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Implementation of the United Nations Economic Commission for Europe Strategy for Education for Sustainable Development: Fifth evaluation report of the Strategy for Education for Sustainable Development

Learning from each other: achievements, challenges and ways forward

Fifth evaluation report of the Strategy for Education for Sustainable Development

Summary

The present document summarizes progress made by the United Nations Economic Commission for Europe member States in implementing the Commission's Strategy for Education for Sustainable Development during the implementation phase 2021–2025 ("phase V of implementation") and is based on an analysis of 31 national implementation reports submitted by member States.

The national implementation reports indicate sustained commitment to education for sustainable development across the United Nations Economic Commission for Europe region, with further integration of education for sustainable development into national education strategies, curricula and teacher education frameworks. Progress is most evident in formal education, where alignment with climate, environmental and broader sustainable development policies has strengthened. However, implementation remains uneven across countries and education levels, and the scaling up of education for sustainable development continues to be constrained by limited resources, fragmented governance and insufficient coordination mechanisms. Whole-institution approaches, digital education for sustainability and entrepreneurship-related learning remain less systematically developed, often relying on project-based or externally funded initiatives. While digital tools and platforms are increasingly used to support education for sustainable development, disparities in access and educator competences persist. Monitoring and evaluation of education for sustainable development outcomes, particularly in non-formal and informal learning settings, remains challenging. Countries emphasize the need to strengthen national coordination, invest in professional development, enhance quality assurance and expand education for sustainable

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development across all levels of education, supported by regional cooperation and the exchange of good practices.

The present report's findings will inform the development of the future implementation framework of the United Nations Economic Commission for Europe Strategy for Education for Sustainable Development beyond 2030, and will be discussed at the Fourth High-level Meeting of Education and Environment Ministries, to be convened in the framework of the Tenth Environment for Europe Ministerial Conference, subject to a decision by the United Nations Economic Commission for Europe Committee for Environmental Policy on the dates and venue.

I. Executive summary

1. This report reviews progress in the implementation of the United Nations Economic Commission for Europe (UNECE) Strategy for Education for Sustainable Development (ESD) across the ECE region during the period 2021–2025. It builds on findings from previous evaluation cycles and reflects the transition to the implementation framework for 2021–2030, guided by the Ministerial Declaration of the Ninth Environment for Europe Ministerial Conference (Nicosia, 5–7 October 2022). The report draws on national implementation reports (NIRs) submitted by ECE member States, complemented by qualitative analysis and thematic synthesis.

2. Overall, the evaluation indicates sustained region-wide commitment to ESD, with notable advances in policy integration, curriculum development and professional learning opportunities for educators. Many countries have further aligned ESD with national education strategies, climate and environmental policies, and broader sustainable development agendas. Progress is particularly evident in the formal education sector, where ESD principles are increasingly embedded in curricula, learning standards and teacher education frameworks.

3. However, implementation remains uneven across countries, education levels and thematic areas. While quality education and curriculum integration continue to receive greater attention, whole-institution approaches (WIAs), digital education for sustainability and entrepreneurship-related learning remain less systematically developed. In many cases, ESD initiatives are driven by individual institutions, projects, or external funding rather than sustained system-level frameworks. However, scaling up such approaches remains challenging due to limited resources, insufficient coordination mechanisms and competing reform priorities.

4. Digital education has emerged as an increasingly relevant ESD enabler, particularly in the context of recent disruptions to education systems. Several countries report expanded use of digital platforms, open educational resources and blended learning models to support sustainability-related learning. Nevertheless, disparities in digital infrastructure, educator competences and access persist, underscoring the need for targeted capacity-building and investment.

5. Entrepreneurship education linked to sustainability goals remains an underdeveloped area in many national contexts. Where present, it is often framed within economic or innovation agendas, with limited explicit integration of environmental and social sustainability dimensions. This report identifies opportunities to strengthen ESD-entrepreneurship education synergies by promoting systems thinking, ethical decision-making and community-oriented innovation.

6. Across country self-assessments, recurring challenges include limited financial and human resources, fragmented governance arrangements, and insufficient monitoring and evaluation mechanisms. Difficulties in assessing learning outcomes, particularly in non-formal and informal settings, continue to constrain evidence-based policy development. These challenges echo those identified in previous evaluation cycles, indicating a need for sustained structural solutions rather than short-term interventions.

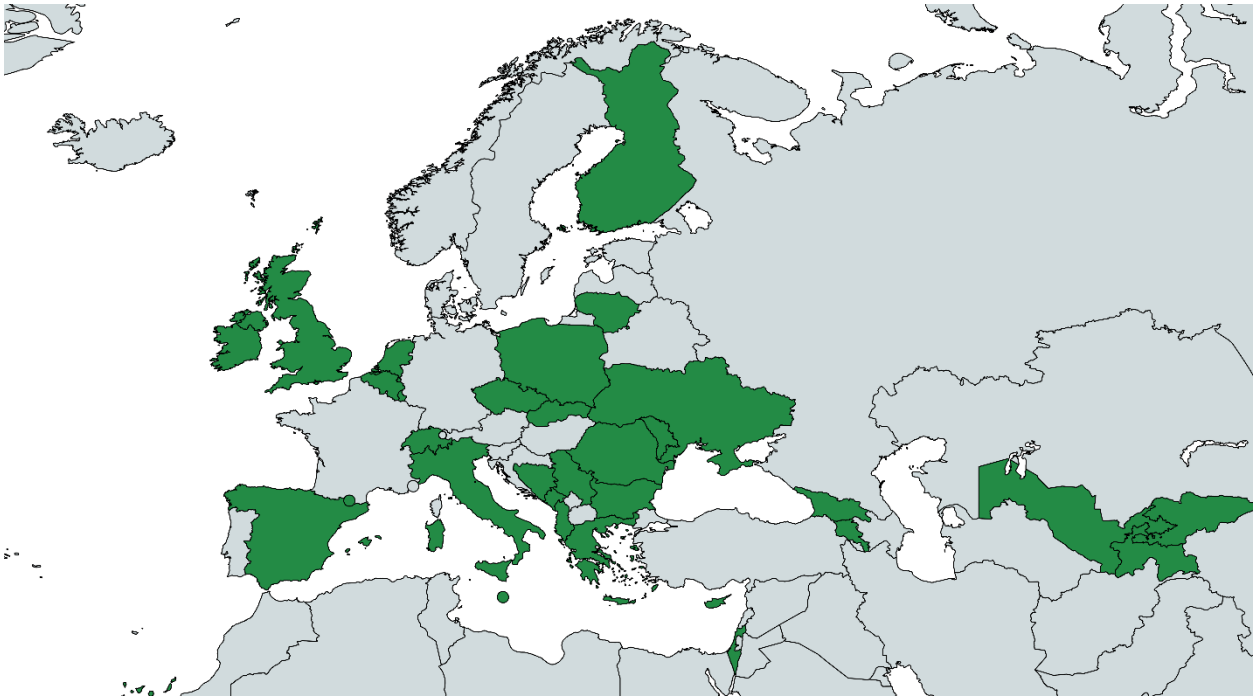
7. Looking ahead, ECE member States emphasize the importance of strengthening national coordination frameworks, investing in educator professional development, enhancing quality monitoring systems, and expanding ESD across all levels of education, including early childhood education and vocational education and training. Regional cooperation, peer learning and the exchange of good practices remain essential for accelerating progress and addressing persistent implementation gaps.

II. Introduction

8. Since the 2005 adoption of the UNECE Strategy for ESD, member States have been working together to promote ESD region-wide through regular monitoring of national implementation. The fifth reporting cycle, completed in 2024, provides an evaluation of

implementation progress between 2021 and 2024, based on NIRs submitted by the following 31 countries:[1] Albania, Andorra, Armenia, Belgium, Bosnia and Herzegovina, Bulgaria, Cyprus, Czechia, Finland, Georgia, Greece, Ireland, Israel, Italy, Kyrgyzstan, Lithuania, Luxembourg, Malta, Montenegro, Netherlands (Kingdom of the), Poland, Republic of Moldova, Romania, Serbia, Slovakia, Spain, Switzerland, Tajikistan, Ukraine, United Kingdom of Great Britain and Northern Ireland and Uzbekistan (see figure 1).

Figure 1
Map of countries having submitted National Implementation Reports



Note: Countries having submitted NIRs marked in green.

9. The fifth cycle builds on established issues while aligning with the updated priorities of the Framework for the Implementation of the UNECE Strategy for ESD from 2021 to 2030 (Nicosia Framework), integrating quality education, WIAs, digital education and entrepreneurship. Reporting templates were revised to harmonize with the United Nations Educational, Scientific and Cultural Organization (UNESCO) ESD for 2030 framework and Sustainable Development Goal monitoring processes, enabling coherence across international agendas.

10. The analysis presented herein draws on both quantitative data and qualitative narratives submitted by countries, offering insights into policy frameworks, implementation strategies, educator training, teaching resources, research and international collaboration. By systematically examining trends across issues and thematic strands, this report aims to inform ongoing policy and practice to strengthen ESD across the ECE region.

III. Reporting framework and purpose

11. The ECE Steering Committee on ESD reporting process is a deeply collaborative framework that allows countries to explore and document their efforts in promoting ESD. Far from creating a competitive ranking of national performance, the process aims to facilitate learning, inspire innovation and support transformative approaches to achieving the 2030 Agenda for Sustainable Development.

[1] National implementation report of Hungary submitted too late for inclusion in analysis but will be uploaded to https://unece.org/national-implementation-reports-esd-2025.

12. The Ad Hoc Group on Indicators updated the NIR template in May 2019 to align with the post-2019 implementation framework priority areas and reflect the four Nicosia Framework priority areas.[2] This ensures continuity with previous reporting cycles while incorporating new ESD priorities.

A. Participation rate and coverage

13. For the fifth reporting cycle, 31 out of 56 ECE member States submitted NIRs (a participation rate of 55%). There was a slight decrease in the number of submitted reports compared to earlier cycles – 35 in 2007, 36 in 2010, 38 in 2015 and 35 in 2018 – but ongoing commitment to ESD advancement was demonstrated, despite challenging political and educational contexts. Significant interest in advancing ESD remains evident region-wide.

B. Reporting structure

14. The reporting template (ECE/CEP/AC.13/2023/4) comprises three complementary parts:

Part 1: Focuses on the established indicators from the original 2005 UNECE Strategy for ESD. This section requires both quantitative assessment and qualitative descriptions of national situations, including examples of good practices and supporting documentation. This part is focused on seven issues comprised of indicators and subindicators:

Issue 1: Ensure that policy, regulatory and operational frameworks support ESD;

Issue 2: Promote SD through formal, non-formal and informal learning;

Issue 3: Capacity-building of educators in learning about and teaching ESD;

Issue 4: Ensure that adequate tools and materials for ESD are accessible;

Issue 5: Promote research on and development of ESD;

Issue 6: Strengthen cooperation on ESD at all levels within the ECE region and beyond;

Issue 7: Foster conservation, use and promotion of knowledge of Indigenous Peoples, as well as local and traditional knowledge, in ESD;

Part 2: Addresses updated indicators aligned with the Nicosia Framework, emphasizing four thematic strands:

1. Quality education and ESD;
2. WIA and ESD;
3. Digital education, information and communications technology and ESD;
4. Entrepreneurship, employment, innovation and ESD;

Part 3: Allows countries to summarize progress, identify challenges, articulate needs, and conduct a structured self-assessment of their implementation journey.

C. Analytical approach

15. The analysis employed a mixed-methods approach combining:

Quantitative analysis: Data from indicators identify regional trends and implementation patterns. Member States' self-assessment scores were compiled to create comparative metrics while acknowledging the inherent limitations of self-reported evaluations.

[2] ECE/CEP/AC.13/2019/2, paras. 67–74.

