduces performance-based funding mechanisms for research organisations, provisions for funding of research infrastructure maintenance, bonus and penalty mechanisms for meeting certain quality criteria, etc.

1. National context

Armenia is one of the smaller *associated countries* which has demonstrated a steady improvement in innovation performance over the last couple of years, according to the Global Innovation Index 2024. In 2024, it ranked 63rd among 133 countries performing better on innovation outputs than on innovation inputs and positioning itself 15th among the 34 upper-middle-income economies[1], an improvement from 2023 when the country ranked 72nd among 132 economies, standing 17th in its income group. Despite strong progress, Armenia displays challenges in human capital and research (89th), business sophistication (85th), and market sophistication (83rd) reflecting the overall low absorption capacities of its private sector outside ICT and a need of reform of the R&I sector to enhance human capital development and investments in R&I, both on public and private sector side.

To address these challenges, the Government of Armenia has been undertaking a comprehensive R&I system reform focused on consolidation of R&I institutions, transition to performance-based R&I funding, upgrading of R&I infrastructures, boosting innovative activities of enterprises and investing in human capital development. Armenia has doubled its public R&D funding over the last three years with the aim of investing in human capital, as most of the increase went to support the salaries of researchers and scientists. In 2022, the state budget expenditure on R&D amounted to AMD 22.2 billion (EUR 50.3 million),[2] with plans to increase to AMD 31-32 billion (EUR 70-72.5 million) annually in 2024-2026.[3] Yet, Armenia still falls behind its peers in the upper-middle-income group on R&D expenditures with GERD at 0.21 percent of GDP in contrast to the average in the income group at more than 2 percent of GDP.

Armenia does not have a comprehensive national innovation development strategy with its R&I policy objectives outlined in the Government Programme for 2021–2026 and across several other sectoral strategic documents (e.g. Digitalisation Strategy for 2021-2025, SME Development Strategy for 2020-2024, Medium term expenditure framework for 2024-2026, etc.).The HESC expects to develop a comprehensive R&D strategy and establish a list of priority areas for S&T development once the new Law on Higher Education and Science is adopted. However, currently, the lack of strategic vision and a comprehensive policy framework for R&I is an obstacle for effective implementation of R&I policy.

Reform efforts in R&I sector include the adoption of the new Law on Higher Education and Science which was approved by the Government and is to be presented at the Parliament in the summer of 2025. Another policy document guiding the R&I policy is the State Programme for Education Development (SPED) until 2030 adopted by the Parliament in November 2022. The programme aims at improving international competitiveness of the higher education institutions in Armenia with significant consolidation processes of HEIs foreseen. The 'Academic.City' project is an example of efforts in this direction. It was launched in 2023 at the site of the Institute for Physical Research of National Academy of Sciences in Ashtarak with the aim to group eight State universities with facilities to accommodate 50,000 staff.

Innovation policy governance is fragmented across three main ministries overseeing various aspects of the R&I policy. The Ministry of High-Tech Industry (MoHTI) oversees policies for advancing innovation in high-tech sector, the Ministry of Economy (MoE) is responsible for

[1] https://www.wipo.int/gii-ranking/en/armenia
[2] Ministry of Finance of the RA (2023) *State Budget Execution Report 2022* [Armenian]. Available at: https://minfin.am/hy/page/petakan_byujei_hashvetvutyun_2022_t_tarekan.
[3] Ibid.

innovation in traditional industries, and the Ministry of Education, Science, Culture, and Sports (MoESCS) covers policies on general, higher, and vocational education, as well as science and innovation. In addition, the Higher Education and Science Committee (HESC) under the MoESCS plays a central role in Armenia's R&I landscape. It is charged with development and implementation of higher education and science policy, overseeing and coordinating initiatives across higher education, scientific research, and innovation and it performs the functions of state research funding agency. Current coordination among the responsible ministries is organised at the working level and is perceived as rather effective supported by the consistent retaining of roles and functions with regards to R&I by relevant ministries and agencies.

Furthermore, the National Academy of Sciences (NAS) is the key research performing organisation which also plays an advisory role for the Government in the area of science policy[4]. It contains 30 research institutes and scientific centres in five main disciplines, including physics and astrophysics, mathematics and technical sciences, chemistry and earth sciences, natural sciences (including medicine and biology), and humanities and social sciences.