Qualitative analysis: In-depth examination of narrative responses, case studies and examples of good practice submitted by countries. This approach captured implementation experiences that quantitative measures alone could not convey, with particular attention paid to innovative approaches and transformative practices.

The qualitative analysis involved examination of narrative responses, case studies and examples of good practice submitted by countries. This approach captured the implementation experiences that quantitative measures alone could not convey. Particular attention was paid to innovative approaches, systemic solutions and transformative practices that might inspire other member States.

Comparative framework: A methodical issue-by-issue analysis enabled detailed comparison across countries while maintaining sensitivity to national contexts. This revealed patterns of implementation strength and areas requiring further development across the ECE region.

Data visualization: To enhance data accessibility and interpretability, multiple visualization formats were developed, including:

- Bar graphs: To compare specific indicator performance across member States
- Contour maps: To identify patterns specific to geographical location
- Heat maps: To display implementation intensity across indicators and countries
- Radar graphs: To illustrate comprehensive country profiles across all indicators
- Tables: To organize content in an understandable format

16. A critical element of the methodology was the identification of both strengths and areas for improvement across the ECE region. The analysis focused not only on documenting current status but also on providing actionable insights to guide future policy development and implementation strategies in alignment with the Nicosia Framework.

D. Major findings

17. The progress made by ECE member States during the implementation period has contributed significantly to the advancement of ESD under the Nicosia Framework and alignment with the UNESCO ESD for 2030 agenda. The six key findings of this report are set out below.

Finding 1: Policy implementation gap

ESD policy commitment is strong, but a significant gap persists in translating it into concrete institutional practices and sustained action.

Finding 2: Uneven education for sustainable development integration in education

While increasingly embedded, ESD integration is inconsistent across education levels, with a continued focus on environmental dimensions over social and economic ones.

Finding 3: Educator capacity development needs

Professional development for educators includes ESD, but significant capacity gaps, particularly in leadership training, limit implementation of systemic WIAs.

Finding 4: Variable thematic strand implementation

Implementation of the newer Nicosia Framework strands is uneven, reflecting both the novelty of these priorities and challenges in operationalizing them and reporting on their progress.

Finding 5: Critical areas requiring attention

Several critical areas, including research, international cooperation and integration of traditional knowledge, remain underdeveloped and require significant strengthening to build a robust evidence base for ESD.

Finding 6: Reporting process modernization needs

The current reporting process is a key challenge, with declining participation and inconsistent data quality, highlighting the crucial need for a more standardized and accessible reporting framework.

Methodological limitations

This evaluation is subject to several key limitations that should be considered when interpreting the findings.

Limited scope of participation

See subsection III.A.

E. Incomplete and disparate data

18. The reports submitted varied widely in length (40–150 pages) and quality, presenting challenges for comprehensive analysis. Furthermore, implementation of the newer Nicosia Framework thematic strands (Part 2 of the reporting structure) was uneven, reflecting challenges in operationalizing and reporting on these new priorities.

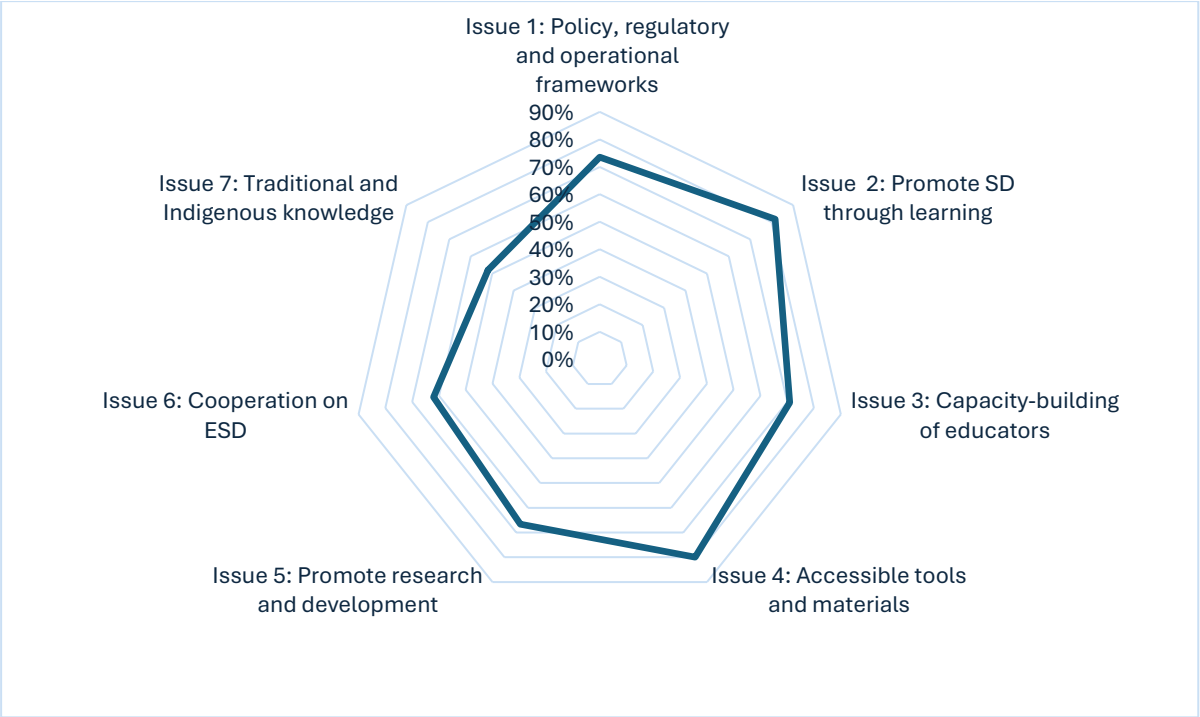
F. Subjectivity of self-assessments

19. The analysis of part 3 of the report, which is based on a structured self-assessment by countries, is subject to the inherent limitations of self-reported evaluations. The results of these self-assessments may be influenced by varying national approaches to evaluation. The subjective nature of self-reporting introduces variability in how countries evaluate their own performance, with some nations potentially applying more stringent criteria while others may employ more lenient standards. Political and economic incentives can significantly skew reporting – countries seeking international recognition might inflate their progress, while those dependent on external funding might strategically underreport to attract additional resources. Without standardized verification mechanisms or external validation, self-assessments remain vulnerable to both conscious and unconscious bias.

IV. Part 1: Progress towards meeting Strategy's objectives: analysis of indicators

20. This section provides an overarching view of countries' progress in implementing ESD across seven established UNECE Strategy issues. The data from 31 countries reveal both encouraging patterns of advancement and persistent gaps that require sustained attention.

Figure 2
Percentage of completion of issues
(Data from 31 countries)



21. Figure 2 summarizing average completion rates across these issues offers a compelling visualization of the relative strengths and weaknesses in ESD implementation. The highest average completion rate (82%) corresponds to issue 2, underscoring the region's initial focus on implementation of ESD to foster learners' knowledge through different means of education. Promising progress is also evident regarding issue 4 (79%), signalling active efforts to embed sustainability into diverse educational environments.

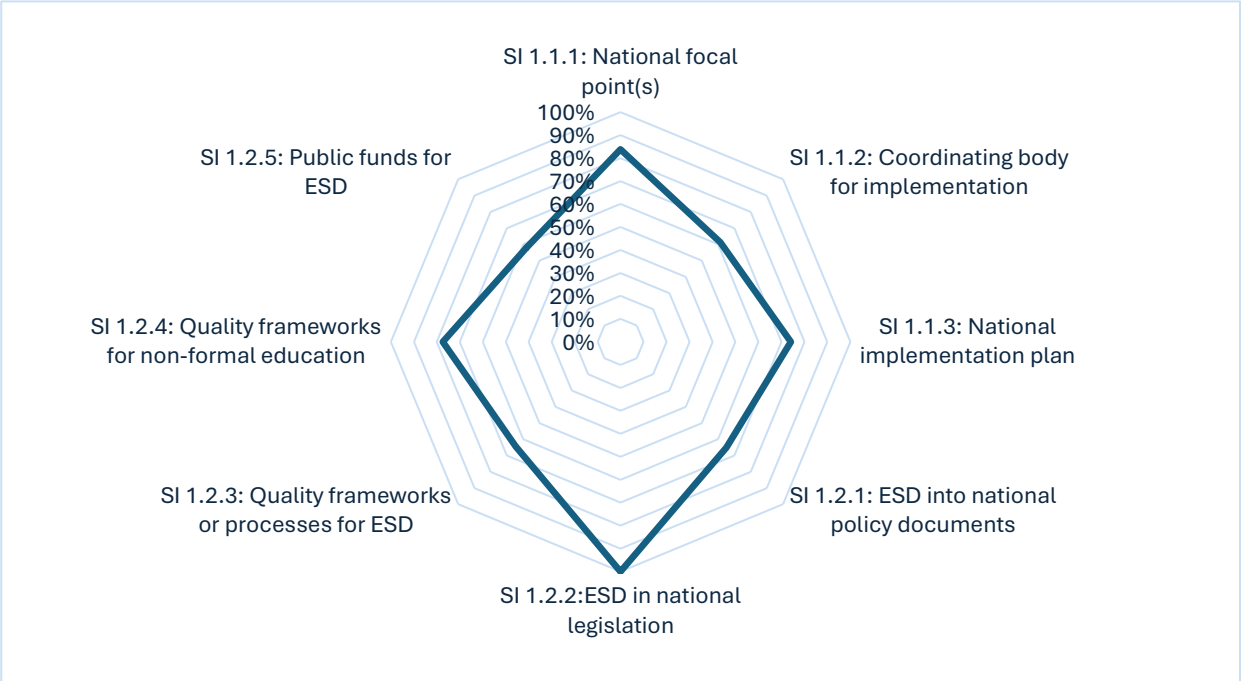
22. At the same time, the completion rate of 73.5% for issue 1 underscores the region's initial focus on establishing governance structures and policy foundations for ESD. The completion rate for issue 3 (71%) reflects progress yet points to remaining work in equipping teachers comprehensively for sustainability education. Lower averages for issue 5 (66.5%) and issue 6 (62%) suggest more modest advances in these areas. The lowest score, 52%, is found for issue 7, highlighting a significant area of underdevelopment. This distribution reveals that while policy commitments and broad implementation efforts are relatively mature, deeper integration of research, international partnerships and traditional knowledge remains a frontier for future action.

23. Further in-depth evaluation is based on qualitative analysis of the issues.

A. Issue 1: Policy, regulatory and institutional framework

24. Integration of ESD into national policy and institutional frameworks represents the foundational layer for enabling systemic change in education systems. This review of issue 1 reveals significant momentum among ECE countries toward embedding ESD into policy and institutional frameworks. The existence of national strategies, coordinating bodies and legal references demonstrates a foundational commitment. However, the quality, consistency and depth of these measures vary widely. Across the 31 reporting ECE countries, the evaluation reveals a broad policy commitment to ESD, with nearly all countries reporting the existence of national strategies, legal references or designated authorities tasked with its advancement (see figure 3). Yet, beneath this promising policy surface lies a more complex and uneven reality.

Figure 3
Issue 1: completed responses for 31 countries
(%)



Abbreviations: SI, subindicator.

25. While most countries have appointed national focal points or responsible agencies for ESD, their mandates and capacity to influence cross-sectoral coordination, budgetary allocation and implementation vary considerably. In many cases, these focal points serve more as reporting conduits to international processes than as empowered agents of national policy change. This gap between, in some cases, symbolic appointment and operational authority raises questions about the real institutional leverage of these structures and their ability to convene the multisectoral collaboration essential for ESD.

26. Coordination mechanisms present a similarly varied picture region-wide. While formal coordination bodies exist in some countries, bringing together representatives from education, environment and other relevant ministries, their effectiveness varies considerably. Their functioning ranges from active, well-institutionalized platforms with clear mandates to sporadic, informal networks that lack decision-making authority or operational continuity. Even where coordination platforms are in place, translating high-level coordination into vertical integration – reaching regional and local levels – remains challenging. In several countries, this results in fragmented implementation, with national policies failing to cascade into practical action at the school or community level.

27. National implementation strategies reflect this unevenness. About half of the countries have articulated ESD strategies as stand-alone documents or embedded them within broader education or sustainable development frameworks. Yet levels of operational detail, resource commitment and monitoring clarity vary greatly. Some strategies provide ambitious visions with broad targets but lack the actionable steps, designated responsibilities, or funding pathways necessary to translate goals into practice. Others remain aspirational, setting the policy tone but without institutional anchoring or accountability mechanisms to ensure follow-through.

28. The legal embedding of ESD has grown, with more countries referencing sustainability education within national laws, curricula standards or education acts. However, these references often remain general and indicative rather than prescriptive and enforceable. Few countries have moved from rhetorical inclusion toward legal provisions with binding implications for curricula, assessment or teacher education. In many contexts, ESD continues

to be framed under the narrower umbrella of environmental education, limiting its transformative scope and connections to broader sustainability dimensions, including social justice, economic equity and cultural heritage.

29. A particularly revealing trend is the extent to which ESD is positioned within cross-sectoral policies. Some countries demonstrate strong alignment, embedding education into climate action plans, biodiversity strategies or sustainable development road maps. Others, however, maintain a fragmented policy landscape, with ESD absent from economic, cultural or health strategies.

30. Resource limitations represent another common challenge. Many countries report insufficient funding for ESD-specific activities. Teachers describe inadequate preparation for addressing sustainability topics. Schools mention the scarcity of high-quality specific educational materials and limited time available for planning and implementation within packed schedules. Without clear indicators and systematic monitoring, countries struggle to assess implementation, identify areas for improvement, or demonstrate the value of investments in sustainability education.

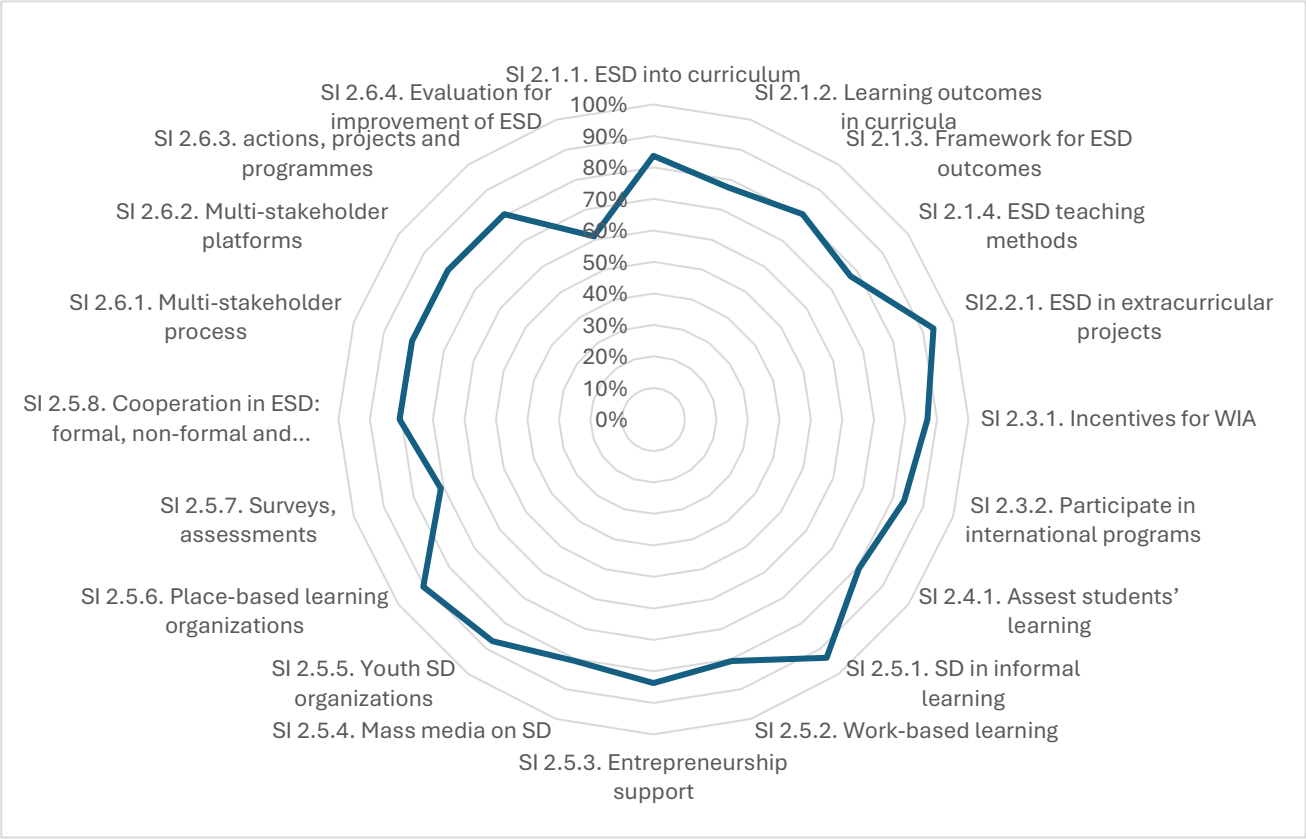
31. Nevertheless, commitment to ESD as a policy priority remains solid region-wide. ESD governance is increasingly formalized, but institutional arrangements are uneven. Many countries have national strategies or plans, but operational clarity and accountability mechanisms are often lacking. Cross-sectoral integration is emerging but remains underutilized. Yet the evaluation indicates that policy alone is insufficient without the institutional mechanisms, mandates, financing and coordination systems required to sustain implementation. The gap between high-level policy declarations and their translation into institutional practices is where the transformative potential of ESD risks being diluted Addressing this gap will require not only strengthening governance structures but also building institutional cultures that value sustainability as a core principle across ministries, agencies and education providers.

32. While most ECE countries have demonstrated a strong policy commitment by establishing legal frameworks and designated ESD authorities, a significant gap remains between these high-level declarations and their practical implementation. Coordination mechanisms and national strategies exist in many nations, but their effectiveness is often limited by a lack of operational authority, clear funding pathways and accountability systems to ensure policies translate into local-level action. The transformative potential of ESD is being diluted by this gap between aspirational policy and tangible institutional support.

B. Issue 2: Promotion and implementation of education for sustainable development in formal, non-formal and informal education

33. The implementation of ESD across formal, non-formal and informal education environments represents one of the Strategy's most dynamic yet uneven dimensions. Across the ECE region, countries report substantial progress in embedding sustainability themes into school curricula, particularly within compulsory education. However, this progress is not uniformly distributed across education levels, subjects or learning environments. While some nations have established comprehensive frameworks that permeate all educational levels, others are still at earlier stages of development, relying on more fragmented or localized initiatives (see figure 4).

Figure 4
Issue 2: completed responses for 31 countries
(%)



34. The most successful implementations share a common foundation: robust national frameworks that provide clear structure and guidance. These frameworks serve as road maps, aligning educational practices with sustainability goals while establishing accountability mechanisms. Countries with the strongest performance typically feature:

- Dedicated national ESD strategies
- Clear connections between education policies and Sustainable Development Goal objectives
- Consistent funding mechanisms to support initiatives
- Regular evaluation procedures to assess effectiveness

35. In contrast, countries showing less progress often lack these structured approaches. Their implementation tends to rely on isolated projects or individual institutional initiatives without cohesive national direction.

36. In formal education, ESD integration tends to be most visible at the primary and lower secondary levels. Many countries have introduced sustainability-related content into science, geography and civics education, framing sustainability primarily through environmental or ecological lenses. This integration often reflects both curricular reforms and international influence, such as commitments under Sustainable Development Goal target 4.7 (ensure that all learners acquire the knowledge and skills needed to promote sustainable development) or climate education mandates. Yet, as education levels advance, particularly into upper secondary and tertiary education, the presence of ESD becomes more fragmented, often confined to elective courses, specific faculties or isolated projects. This fragmentation reflects both curricular constraints and institutional inertia, as well as competing academic priorities in higher education settings.

37. Non-formal education boasts a vibrant landscape of ESD activity, largely driven by civil society organizations, environmental non-governmental organizations (NGOs), museums, and community initiatives. These programmes provide experiential learning opportunities, often linked to local environmental stewardship, biodiversity conservation or cultural heritage projects. Yet, despite their diversity and creativity, such initiatives frequently operate in parallel to formal education systems, with limited institutional recognition, sustainable funding or mechanisms for scaling impact. This separation between formal and non-formal learning spaces limits the potential synergies and lifelong learning pathways envisaged by the Strategy.

38. Informal education remains the least structured dimension of ESD, although it has growing potential in the digital age. Countries report sporadic public awareness campaigns, environmental days and media initiatives aimed at fostering public awareness of sustainability. However, few countries report sustained, systematic partnerships between education authorities and media or cultural institutions to embed sustainability narratives in public discourse. In an era of information abundance and misinformation risks, this underdeveloped informal learning dimension represents both a challenge and an opportunity for future ESD advancement.

39. A notable pattern emerging from national reports is the focus on content-based integration rather than pedagogical transformation. While ESD content is present in many curricula, fewer than half of the countries report corresponding shifts toward participatory, experiential or inquiry-based teaching methods (see figure 13). The persistence of teacher-centred pedagogies, high-stakes examinations and curriculum overcrowding constrains the potential of ESD to promote critical thinking, systems thinking and transformative learning. Without pedagogical change, the transformative aspirations of ESD risk being reduced to content delivery rather than capability development.

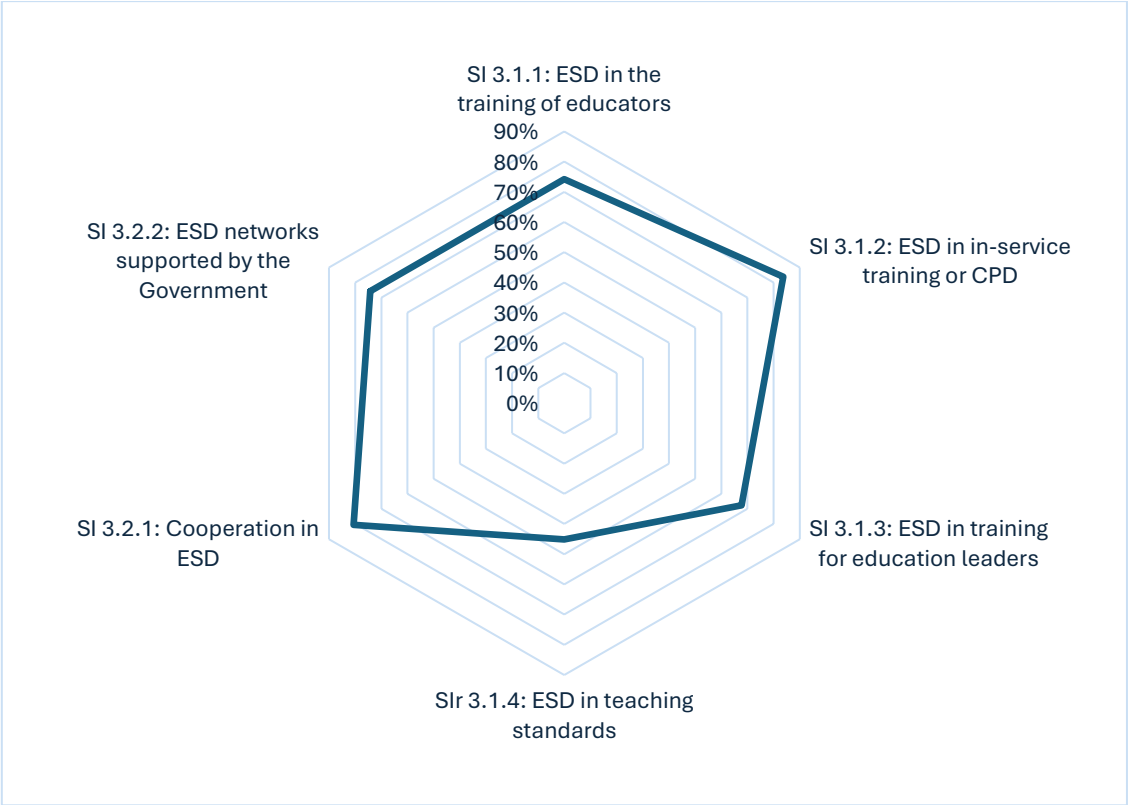
40. In many contexts, the agency of individual educators plays a decisive role in ESD implementation. Where teachers are empowered, well-trained and supported, they act as catalysts for sustainability learning, often innovating beyond official curriculum mandates. Conversely, in systems with rigid curricula, limited professional development, or low teacher autonomy, ESD tends to remain superficial or absent. This reliance on individual initiative underscores the need for systemic approaches that embed ESD into both institutional structures and professional standards.