Armenia has significantly increased it participation in Horizon Europe programme over the last couple of years, leveraging the opportunities offered under the European Union-Armenia Comprehensive and Enhanced Partnership Agreement (CEPA). In October 2024, budgetary figures of Armenia's participation in Horizon Europe already exceeded those of Horizon 2020. In fact, as of the end of 2024, within the framework of Horizon Europe, a total of 144 applications were submitted by Armenia (twice as much as in 2023), and 7 more funding agreements were signed, bringing the total number of agreements to 17, with a total budget of EUR 7.58 million, thus exceeding the budget of the previous year by 2.4 times[5]. The grant agreement signed between the HESC and the Delegation of the European Union to Armenia in 2024 provides for the reimbursement of 50 percent of the annual membership fee and contributes to ensuring the continuity of Armenia's participation in the Horizon Europe program[6]. Finally, the Scientific and Innovation Partnership Assistance Centre (SIPAC) played a major role in this development as it provided necessary support for Armenian R&I stakeholders in participation in Horizon Europe calls (e.g., Proposal Writing Camps, tailored consultancy and support services, etc.).

Table 1 Structural Key Indicators

Indicator	EU27	Armenia		
	2023	2023	Average 2018-2020	Average 2021-2023
GDP per capita (EUR) in current prices	35 790.00	/	/	/
Gross Domestic Expenditure on R&D (GERD) as a share of GDP	2.27	0.21	0.19	0.21
Size of the population (million)	448.80	2.98	2.97	/
Researchers (in FTE) per million inhabitants	4 681.34	1219.93	/	1219.93

Source: See Annex 1

[4] Hovhannisyan, S. (2019). Background Report: Specific Support to Armenia. Horizon 2020 Policy Support Facility. European Commission. Available at: https://projects.research-and-innovation.ec.europa.eu/sites/default/files/rio/report/Background_report_Armenia.pdf.

[5] http://hesc.am/am/09-01-2025

[6] Higher education and science committee | armenian delegation participates in discussions on armenia-eu partnership agenda in Brussels (no date). Available at: http://hesc.am/en/16-10-2024

2. Status of the Implementation of the ERA Policy Agenda

Chapter 2 briefly summarises **new developments in Armenia since the publication of the ERA Country Report 2023**, based on the commitments to ERA Actions. The findings are based on desk research and written consultation with relevant Armenian authorities.

The Armenian Government has committed to three ERA Policy Agenda actions, all falling under ERA Priority 1: Deepening a truly functional internal market for knowledge (see Table 2). All the actions focus on the assessment of researcher performance, promoting attractive research careers and talent attraction and investment in research infrastructures.

Table 2 Commitment to ERA Actions

1: Deepening a truly functioning internal market for knowledge								
1. Enable Open Science, including through EOSC	2. Propose an EU copyright and data legislative framework for research	3. Reform the Assessment System for research, researchers and institutions	4. Promote attractive research careers, talent circulation and mobility	5. Promote gender equality and foster inclusiveness	6. Protect academic freedom in Europe	7. Upgrade EU guidance for a better knowledge valorisation	8. Strengthen research infrastructures	9. Promote international cooperation
2: Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA					3: Amplifying access R&I excellence across the Union		4: Advancing concerted research and innovation investments and reforms	
10. Make EU R&I missions and partnerships key contributors to the ERA	11. An ERA for green transformation	12. Accelerate the green & digital transition of Europe's key industrial ecosystems	13. Empower Higher Education Institutions	14. Bring Science closer to citizens	16. Improve EU-wide access to excellence	17. Enhance public research institutions' strategic capacity	19. Establish an ERA monitoring system	

Source: European Commission (Note: Actions 15, 18 and 20 were not implemented)

ERA Priority 1: Deepening a truly functioning internal market for knowledge

ERA Action 3) Advance towards the reform of the Assessment System for research, researchers and institutions to improve their quality, performance and impact

An absence of performance-based funding of research has been highlighted by 2020 PSF[7] and SPED[8]. The new Law on Higher Education and Science is expected to provide a legal basis and mechanisms for accreditation (certification) of research organisations. The certification is the first step towards a performance-based funding along with the consolidation of HEIs and scientific research organisations. The Law was approved by the Government and submitted to the Parliament which will consider it in its summer session of 2025.

Furthermore, in November 2023, the HESC introduced a draft proposal on new procedures for state financing of science and research activities[9]. This proposal was approved by the Government on 13 February 2025. It introduces the following changes: implementation of performance-based funding mechanisms for research organisations, provisions for funding of research infrastructure maintenance, bonus and

[7] European Commission (2020), *Horizon 2020 Policy Support Facility "Raising the bar: a new mission for science in Armenia's development"*. Available at: https://projects.research-and-innovation.ec.europa.eu/sites/default/files/rio/report/SS%2520Armenia_Final%2520Report_1.pdf

[8] Government of Armenia (2023), *Approval of the State Program of Education Development until 2030*. Available at https://www.arlis.am/DocumentView.aspx?docID=175541

[9] Ministry of Education, Science, Culture, and Sports of the RA (2023) *Draft Guidelines for State Financing Procedures for Scientific Activities*. Available at: https://www.e-draft.am/projects/6558/justification.

penalty mechanisms for meeting certain quality criteria, etc. In fact, the procedure establishes three types of funding of R&D: basic (state) funding, grant funding and target programmes funding. It introduced 5 levels of performance for organisations, the highest of which is eligible to claim 20% of increase in funding, and the lowest is subject to cessation of state funding and reorganisation.