41. Progress in implementing ESD is most notable in formal primary and lower secondary education, where sustainability themes are increasingly integrated into curricula, although often with a focus on environmental issues. However, this integration becomes more fragmented in higher education and vocational training, where it is often confined to elective courses or isolated projects. Furthermore, while non-formal and informal education spaces show vibrant activity, these initiatives frequently operate without sufficient institutional recognition or sustained funding, limiting their ability to create long-term impact.

C. Issue 3: Inclusion of education for sustainable development in educators' training

42. The integration of ESD into teacher education and ongoing professional development is widely recognized as a critical enabler for the transformation of education systems. Across the ECE region, however, this indicator shows both promising developments and persistent gaps, reflecting systemic challenges in aligning educator preparation with sustainability imperatives.

Figure 5
Issue 3: completed responses for 31 countries
(%)



43. Initial teacher education programmes have begun incorporating sustainability themes, yet in many countries, this integration remains superficial or elective. Sustainability topics are often framed within environmental education or science teaching, leaving broader sustainability competencies – such as global citizenship, critical reflection or systems thinking –underrepresented. Where sustainability is addressed, it tends to be mainstreamed mostly across specific subjects or pedagogical training. This partial integration limits the holistic understanding and cross-curricular strategies necessary for ESD implementation.

44. In-service teacher training shows stronger attention to ESD, especially through workshops, continuing education modules and project-based learning opportunities. However, participation in such training is often voluntary, unevenly distributed geographically, or dependent on external funding and partnerships. Mandatory professional development requirements related to ESD remain rare, resulting in variable educator preparedness both within and between countries.

45. Leadership training for school principals and education managers represents a particularly weak area of ESD integration. Few countries report systematic efforts to equip education leaders with the skills to drive WIAs, support pedagogical innovation, or embed sustainability into school governance. This leadership gap limits institutions' capacity to transition from isolated sustainability activities to coherent, system-wide practices.

46. Teaching standards and qualification frameworks increasingly reference key sustainability-related competencies, yet few countries operationalize these references through clear assessment criteria or professional accountability mechanisms. Consequently, ESD-related expectations for educators often remain aspirational rather than enforceable or incentivized.

47. An additional challenge lies in the limited collaboration between teacher training institutions and broader sustainability actors, such as environmental agencies, NGOs, or community organizations. This disconnect reduces opportunities for experiential learning, partnerships and place-based education approaches that could enrich teacher preparation and ongoing professional learning.

48. A growing national commitment to mainstreaming sustainability within education systems is evident in the integration of ESD into educator training. This is largely reflected in the widespread inclusion of ESD in in-service, continuing professional development programmes, often through short-term or elective modules. Furthermore, many countries are aligning their teacher training frameworks with Sustainable Development Goal targets and national ESD strategies, indicating a more systemic approach.

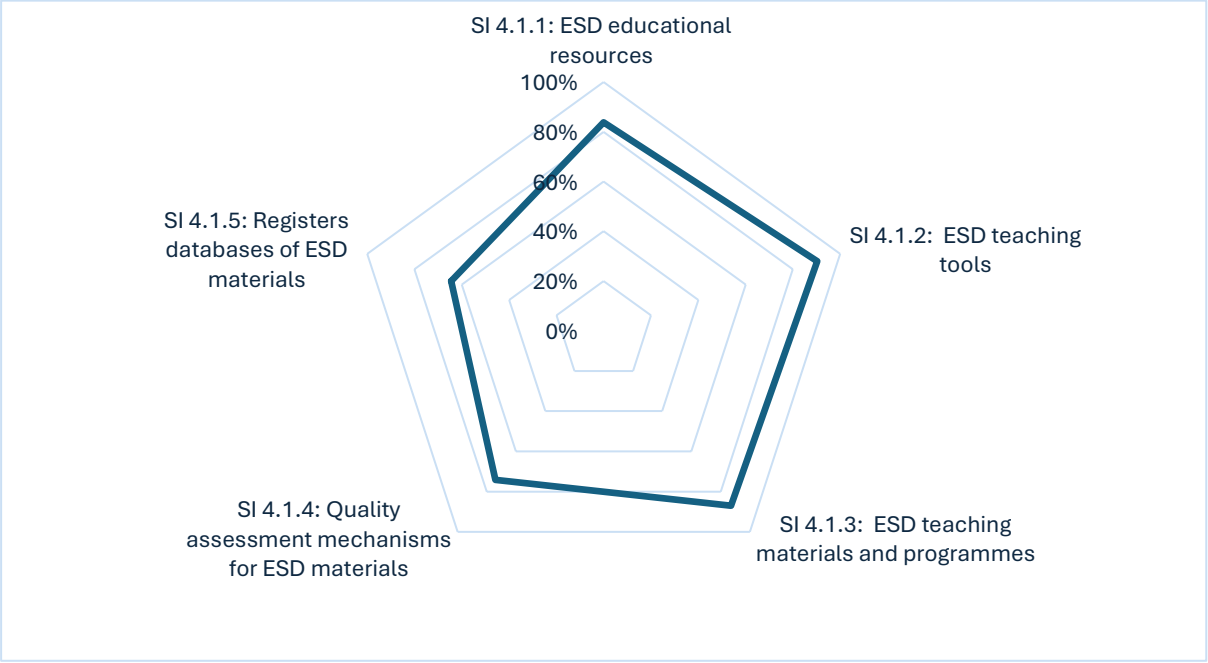
49. However, integration across different education levels – such as vocational, higher and early childhood education – remains uneven, with a stronger presence in primary and secondary levels. Moreover, ESD competencies are frequently absent from national qualification frameworks and teacher certification standards, and training for school leaders and administrators often overlooks ESD. This consequently limits institutional support for fostering sustainable school cultures.

50. Although there is growing national-level commitment to mainstreaming sustainability in education, the inclusion of ESD in educator training remains uneven and often superficial. In-service professional development is more common than integration into initial teacher education programmes, but participation is often voluntary and lacks consistency. A critical gap is the limited training provided to school leaders, which hinders the adoption of systemic, WIAs and the development of sustainable school cultures.

D. Issue 4: Teaching tools and materials for educators

51. The provision of high-quality, accessible teaching tools and materials represents a crucial support system for educators seeking to implement ESD in diverse contexts. Across the ECE region, countries report steady progress in developing and disseminating such resources, yet notable challenges remain in ensuring their reach, quality and alignment with pedagogical goals.

Figure 6
Issue 4: Completed responses for 31 countries
(%)



52. In the current educational landscape, the rapid increase in digital and open resources is a notable trend, offering unprecedented opportunities for educators and learners, yet significant disparities in access and quality persist.

53. Many countries have established centralized online platforms hosting ESD-related materials, including lesson plans, multimedia resources, guidelines and toolkits. These platforms often serve as national repositories, facilitating access for educators regardless of school location. However, their utilization varies, with reports indicating gaps in teacher awareness, uneven Internet access, or resource overload without sufficient guidance on quality or applicability.

54. A key trend across reports is the predominance of environmental themes in available teaching materials, with comparatively fewer resources addressing social, economic or cultural dimensions of sustainability. This thematic imbalance risks narrowing the scope of ESD and reinforcing perceptions of sustainability as an environmental issue alone. Developing resources that reflect the holistic and interconnected nature of sustainable development remains an area requiring further investment and collaboration.

55. Centralized quality assurance systems predominate in Eastern Europe, the Caucasus and Central Asia, where ministerial approval remains the primary mechanism for ensuring teaching material quality. Western European countries, however, typically demonstrate more distributed quality control systems that incorporate teacher feedback and professional community standards alongside official approval mechanisms.

56. Many countries report significant gaps in establishing comprehensive national guidelines for ESD material quality. Inclusion of equity and diversity as quality criteria remains inconsistent. Quality assessment often focuses on content accuracy rather than pedagogical effectiveness or transformation potential, creating an incomplete evaluation framework. Localization of teaching materials presents another challenge. Many resources are produced at the national or international level without sufficient adaptation to local languages, cultural contexts or environmental realities. Educators in minority language regions or culturally diverse communities report difficulties finding materials that resonate with students' lived experiences.

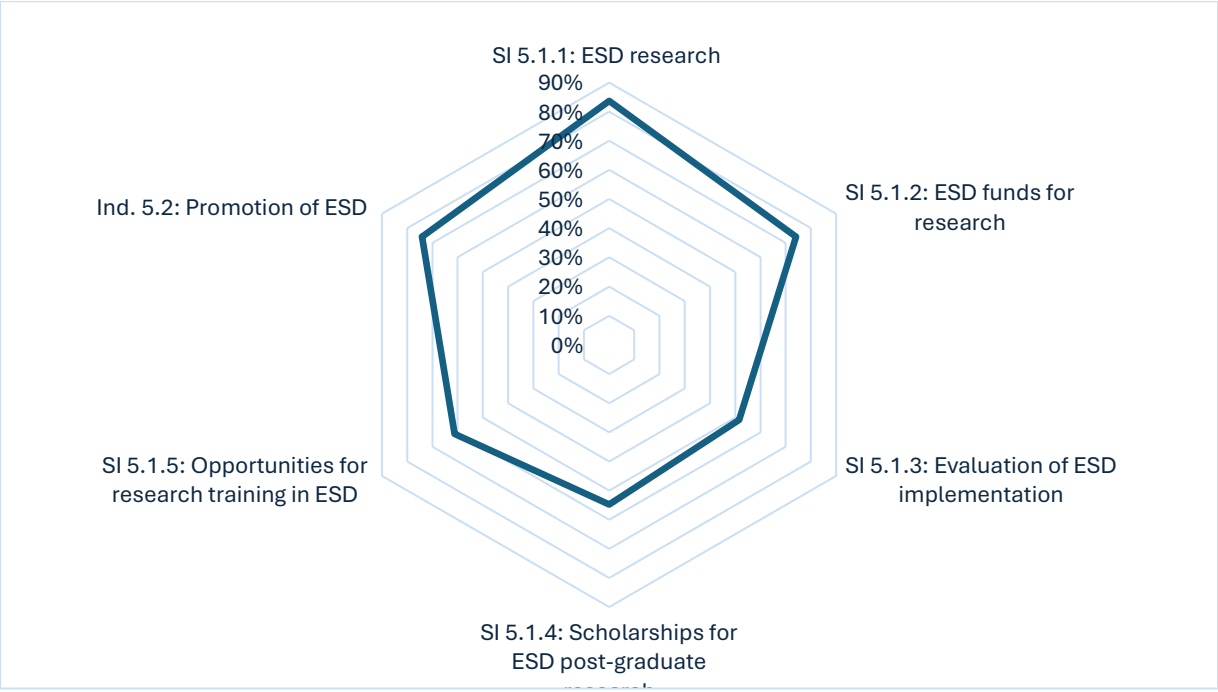
57. Educator involvement in the creation and evaluation of teaching resources varies widely. Some countries report participatory processes where teachers contribute to resource development or pilot materials before broader dissemination. Others rely on top-down approaches, leading to a disconnect between centrally produced materials and classroom realities. Empowering educators as co-creators of resources could enhance relevance, ownership and pedagogical alignment.

58. Significant progress has been made in the development of teaching tools and materials, particularly with the increase in digital and open resources. However, these resources often predominantly focus on environmental themes, neglecting the social and economic dimensions of sustainability. Challenges remain in ensuring consistent quality and in localizing materials to be culturally relevant, while many countries still rely on top-down approaches to resource creation rather than involving educators in participatory processes.

E. Issue 5: Research on education for sustainable development

59. Research represents a critical yet underdeveloped pillar of ESD implementation across the ECE region. While countries acknowledge the importance of research in informing policy and practice, national reports reveal significant variation in the scope, depth and institutionalization of ESD-related research activities.

Figure 7
Issue 5: Completed responses for 31 countries
(%)



60. Some countries report the existence of academic centres, networks, or research programmes dedicated to sustainability education. These initiatives often focus on curriculum development, pedagogical innovation, or evaluation of school-based sustainability projects. However, few countries indicate that ESD research has been systematically integrated into broader education research agendas or funded through national research councils. Instead, much research activity remains project-based, short-term, or dependent on external funding from international organizations or European Union programmes.

61. A notable gap lies in longitudinal studies assessing the outcomes and impacts of ESD interventions. While many countries can point to project evaluations or localized studies, research tracking learner competencies, institutional change or societal impacts over time remains rare. This limits the evidence base for understanding what works, under what conditions, and for whom in advancing ESD goals.

62. Few countries provide ESD-specific scholarships. Where available, funding tends to be limited to postgraduate students in education or environmental science. Some research chairs or fellowships in sustainability-related fields exist in large universities, often co-funded by international agencies, but comprehensive scholarship schemes remain rare.

63. Most countries report significant limitations in scholarship opportunities across all levels of higher education. Few have established connections between scholarships and national ESD goals or priority research areas. Gender equity and representation from rural or underserved communities in research funding remain challenges region-wide.

64. Knowledge dissemination mechanisms also vary. Some countries have established journals, conferences, or digital platforms for sharing ESD research findings, while others lack structured pathways for translating research into practice. The absence of practitioner-oriented dissemination channels further weakens the potential for research to inform classroom teaching, school leadership or policy decisions.

65. A growing recognition of ESD research is evident in the ECE region, with promising initiatives in some countries, where higher education institutions are actively producing ESD-related studies, often supported by dedicated government funding for sustainability-focused educational research. These initiatives increasingly explore innovative practices such as outdoor education and systems thinking, while fostering collaboration between universities,

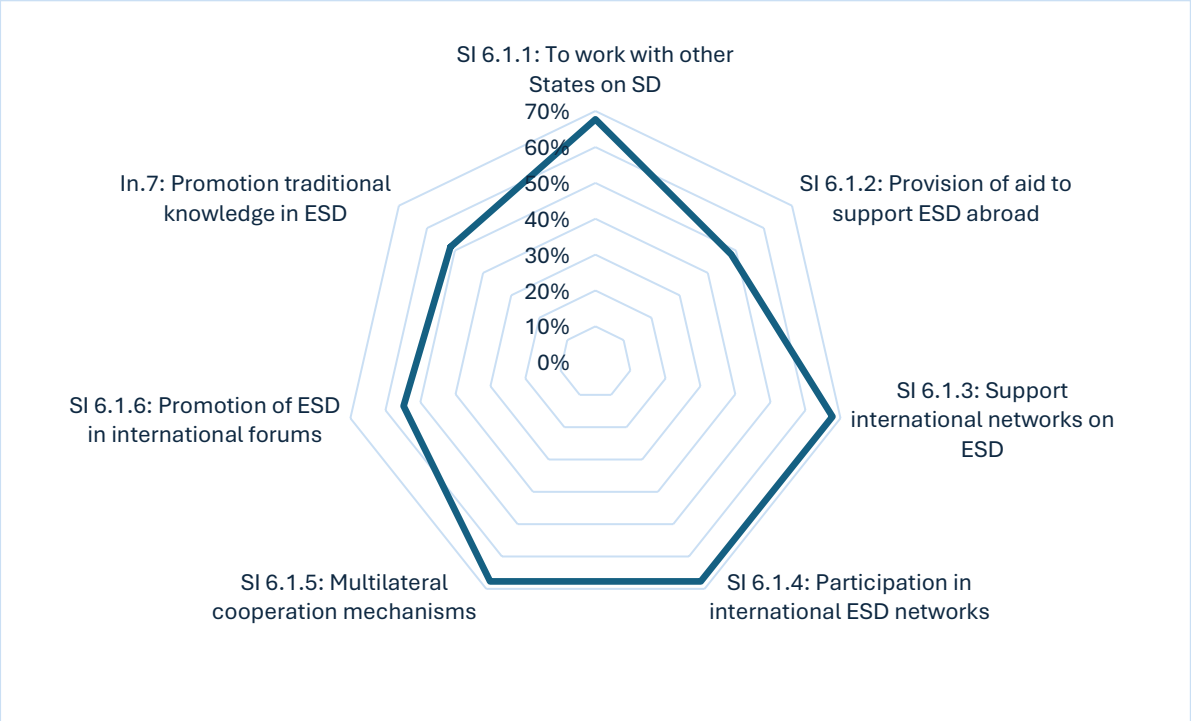
ministries and international organizations to inform policy and curriculum reform. Despite these positive developments, significant gaps remain. ESD often lacks clear prioritization in national research agendas and funding calls, and universities lack sustained financial incentives to focus on these topics. Limited scholarship opportunities for early career researchers also hinder the development of a robust pipeline of future experts.

66. ESD research remains an underdeveloped pillar, with a lack of systematic integration into national research agendas and a reliance on short-term, externally funded projects. Few countries have established dedicated scholarships or funding mechanisms to build a pipeline of future experts. This limited and fragmented research base constrains the ability to conduct longitudinal studies, making it difficult to build a robust evidence base that can inform long-term policy and practice.

F. Issue 6: International cooperation

67. International cooperation remains one of the region's strengths in advancing ESD, with most countries reporting active participation in regional and global networks, projects and exchanges. Engagement with ECE, UNESCO, the European Union and bilateral cooperation frameworks provides important platforms for knowledge-sharing, capacity-building and policy alignment.

Figure 8
Issues 6 and 7: Completed responses for 31 countries
(%)



68. Some countries provide financial contributions to global or regional ESD initiatives through education ministries or foreign aid programmes. Support is often linked to broader development assistance or climate funds. Project-based grants and participation in European Union-funded frameworks such as Erasmus+ and Horizon Europe represent common funding mechanisms.

69. Bilateral agreements increasingly include explicit ESD components, with education ministries establishing direct partnerships with counterparts in neighbouring countries. Regional cooperation mechanisms such as the Benelux Working Group on ESD and the Mediterranean ESD Committee provide important platforms for coordinated action and policy alignment.

70. Countries report involvement in diverse international initiatives, ranging from participation in working groups and conferences to hosting regional workshops and contributing expertise to global agendas. However, the depth and institutional embeddedness of this cooperation varies. In many cases, participation is driven by individual experts, NGOs or academic institutions rather than being systematically integrated into national education systems.

71. Beyond established platforms such as the UNESCO Associated Schools Network (ASPnet) and Eco-Schools, there is increased participation in specialized networks focusing on specific dimensions of sustainability education. Educational institutions are also forming direct partnerships with industry and civil society organizations to create more authentic learning experiences related to sustainable development challenges.

72. A critical challenge reported by several countries is the sustainability of international partnerships beyond project cycles or funding periods. Without national co-financing or institutional mandates, many international collaborations remain externally driven, limiting their potential for long-term capacity-building or systemic transformation.

73. Countries region-wide are increasingly demonstrating a strong commitment to ESD through widespread engagement in international initiatives. Most nations actively participate in global networks and platforms such as the UNESCO ESD for 2030 and the Greening Education Partnership, while also forging multilateral and bilateral partnerships to support teacher training, research and curriculum development. Schools, universities and NGOs are also playing a crucial role by joining international projects, fostering valuable knowledge-sharing and peer learning. However, despite this positive momentum, challenges persist. Many of these efforts are often short-term or project-based, lacking long-term frameworks and consistent funding. While countries are actively contributing financially and technically, these efforts remain fragmented, highlighting the need for more coordinated and sustained international cooperation.

74. International cooperation is a notable strength, with most countries actively engaging in global and regional networks and partnerships for knowledge-sharing and policy alignment. However, one significant challenge is the lack of long-term sustainability for many of these efforts, which are often project-based and lack national co-financing. This results in fragmented initiatives that, while valuable, may not lead to systemic, long-term capacity building.

G. Issue 7: Traditional and Indigenous knowledge

75. Integration of traditional and Indigenous knowledge into ESD represents a complex and unevenly addressed dimension region-wide. National reports reveal that while some countries have initiated projects or curricular modules incorporating local cultural heritage and Indigenous perspectives, these efforts are often localized, short-term or confined to specific regions with recognized Indigenous populations.

76. In many countries, traditional knowledge integration remains underdeveloped due to curricular overload, lack of teacher training, or absence of formal recognition of Indigenous groups. Even where policy documents acknowledge the value of traditional knowledge, operational mechanisms for its inclusion in curriculum, pedagogy or community partnerships are often lacking.

77. Few teacher education programmes include guidance on how to respectfully and effectively integrate traditional knowledge into teaching. Without specific preparation, educators may lack the confidence or contextual understanding to incorporate traditional perspectives authentically. Several countries report that younger generations are shifting away from traditional livelihoods toward service and knowledge-based sectors, creating risks for the continuity of ecological knowledge. The urban-rural divide presents another challenge, as traditional practices are often excluded from education in urban settings, limiting exposure for students outside local communities. As elder generations pass on, valuable ecological and cultural knowledge may be lost without systematic efforts to record and incorporate it into educational systems.

78. An additional challenge lies in ensuring that traditional knowledge is not presented as static or folkloric but as a dynamic, living system of understanding sustainability in local contexts. Countries reporting progress emphasize the importance of co-creating knowledge with communities, avoiding tokenism, and respecting Indigenous intellectual property rights.

79. Many countries are now recognizing the value of cultural heritage and local wisdom as assets for ESD. This is evident in the inclusion of local history, ecological practices and traditional values within school curricula, often taught through social sciences or ethics. National heritage institutions and community organizations are also being engaged as partners, providing valuable place-based learning opportunities. Furthermore, countries with Indigenous or minority populations are increasingly offering ESD materials in Indigenous languages, strengthening the link between learning and cultural identity. Traditional knowledge is also being transmitted through non-formal channels such as festivals and local media, affirming the power of intergenerational knowledge and cultural diversity in sustainable development. However, despite these promising trends, significant challenges remain. The integration of traditional knowledge often relies more on local initiatives than on cohesive national policy.

80. Integration of traditional and Indigenous knowledge is the least developed area of ESD implementation, with the lowest completion rate among all issues. Efforts to include this knowledge are often localized and short-term, lacking cohesive national policies or formal recognition within education systems. This deficiency is compounded by a lack of teacher training on how to respectfully and effectively incorporate these perspectives, which risks the loss of valuable ecological and cultural knowledge as elder generations pass on.