In addition, Armenia has benefitted from TAIEX support in 2024 with the exchange of experience between HESC and Croatian experts on performance-based funding reform, risk assessment and capacity building in education and science[10].

Finally, "Academic City" is the flagship project of the Government of Armenia representing the results of consolidation of the HEIs in the country. Over 2024, the project had its master plan developed by a German company[11] and the first tenders won by companies to provide services in the future academic cluster[12], while several MoUs were signed to develop technological, educational and arts clusters, revise educational programmes and provide training for researchers.

In addition, Armenia (NAS) has been implementing a joint project with Italy (University of Tor Vergada) with the first results of the study on "Development of an Armenian Research Evaluation System Based on a Scientometric Approach" presented in October 2024[13].

ERA Action 4) Promote attractive and sustainable research careers, balanced talent circulation and international, transdisciplinary and inter-sectoral mobility across the ERA

The Action is implemented under SPED through clarification of the system and criteria for doctor's (PhD) degree qualification, research education and scientific graduation along the international standards. The increase in salaries of the researchers in 2023 was an important step towards increasing the research career attractiveness.

The HESC has been implementing programmes for young researchers, such as the "Professional Training" programme that allows to young researchers from Armenia to impalement R&D projects in leading research organisations and universities abroad. Over 2024, 30 researchers benefited from this programme conducting their projects across USA, Canada, the EU, China, etc.

In addition, in 2023, the HESC introduced Emerging Directions grant scheme, which, among other topics, offered financing in areas such as clean energy, decarbonization, biodiversity, food security, smart transportation, and sustainable buildings.[14] In 2024, 20 projects were granted funding for the duration of 36 months.

Finally, the HESC has conducted calls aimed at integration of incoming researchers in the scientific community in Armenia in Nov 2023. In Dec 2024, HESC and the Foundation for Science and Technology of Armenia (FAST) signed an agreement on continuation of the ADVANCE programme bringing over 80 renowned researchers from abroad to work on areas such as machine learning, biotech, bioinformatics, etc. with intense cooperation between Armenia and foreign HEIs and research institutions. The HESC plans to support six innovative projects under ADVANCE from January 2025 to August 2027[15].

[10] http://hesc.am/am/27-11-2024
[11] http://hesc.am/am/09-07-24-1
[12] http://hesc.am/am/17-10-24
[13] http://hesc.am/am/18-10-2024
[14] Higher Education and Science Committee (2023) *Research Projects in Emerging Directions 2024: Call for Applications* [Armenian]. Available at: http://hesc.am/am/65655c91a800dda188943572.
[15] http://hesc.am/am/13-12-2024

Other grant R&I projects with engagement of international partners include the ongoing joint Armenia-Georgia (HESC and Shota Rustaveli National Science Foundation of Georgia) grant funding[16] of R&D projects and the launch of "Remote Laboratory Establishment" Programme-2025" aimed at strengthening the international cooperation and scientific potential through engagement of prominent scientific diaspora[17] in R&D in Armenia. In addition, a joint Armenia-Germany grant call resulted in 4 mobility projects funded since March 2024 while an Armenia-Italy call funded 10 mobility schemes from Feb 2025.
Armenia doubled its participation in the Horizon Europe calls in 2023-2024, with SIPAC playing a key role with its support programmes for Armenian R&I stakeholders.

ERA Action 8) Strengthen sustainability, accessibility and resilience of research infrastructures in the ERA

The main research infrastructures in Armenia include the Armenian National Engineering Laboratory (ANEL) and the accelerator project CANDLE (Centre for the Advancement of Natural Discoveries using Light Emission) at the Synchrotron Research Institute.
State funding for research is channelled through the science budget, including financing the maintenance and development of research infrastructure. The ongoing effort to increase the state R&D expenditures included the increase in earmarked funds for upgrading research facilities and infrastructure with EUR 2.7 million dedicated to infrastructure upgrading in 2022 and EUR 7.2 million in 2023[18]. In 2023, 54 large scale equipment pieces were purchased, followed by 41 equipment pieces in 2024. A separate AMD 3.4 billion were allocated in 2023 for procurement of the supercomputer for the Yerevan State University with its expected launch in 2025. Over 2024, HESC conducted several calls on financial support for the acquisition of scientific devices and equipment for modernisation of material and technical base of Scientific Centres, with, for example, 29 devices purchased for a total value of AMD 3.5 billion[19].

3. Contribution of ERA Actions to national performance in reaching ERA objectives

This chapter provides a qualitative assessment of how the joint ERA Actions contributed to Armenia's performance in achieving the ERA objectives as defined in the Pact for R&I during the period 2022-2024.

ERA Priority 1 is addressed through initiatives focussing on **ERA Actions 3, 4, and 8** which aim at reforms across research system assessment, research careers' attractiveness and strengthening of research infrastructures to foster internal R&D capabilities and market for knowledge.

The implementation of these activities in largely on track with notable progress in i) legislation underpinning the performance-based funding of research institutions (i.e., the decree of the

[16] http://hesc.am/am/06-12-2024
[17] http://hesc.am/am/31-10-2024
[18] Global Service Facility (2023) Country Report Armenia. Global Service Facility in Support of the Global Approach in Research and Innovation. European Commission, DG R&I Directorate F. Unpublished report (17/11/2023).
[19] http://hesc.am/am/09-12-24

Government on procedures of financing scientific and science- technical activities adopted 13 Feb, 2025, and relevant provisions under the new Law on Higher Education and Science submitted for consideration by the Parliament to be voted in summer 2025); ii) the development of the Academic.City project – a project addressing the fragmentation of the HEIs system, and exchange of best practices on performance-based funding under TAIEX support in 2024; iii) the implementation of programmes for young researchers (e.g. “Professional Training”, Emerging Directions grant scheme, bilateral grant programmes with Georgia, Germany) and experienced renown researchers (continuation of ADVANCE programme), and increased participation in Horizon Europe programmes; iv) an increased research infrastructure funding (i.e., EUR 7.2 million in 2023 vs EUR 2.7 million in 2022).

However, despite notable progress, the lack of a comprehensive national innovation development strategy and fragmentation of R&I policy objectives across the Government Programme for 2021–2026 and across several other sectoral strategic documents, as well as the State Programme for Education Development (SPED) until 2030, hinders effective R&I policy implementation and R&I becoming a powerful driver of economic transformation of Armenia. The ongoing efforts on consolidation of the higher education system through the Academic.City project are commendable and should be progress with the implementation ensuring that the process is inclusive and transparent, engaging relevant stakeholders at each stage of development.