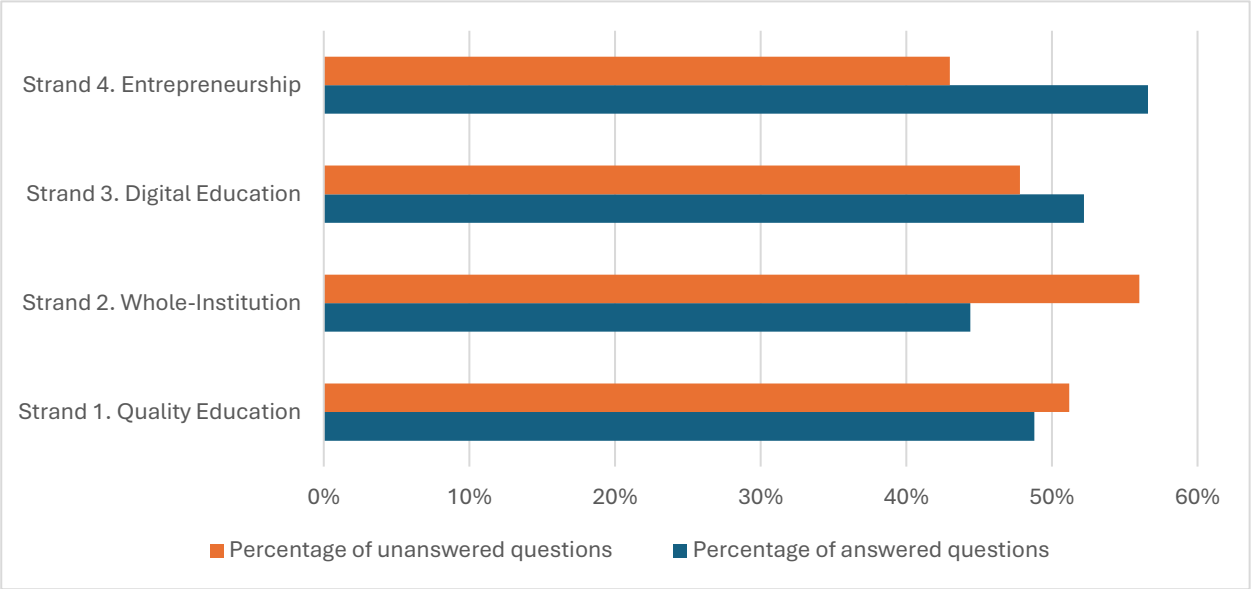
H. Main findings and conclusions for part 1

81. The analysis in part 1 reveals a significant divide between policy intent and practical implementation of ESD. While countries across the ECE region have shown strong political will – establishing national strategies and legal frameworks – these high-level commitments are often not supported by the necessary operational mechanisms. This results in a fragmented approach where policies are aspirational rather than enforceable, and coordination bodies lack the authority or funding to drive systemic change. A key finding is the uneven integration of ESD, which is most visible in primary and lower secondary education but less so in higher education and vocational training. This indicates that while the foundations for ESD are largely in place, the transformative potential of these policies is diluted in the transition from national declarations to institutional practice.

V. Part 2: Thematic strand analysis

82. While part 1 provided an evaluation based on established ECE Strategy issues and indicators, part 2 explores countries' implementation across four Nicosia Framework thematic strands – quality education and ESD, WIAs, digital education and ESD, and entrepreneurship, employment, innovation and ESD – which reflect the emerging priorities necessary for deepening and scaling sustainability education in a rapidly evolving world.

Figure 9
Visualization of responses on education for sustainable development strands
(31 countries)



83. The analysis reveals notable differences in reporting patterns between the more familiar part 1 indicators and these newer thematic strands. A bar chart summarizing completion rates across the four strands highlights the promise and the challenges of mainstreaming these emerging dimensions (see figure 9).

84. The response patterns across the four strands reveal some key findings:

Strand 2. "Whole-Institution" shows the highest percentage of unanswered questions (around 56%), suggesting that this particular area might be the least addressed or the most challenging for countries to report on within part II.

Strand 4. "Entrepreneurship" has the highest percentage of answered questions (around 57%). This could indicate a stronger focus or more readily available data related to entrepreneurship within the context of the survey.

Strand 3. "Digital Education" shows relatively similar patterns, with the percentage of answered questions being slightly higher than that of unanswered questions.

Strand 1. "Quality Education" has a relatively lower percentage of answered questions (48.8%). That shows that many achievements lack the instruments and mechanisms to evaluate them.

85. This lower reporting for some strands cannot be simply interpreted as absence of action. Rather, it reflects a combination of factors: the relative novelty of the Nicosia Framework strands; potential gaps in coordination among stakeholders responsible for these areas; and a lack of established reporting mechanisms familiar to national focal points who have traditionally reported on part 1 indicators. These patterns underscore the need for capacity- building, clearer guidance, and stronger integration of the strands into national monitoring systems to ensure more comprehensive reporting in future cycles.

86. In-depth evaluation of the strands reveals interesting areas for further implementation.

A. Strand 1: Quality education and education for sustainable development

87. The alignment of ESD with quality education reforms has been widely acknowledged across countries, although the depth and operationalization of this alignment vary substantially. Many countries report integrating sustainability competencies into curriculum reforms, emphasizing transversal skills such as critical thinking, global citizenship and

systems thinking. These competencies are increasingly framed within broader Sustainable Development Goal-linked visions of education quality, yet remain inconsistently translated into learning outcomes, assessment practices and teacher support systems.

88. One recurring challenge is the risk of treating sustainability as an additional topic rather than a foundational lens for education quality. In several contexts, ESD is positioned as an optional or thematic supplement rather than embedded across disciplines and educational goals. These risks reinforce a compartmentalized approach, limiting the transformative potential of ESD to reshape how quality is conceptualized and practiced in education systems.

89. Teacher education shows uneven attention to sustainability within quality assurance frameworks. While some accreditation systems now reference sustainability-related competencies, few translate these references into enforceable standards or evaluation criteria. This gap weakens institutional accountability for preparing teachers to deliver quality education that integrates sustainability principles.

90. While many countries are aligning ESD with quality education reforms by integrating transversal skills such as critical thinking, this alignment often lacks depth and consistent operationalization. A key challenge is the tendency to treat sustainability as an additional subject rather than a foundational element of education quality. Furthermore, while some teacher accreditation systems reference ESD, they often do not translate these references into enforceable standards or evaluation criteria, weakening institutional accountability.

B. Strand 2: Whole-institution approach and education for sustainable development

91. WIA represents one of the Strategy's most ambitious yet unevenly implemented aspects. Conceptually embraced by many countries, WIA remains largely at the level of pilot projects or isolated examples rather than being a systemic practice across education sectors.

92. National reports describe efforts to integrate sustainability into school governance, campus operations, curriculum and community partnerships. However, few countries report national-level frameworks or monitoring mechanisms to scale WIA beyond individual institutions. Where progress occurs, it is often driven by committed school leaders or NGO-supported initiatives rather than policy mandates or institutional incentives.

93. Leadership capacity emerges as a critical constraint. Without sustained investment in developing school leaders' skills to manage systemic change, many institutions struggle to move from individual projects to whole-institution transformation. This leadership gap mirrors weaknesses reported under issue 3 and underscores the interdependence of leadership, professional development and institutional culture in realizing WIA.

94. Moreover, the interconnection between the strands and part 1 indicators becomes apparent in the analysis. For example, the relatively lower completion rate for strand 2 (WIA) may be linked to weak leadership training in ESD reported under issue 3. Similarly, the emerging challenges of digital education in strand 3 reflect broader pedagogical and infrastructure issues identified across part 1 indicators. Recognizing these interdependencies will be essential for designing coherent strategies that address systemic barriers rather than treating strands as isolated priorities.

95. WIA is conceptually embraced but remains one of the most unevenly implemented areas, with a high percentage of unanswered questions in national reports. Implementation is often limited to isolated pilot projects driven by individual school leaders or NGOs, rather than being scaled through national-level frameworks or policy mandates. The lack of systematic WIA training for education leaders is a significant constraint, highlighting a critical gap between policy intent and systemic practice.

C. Strand 3: Digital education and education for sustainable development

96. Digital education represents both a rapidly expanding opportunity and a complex challenge for advancing ESD. National reports reveal significant efforts to expand digital access and develop online learning resources. Many national curricula now explicitly include digital literacy components alongside sustainability education, with learning management systems offering courses in self-paced and blended formats. However, intentional integration of sustainability principles into digital education policies and practices remains limited.

97. Many countries report digital education initiatives focused on infrastructure, connectivity and basic digital skills, with less emphasis on leveraging digital tools to advance ESD goals such as systems thinking, critical reflection or participatory citizenship. Digital platforms hosting ESD resources are increasing, yet few are embedded within broader strategies to align digital transformation with sustainability learning.

98. Support for educators in adopting new ESD teaching technologies varies significantly across ECE countries. Many have implemented targeted programmes that combine digital competence development with sustainability education, often aligned with European standards (e.g., DigCompOrg, DigCompEdu). These frameworks provide structured approaches for educators to develop digital teaching skills while incorporating sustainability themes.

99 Professional development often addresses these domains separately, leaving educators without integrated pedagogical strategies for using digital tools to support sustainability outcomes. Concerns about digital divides, misinformation and ethical use of technology further complicate the landscape, highlighting the need for digital education policies that explicitly link technological innovation with sustainability principles.

100. Countries are actively expanding digital access and online learning resources, yet the intentional integration of sustainability principles into these initiatives remains limited. Digital education policies often focus on infrastructure and basic skills, with less emphasis on using technology to promote higher-order ESD goals such as systems thinking or critical reflection. This disconnect is further compounded by a lack of integrated professional development that equips educators to combine digital and sustainability competencies.

D. Strand 4: Entrepreneurship, employment, innovation and education for sustainable development

101. Integration of sustainability-related entrepreneurship, green skills and innovation into education shows uneven progress across the region. Countries report advances in vocational education and training and higher education, where curricular revisions align with emerging green economy sectors such as renewable energy, sustainable agriculture and circular economy practices.

102. However, integration into general education curricula is more limited, often confined to extracurricular activities or isolated modules. Entrepreneurial education linked to sustainability values is rarely positioned as a cross-curricular priority, limiting opportunities for all learners to develop competencies for sustainable innovation and employment.

103. The connection between entrepreneurship education and environmental sustainability is emerging but appears less developed than entrepreneurship education itself. While several education systems have incorporated entrepreneurial competencies into their frameworks, the explicit linking of these skills to green jobs and sustainability is still evolving. Some countries report recent curricular revisions specifically targeting sustainable development principles and green competencies, particularly in technical and vocational education. These revisions often focus on developing skills related to renewable energy, waste management, sustainable construction and environmentally responsible business practices. Several countries report partnerships between education institutions, businesses and local governments to support green entrepreneurship initiatives. Yet these partnerships are often project-based, dependent on external funding and unevenly distributed geographically. Sustaining such collaborations

beyond funding cycles remains challenging, underscoring the need for institutionalized mechanisms that link education with local sustainable development agendas.

104. NGOs, industry associations and financial institutions play a significant role in providing training, mentoring and financial support for youth-led businesses aligned with sustainability principles. Several countries have developed specialized competitions, hackathons or challenges focused on addressing environmental and social issues through entrepreneurial approaches. Digital platforms and networks connecting young entrepreneurs with mentors, investors and peer support are also common mechanisms for promoting sustainable entrepreneurship outside of formal education settings.

105. Many countries are establishing specialized training centres or centres of excellence focused on green economy skills, such as renewable energy installation, energy efficiency and environmental management. Short-term certification programmes, apprenticeships and modular training approaches are commonly used to provide targeted skills development.

106. Implementation of this strand is progressing, with countries reporting the highest level of activity among the four themes, particularly in aligning vocational and higher education with emerging green economy sectors. However, this integration is less common in general education curricula, where it is often confined to extracurricular activities. While partnerships between education and industry are emerging, they are frequently project-based and lack long-term institutionalized support, which limits their potential for sustained impact.

E. Main findings and conclusions for part 2

107. Analysis of the four Nicosia Framework thematic strands reveals both promising progress and significant challenges. While countries are engaging with these emerging priorities, the data shows that these areas are less mature in both implementation and reporting compared to the established part 1 indicators. The analysis highlights that the next phase of ESD implementation is still in its early stages. The data, characterized by high rates of "unanswered" questions, suggest that these emerging priorities – such as WIAs and the integration of digital education – are not yet systematically tracked or reported. The analysis shows that implementation is often fragmented, relying on isolated pilot projects rather than cohesive, national frameworks. The low completion rate for WIA, in particular, points to a critical gap in leadership capacity and systemic support. This section underscores the need for a more integrated approach that moves beyond ad-hoc projects and embeds these new thematic strands into the core of educational policy and practice, supported by robust data collection mechanisms.

VI. Part 3: Self-assessment by countries

A. Analysis of country self-assessments

108. The self-assessment methodology provides valuable insights while also presenting certain methodological considerations that warrant careful analysis. Data from 20 reporting countries demonstrate considerable variation in how nations evaluate their ESD implementation progress (one third of the reporting countries did not fully complete the questionnaires).

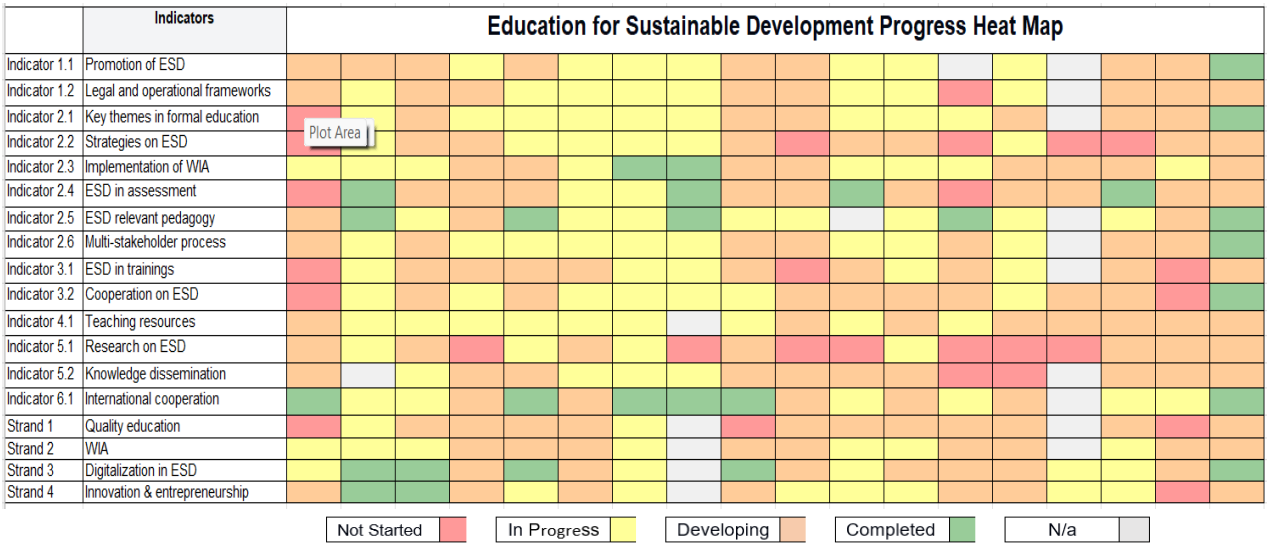
109. A pattern emerges when examining the relationship between reported evidence and self-assessment scores. Countries that presented comprehensive documentation of innovative practices and demonstrated integration across multiple ESD dimensions often applied more conservative evaluation criteria. Conversely, some countries with more limited evidence or fewer reported implementation examples assigned themselves higher assessment scores.

110. This divergence highlights several considerations inherent to self-reporting frameworks:

- Subjective evaluation standards: Different countries may apply varying levels of stringency when assessing their own progress, reflecting diverse cultural approaches to self-evaluation and different interpretations of assessment criteria.
- Contextual reporting factors: Various political, economic and institutional factors may influence reporting patterns. Some nations may emphasize achievements to demonstrate progress on international commitments, while others might highlight challenges and gaps to build a case for additional support and resources.
- Verification and validation gaps: The current framework lacks standardized external verification mechanisms, meaning that self-assessments rely primarily on national interpretation and internal validation processes. This structure may inadvertently introduce both systematic and unsystematic variations in reporting accuracy.

111. These observations underscore the importance of developing complementary assessment approaches that can provide additional perspectives on ESD implementation progress while maintaining the valuable insights that self-assessment methodologies continue to offer.

Figure 10
Self-assessment of progress heat map completed by 22 out of 31 countries



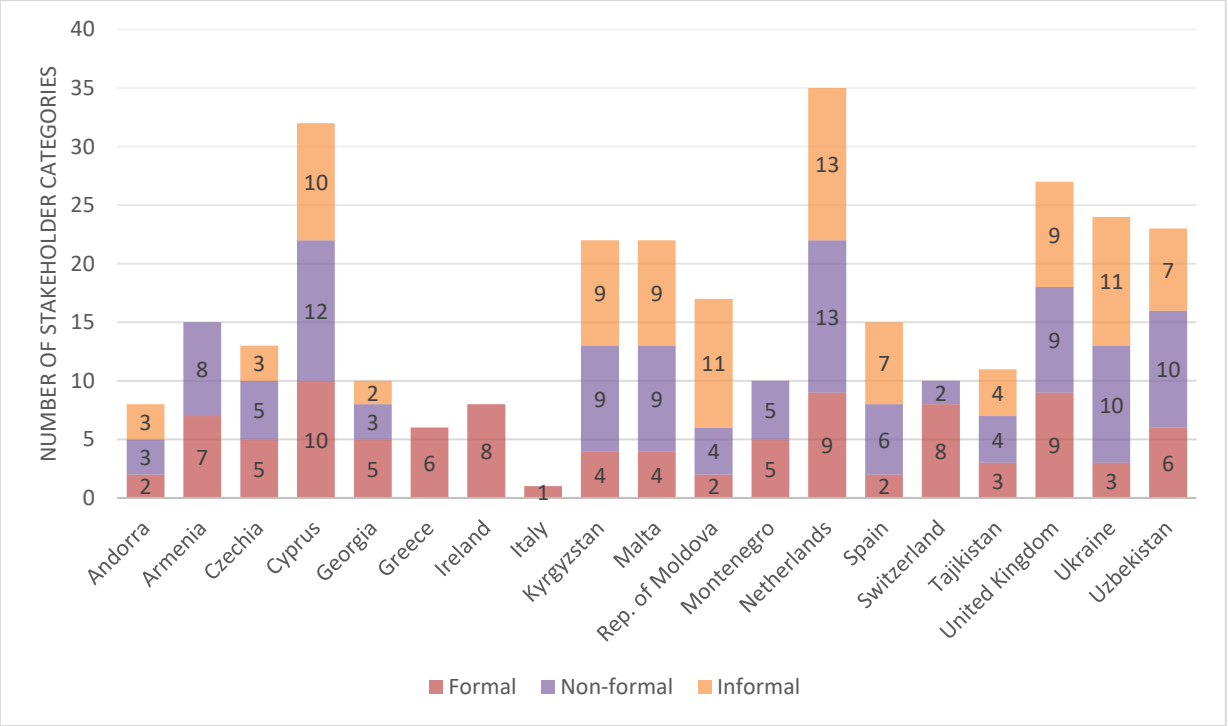
112. Looking across specific indicators, which are represented in this report as a heat map, clear implementation patterns emerge. Indicator 5.1 (Research on ESD is promoted) shows the highest concentration of challenges, suggesting that establishing and maintaining research infrastructure for ESD requires specialized resources or expertise that many countries find difficult to develop. Similarly, indicators 2.2 (Strategies to implement ESD), 3.1 (ESD in educator training), 3.2 (Opportunities for educators to cooperate on ESD), and 5.2 (Development and dissemination of ESD) all demonstrate significant implementation difficulties across multiple countries, pointing to systematic barriers in strategic planning, educator preparation, collaboration mechanisms and knowledge dissemination.

113. Conversely, several indicators show notably advanced implementation across the region. Strand 3 (Digital education, information and communications technology and ESD) demonstrates strong progress, with numerous countries reporting substantial advances. This pattern suggests that technology integration and entrepreneurial approaches to sustainability education may be receiving considerable attention and resources. Similarly, indicators 2.4 (ESD addressed by assessment systems), 2.5 (Methods for transforming knowledge into SD practice) and 6.1 (International cooperation on ESD) show relatively mature implementation, potentially reflecting areas where international support, existing assessment frameworks and practical methodologies have successfully facilitated progress.

B. Multi-stakeholder process in education for sustainable development implementation

114. The multi-stakeholder engagement data collected from 19 of the 31 reporting countries reveals important patterns in how different actors contribute to ESD across formal, non-formal and informal educational contexts.

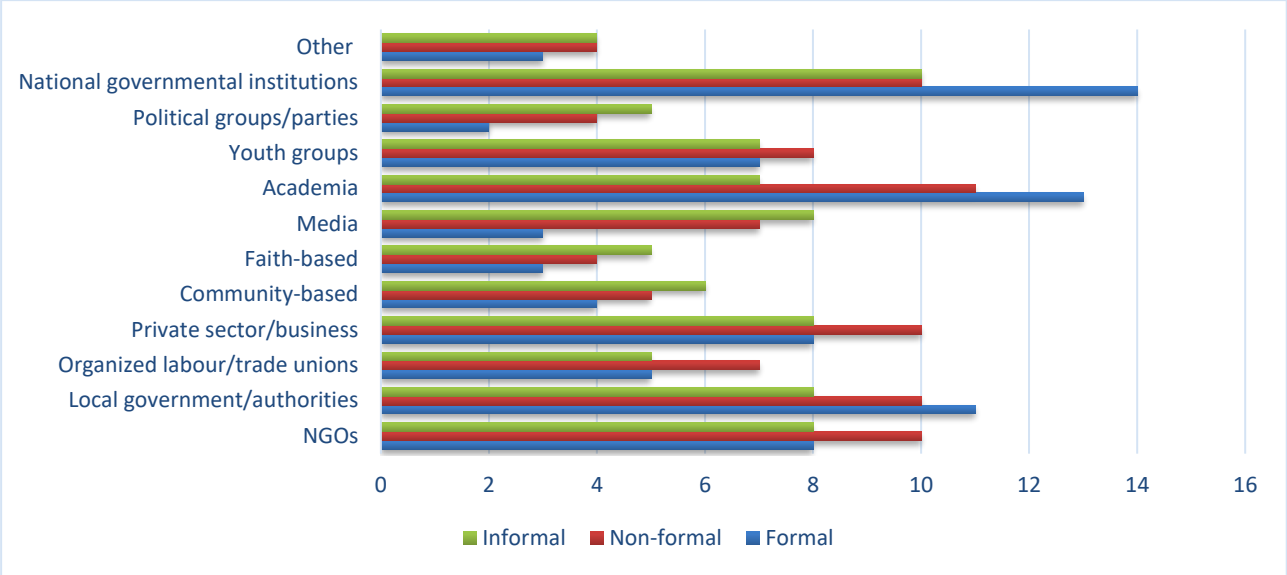
Figure 11
Stakeholder involvement by country



Note: Figure 11 reflects institutional representation across formal, non-formal and informal sectors as recorded by countries in reporting template, appendix II, but does not capture full qualitative scope of national engagement described in NIRs' narrative sections.

115. Formal stakeholders – including education ministries, schools, universities and teacher training institutions – show strong involvement, reflecting the institutionalization of ESD within structured education systems. Non-formal stakeholders, encompassing NGOs, community learning centres, vocational training providers, environmental education centres and youth organizations, demonstrate significant engagement, particularly in creating bridges between institutional education and community-based sustainability initiatives.