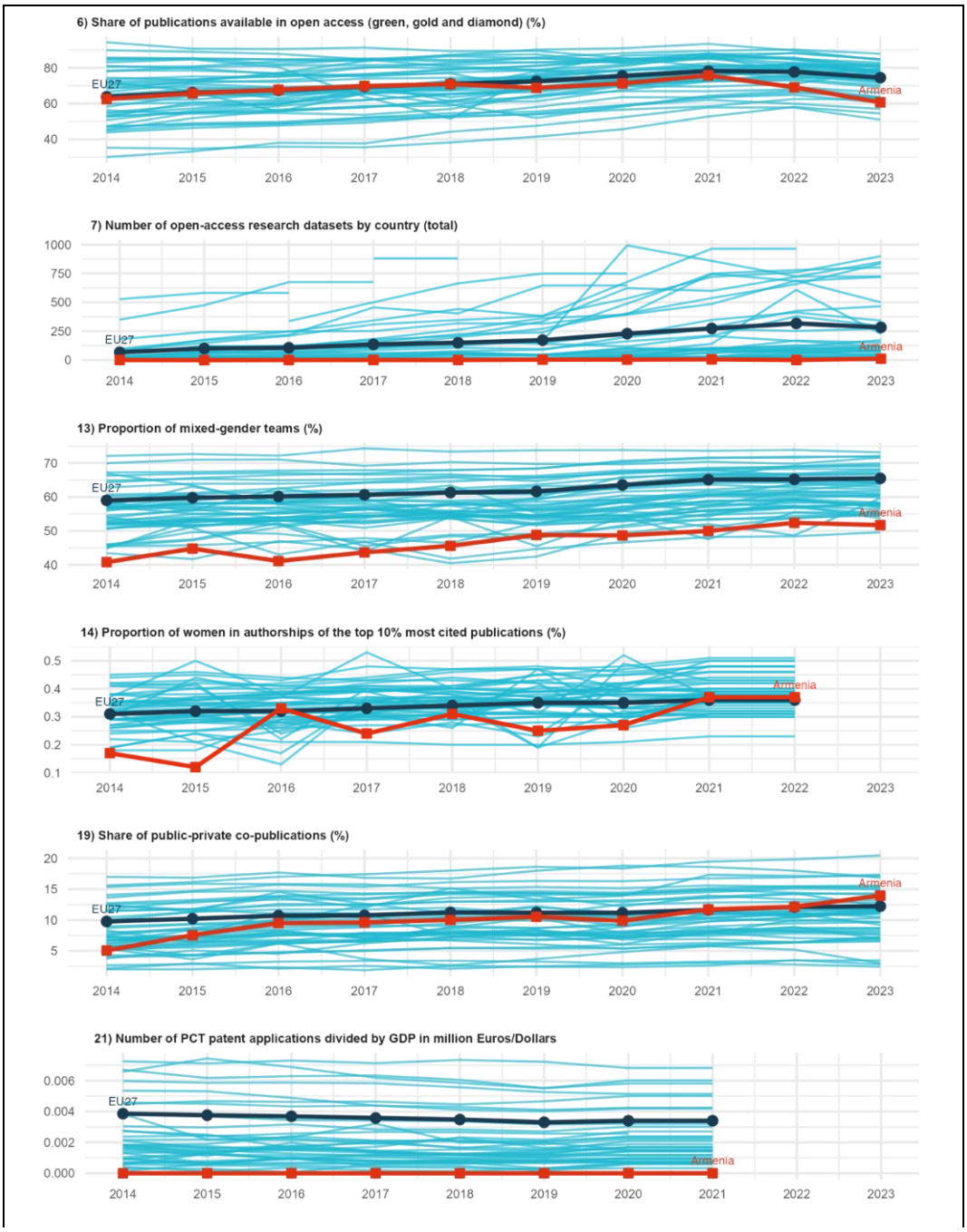
Data available for Armenia from the ERA Scoreboard and Dashboard for ERA Priority 1 indicates positive trend in gender equality in research. For instance, the proportion of mixed-gender teams increased over the last decade (ERA Dashboard Indicator 13) but remains significantly below the EU average (approximately 50 percent vs 60 percent) and has seen a slight decline in 2023 compared to 2022. In addition, when it comes to the proportion of women in authorship of the top 10 percent most cited publications (ERA Dashboard Indicator 14), Armenia performed at comparatively the same level as the EU27 in 2022.

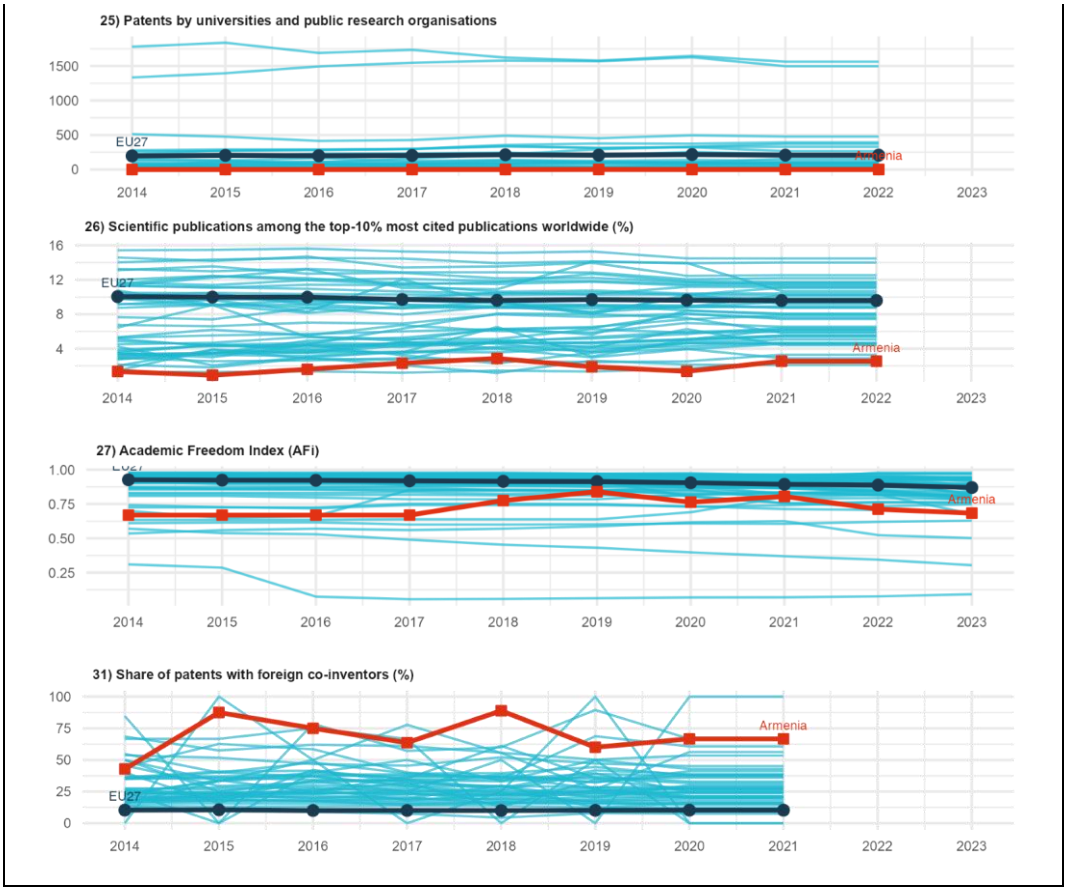
In terms of scientific leadership, Armenia demonstrated a slight improvement over 2014-2022 with current increase in cooperation (incl. under Horizon Europe and mobility schemes of HESC) expected to contribute to better performance on indicator 26 on scientific publications among top 10 percent most cited worldwide. In addition, Armenia shows higher performance than the EU average on share of public-private co-publications (ERA Dashboard Indicator 19) highlighting existing effective industry-science linkages in specific sectors.

The enhanced global engagement of Armenia and its high-tech company base along with entrepreneurial talent are reflected in high share of patents with foreign co-inventors compared to the EU: over 70 percent vs 12 percent in 2021 (ERA Dashboard Indicator 31) which is to an extent also due to the small size of the research ecosystem in Armenia and its wide international connections in R&I sector (i.e., Armenian-origin researchers abroad). Despite good performance on co-patenting activity, Armenia performed below EU average on patents by universities and research organisations in 2022 (ERA Dashboard Indicator 25) with expectations that current reform efforts directed at quality of the research output will mark a positive change in this regard.

Finally, when it comes to academic freedom protection and openness of research results, Armenia performs well below EU average on Academic Freedom Index in 2023 (ERA Dashboard Indicator 27) and on availability of its research data in open access (ERA Dashboard Indicators 6 and 7).

Figure 3-1 Indicators for ERA Priority 1

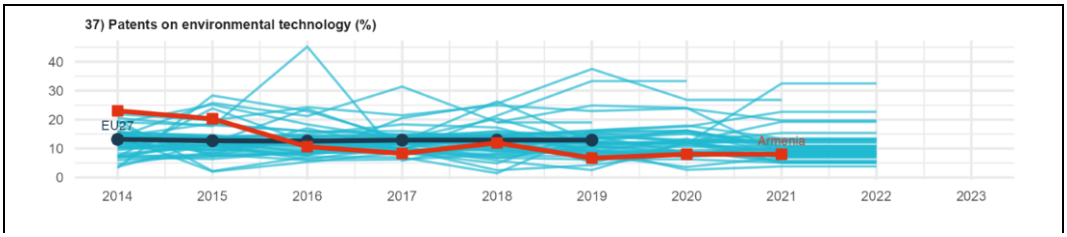


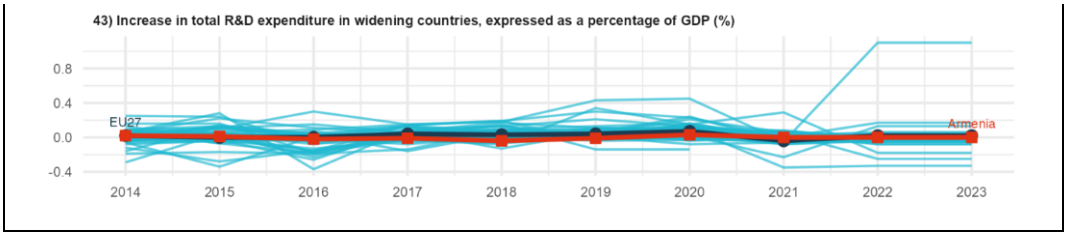


Source: see Annex 1

While Armenia has not committed to actions under the **ERA Priority 2**, data available on patents on environmental technology (ERA Dashboard Indicator 37) shows that Armenia has been performing below most of the EU countries. Recent efforts of the Government of Armenia to increase investments in research areas related to Green Deal are expected to have positive effect on this indicator. However, the increase in Armenia's R&D expenditures over 2023-2024 as the result of the reform is not yet reflected in ERA Dashboard Indicator 43.

Figure 3-2 Indicators for ERA Priority 2





Source: See Annex 1

Armenia has not committed to actions under **ERA Priority 3** and **4**. In addition, the relevant ERA Dashboard Indicators are not available. Its performance is therefore not assessed against relevant indicators across these priorities.

4. Effects of ERA Action implementation on the national R&I system

This chapter presents a qualitative assessment of the ERA Action commitments of Armenia under ERA Priority 1 (as it is the only ERA Priority under which the country has committed to ERA Actions) and their effects on the national R&I system, including the quantitative performance in the ERA Dashboard.

The implementation of the **ERA Actions 3 and 4** correspond to the SPED's objectives to enhance the quality of the research system through introduction of a performance-based state funding of R&D together with the development of a better assessment mechanism for R&D system, as well as the objective of making research careers more attractive and increasing the researchers' mobility. The progress can be observed in Armenia`s high share of co-patenting with foreign inventors (ERA Dashboard Indicator 31) demonstrating increased research system performance and international exposure. However, the patenting activity by universities and research organisations remains significantly below the EU average (ERA Dashboard Indicator 25), demonstrating the need for further improvements of the research system quality, as outlined by current reforms.

The implementation of the **ERA Action 8** is in line with the Government's ambition to enhance the quality of and access to the research infrastructures to foster internal R&D capabilities with the significant increase in research infrastructure spending observed over the 2022-2024. Nevertheless, Armenia's overall investments in R&D remain considerably below EU average and require further ramping up (i.e., in 2023, Armenia's GERD stood at 0.21 percent of GDP whereas the average in its income group according to the GII 2024 stood at above 2 percent of GDP).

5. Conclusions

Under **ERA Action 3**, Armenia has made major strides in form of the introduction of performance-based funding of R&D organisations, as well as on advancing on higher education system consolidation through the Academic.City project.

Under **ERA Action 4**, a focus was on increasing the attractiveness of research careers through implementation of programmes for young researchers (e.g. "Professional Training", Emerging Directions grant scheme, bilateral grant pro-grammes with Georgia, Germany,

Italy) and experienced renown researchers (continuation of ADVANCE programme), and a twofold increase in participation in Horizon Europe programme (compared to Horizon 2020). In addition, funding has been made available to increase researcher salaries and to promote the attractiveness of research careers.

Finally, Armenia seeks better quality and access to research infrastructures under **ERA Action 8**. Notable developments and progress was in the form of increases in research infrastructure funding (i.e., EUR 7.2 million in 2023 vs EUR 2.7 million in 2022) and including infrastructure-specific HESC calls (e.g., several calls on financial support for the acquisition of scientific devices and equipment for modernisation of material and technical base of Scientific Centres, with 29 devices purchased for a total value of AMD 3.5 billion in 2024).

Notable progress is also visible in other areas not covered by Armenia's commitment to ERA Actions, such as gender equality, the participation in Horizon Europe, as well as internationalisation of research. However, the lack of a comprehensive national innovation development strategy and fragmentation of R&I policy objectives hinder effective R&I policy implementation and R&I becoming a powerful driver of economic transformation of Armenia.

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Annex 1 – Full list of ERA Dashboard indicators

The indicators used in the report are taken from the ERA Dashboard 2024. The full ERA Dashboard Report and the supporting Data Replication Package can be downloaded at https://european-research-area.ec.europa.eu/era-monitoring-reports. However, *GDP (in million €)*, *Size of the population (million)*, and *Share of female researchers, all sectors of performance (%)* were added to provide additional context and directly retrieved from the Eurostat website.

Additionally, EU and country averages are for 2023, except *Share of female researchers, all sectors of performance (%)* (2021).

Table 1 Structural Key Indicators:

Indicator number	Indicator	Source
/	GDP in euro per capita, current prices	Eurostat https://doi.org/10.2908/TEC00001
1	Gross Domestic Expenditure on R&D (GERD) as a share of GDP	Eurostat
2	Government Budget Allocations for R&D (GBARD) as share of GDP	Eurostat
4	Business Enterprise Expenditure on R&D (BERD) as a share of GDP	Eurostat
5.2	Expenditure on R&D procurement as a percentage of GDP	EC/European Innovation Procurement Observatory
/	Size of the population (million)	Eurostat, https://doi.org/10.2908/TPS00001
3	Researchers (in FTE) per million inhabitants	Eurostat
/	Share of female researchers, all sectors of performance (%)	Eurostat, https://doi.org/10.2908/TSC00005

Figure 3.1 Indicators for ERA Priority 1

Indicator number	Indicator	Source
6	Share of publications available in open access (green, gold, and diamond)	OpenAIRE
7	Number of open-access research datasets by country	OpenAIRE
8	Number of repositories by country	EOSC - Re3data
9	Country investments in EOSC and Open Science (in ranges of investment)	EOSC Observatory
10	Share of national public R&D expenditure committed to European research infrastructures	ESFRI
11	Number of European RIs in which a Member State or an Associated Country participates	ESFRI
12	Proportion of women of Grade A among academic staff/researchers	Women in Science - She Figures
13	(Corrected) Proportion of mixed-gender teams	EC_Scopus
14	(Corrected) Proportion of women in authorships of the top 10% most cited publications	EC_Scopus
15	Women in Digital index (0-100)	EC-Women in Digital Scoreboard

16	Proportion of women among doctoral graduates by narrow fields of STEM	Eurostat
17	Share of foreign doctorate students as a percentage of all doctorate students	Eurostat
18	New doctorate graduates per 1,000 inhabitants aged 25-34	Eurostat
19	Share of public-private co-publications	EC_Scopus
20	(Cumulative number of) Best practice examples and methodologies for knowledge valorisation	Knowledge Valorisation Platform
21	Number of PCT patent applications divided by GDP in million Euros/Dollars	OECD, Eurostat & World Bank
22	Share of innovating firms collaborating with HEI/PRO out of all innovative firms	Eurostat CIS (own calculations)
23	Business enterprise researchers as % of total researchers	OECD
24	Business enterprise researchers in full-time equivalent per thousand employment in industry	OECD
25	Patents by universities and public research organisations	EPO PATSTAT - Fraunhofer ISI calculations
26	% of scientific publications among the top-10% most cited publications worldwide	EC_Scopus
27	Academic Freedom Index (AFi)	V-Dem Varieties of Democracy
28	Average ranking score of top 10 universities by country and year	QS World University Ranking
29	Sum of ERC grants received by country in a given year per 1,000 R&D personnel (in FTEs)	EC-ERC
30	International co-publications with non-EU partners per 1,000 researchers in the public sector	EC_ScienceMetrix and Eurostat/OECD
31	Share of patents with foreign co-inventors	OECD
32	European and international co-patenting in EPO applications at national and EU level	Eurostat
33	Government budget allocations for R&D (GBARD) according to NABS as % total GBARD	Eurostat

Figure 3.2 Indicators for ERA Priority 2

Indicator number	Indicator	Source
34	Note: The ERA Dashboard Indicator 34 was removed from the Dashboard in January 2025. As a consequence, the indicator has also been omitted from the Country Report, while, however, keeping the original numbering of the indicators.	
35	Environmentally related government R&D budget, as % of total government R&D	Eurostat
36	National public and private investments as suggested in the SET Plan progress report 2021 (EUR million)	SETIS R&I data
37	% Patents on environmental technology	OECD
38	Share of innovative firms cooperating with higher education institutions or public/private research institutions	Eurostat CIS
39	Enterprises that purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions	Eurostat CIS

40	Direct government support and indirect government support through R&D tax incentives as a % GDP	OECD
41	Green bond issuance as a percentage of total bond issuance	Eurostat - EEA
42	Trust in Science	Eurobarometer 95.2
43	Increase in total R&D expenditure in widening countries, expressed as a percentage of GDP	Eurostat, OECD, UNESCO

Figure 3.3 Indicators for ERA Priority 3

Indicator number	Indicator	Source
44	Number of participations in Horizon Europe (of Widening countries) measured in terms of 1,000 R&D personnel (in FTEs)	Cordis - Eurostat
45	Sum of Horizon Europe grants (€) received by Widening countries in terms of 1,000 R&D personnel (in FTEs)	Cordis - Eurostat
46	Summary Innovation Index (Widening countries)	EC_EIS
47	Share of enterprises using public funds from different governance levels (local or regional, national, and EU) for R&I activities	Eurostat CIS
48	Number of Seal of Excellence projects on the InvestEU Portal per 1,000 R&D personnel (in FTEs)	EC - Invest EU
49	Number of collaboration networks of RPOs in Widening countries with other EU countries	Cordis - Horizon Dashboard
50	Average number of partners from non-widening countries per institution from a Widening country participating in the Horizon programme each year	Cordis - Eurostat
51	Share of patents registered by a Widening country together with partners from other EU countries	OECD
52	Share of innovative enterprises that cooperated with RPOs located in other countries	Eurostat CIS
53	Share of public R&D expenditures financed by the private sector	Eurostat

Figure 3.4 Indicators for ERA Priority 4

Indicator number	Indicator	Source
54	GBARD allocated to Europe-wide transnational, as well as bilateral or multilateral, public R&D programmes per FTE researcher	Eurostat

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