Figure 12
Stakeholder involvement by type of institution



116. The lower but still meaningful involvement of informal stakeholders – including media outlets, museums, science centres, libraries and community initiatives – highlights both challenges and opportunities in extending ESD beyond traditional learning environments into everyday contexts.

A diverse ecosystem of stakeholders contributes to ESD, with varying levels of engagement depending on the educational context. This information can help guide strategic partnerships and identify areas where specific stakeholder involvement could be strengthened within the ECE region, based on the reporting countries' data.

C. Sustainable Development Goal integration in education curricula

117. Analysis of how different Sustainable Development Goals are addressed within education curricula reveals noteworthy patterns and gaps. More traditional sustainability themes show stronger integration, with Goals 6 (Clean water and sanitation), 3 (Good health and well-being), 5 (Gender equality) and 15 (Life on land) appearing most frequently in educational content. This suggests that environmental aspects, health, gender-related topics and biodiversity have established roots within ESD frameworks.

118. However, critical sustainability dimensions show less consistent integration. Goal 14 (Life below water) exhibits the lowest frequency, raising concerns about insufficient ocean literacy despite the oceans' fundamental role in planetary health. Economic dimensions of sustainability – including Goals 8 (Decent work and economic growth), 9 (Industry, innovation, and infrastructure) and 12 (Responsible consumption and production) – also show relatively low integration, suggesting a gap in equipping learners with a comprehensive understanding of sustainable economic practices and responsible consumption patterns.

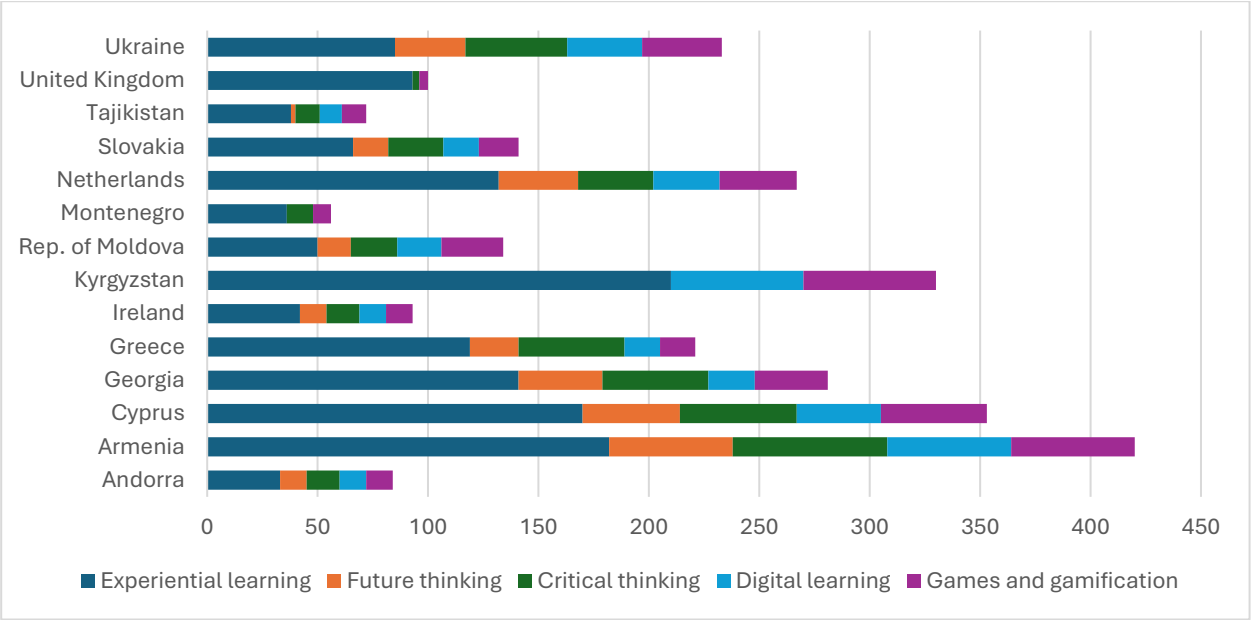
119. More complex and recently prioritized global challenges, such as Goals 13 (Climate action), 10 (Reduced inequalities), 16 (Peace, justice and strong institutions) and 17 (Partnerships for the Goals), appear with moderate but not optimal frequency.

120. Overall, the data indicate a stronger historical emphasis on certain sustainable development themes in education. However, the lower representation of other crucial Sustainable Development Goals signals a potential need for a more holistic and integrated approach to ensure learners are equipped to address the full spectrum of global challenges outlined in the 2030 Agenda.

D. Methodological approaches in teaching education for sustainable development

121. The analysis of pedagogical methodologies across reporting countries highlights a growing emphasis on approaches that foster higher-order thinking skills essential for sustainability education. Experiential learning emerges as the most consistently implemented methodology, reflecting widespread recognition of its effectiveness in connecting theoretical sustainability concepts with practical understanding and action. Critical thinking and future thinking show more variable implementation across countries, although their importance in developing the analytical and anticipatory competencies central to ESD is increasingly being acknowledged.

Figure 13
Teaching methodologies relevant to education for sustainable development by country



Note: Data strictly derived from responses recorded in reporting template, appendix 1 (c), table.

122. Country-specific analyses reveal significant variations in methodological focus across educational levels. Several countries show limited explicit methodological emphasis at higher education levels, with Armenia, Kyrgyzstan, Montenegro, Netherlands (Kingdom of the) and Ukraine reporting no specific higher education ESD methodologies. Conversely, Andorra and Ireland concentrate their explicit methodological focus primarily on higher education. This uneven distribution suggests potential gaps in comprehensive methodological approaches across all education levels.

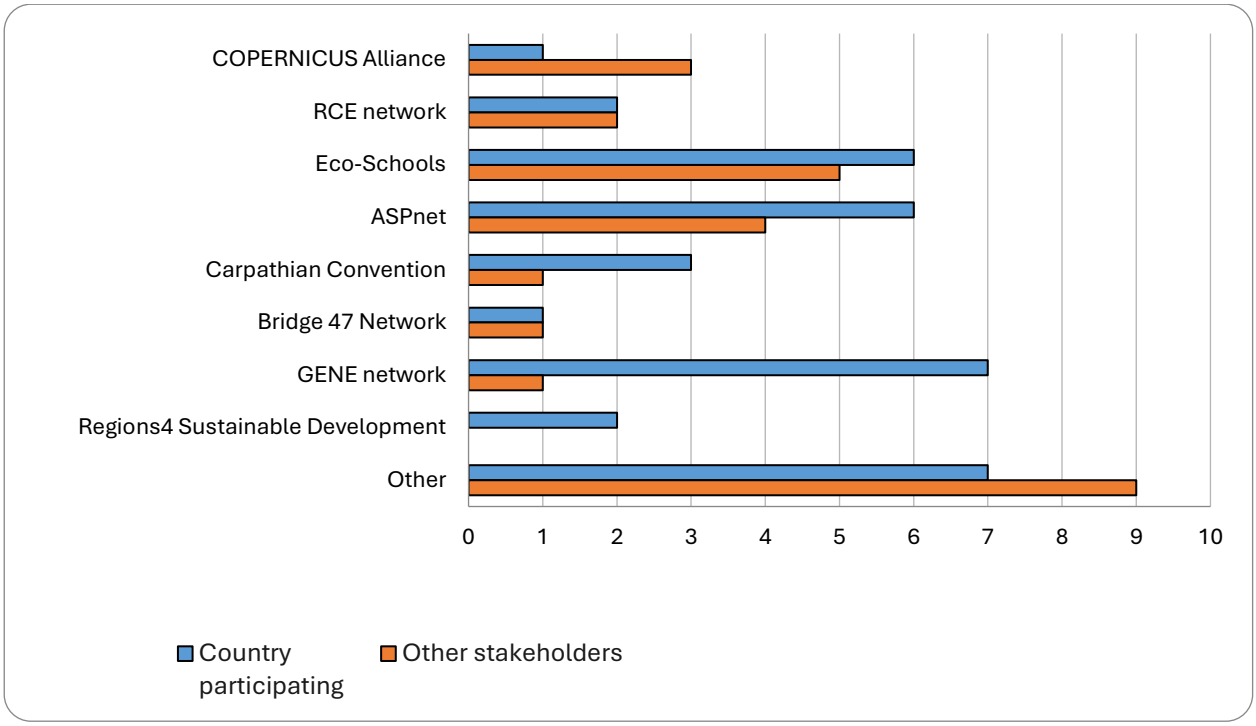
123. Digital learning and games-based approaches appear less consistently integrated, although their presence is growing in several contexts. This suggests an opportunity to further develop these engagement-centred methodologies, particularly as digital literacy becomes increasingly central to both education and sustainability action.

124. In conclusion, while there is a general trend towards incorporating ESD methodologies that promote higher-order thinking, the level and focus of this explicit integration differ considerably across the analysed countries and educational levels. The emphasis on experiential learning is consistent, but the adoption of digital and gamified approaches appears less uniform. Further investigation into the specific ways these methods are embedded within curricula and the factors influencing these variations would deepen understanding of the global ESD implementation landscape.

E. Education for sustainable development networks and international collaboration

125. ESD networks play an increasingly vital role in facilitating knowledge exchange, resource sharing and collaborative projects across the ECE region. Analysis of network participation reported by 15 countries reveals varying levels of engagement with different collaborative platforms. Global Education Network Europe (GENE) demonstrates the highest overall popularity, with seven participating countries and significant stakeholder engagement, highlighting its effectiveness in fostering international collaboration and knowledge-sharing. ASPnet and Eco-Schools also show substantial engagement, with six country participants each and notable "other stakeholders" involvement.

Figure 14
Number of education for sustainable development networks operated in the countries



Abbreviations: RCE, Regional Centres of Expertise on ESD.

126. However, while 31 countries submitted NIRs, only 15 provided information on their engagement with ESD networks. This discrepancy suggests potential challenges in recognizing the value of collaborative platforms, limited active participation in relevant networks, or insufficient information flow about existing networking opportunities for leveraging shared knowledge and resources.

127. Several factors might explain this limited participation in different networks. Some countries may not fully recognize the benefits of network participation or perceive them as less relevant to their national contexts. Others might face barriers to joining existing networks or prioritize national initiatives over international collaborations. Critically, a lack of awareness about available networks or ineffective communication channels could also contribute to the low reporting rate. Addressing these issues through enhanced communication, demonstrating the tangible benefits of network participation, and facilitating easier access to relevant networks are crucial steps to foster greater engagement and more comprehensive reporting.

F. Main findings and conclusions of part 3

128. The self-assessment data from part 3 provide a nuanced view of ESD implementation, revealing both progress and the limitations of the reporting methodology itself. While the

data identify clear strengths in areas such as digital education and experiential learning, they also point to significant, systematic challenges in promoting research, establishing collaboration networks, and integrating more complex Sustainable Development Goals. The varying stringency of self-evaluations highlights the need for a more standardized, verifiable reporting process to ensure consistency and accuracy. This section concludes that while self-assessment offers useful insights, the reporting framework must be modernized to better capture the full scope of ESD activities on the ground, including the crucial work of multi-stakeholder networks and the integration of all sustainability dimensions.

VII. Final conclusion and reflections for future implementation

129. The fifth evaluation of the UNECE Strategy for ESD presents a region demonstrating strong policy commitment alongside persistent implementation challenges. Based on reports from 31 countries, this evaluation reveals both meaningful progress in establishing ESD foundations and significant opportunities for deepening systemic integration and impact.

1. Policy-implementation gap

Policy commitment to ESD remains robust region-wide, with an average completion rate of 73% in policy, regulatory and institutional frameworks. Nearly all reporting countries have established national strategies, legal references or designated authorities. However, a significant implementation gap persists between these high-level policy declarations and their translation into operational mechanisms, funding pathways and accountability systems. This gap limits the effective vertical integration of policies, preventing them from consistently cascading into regional- and local-level action.

2. Uneven educational integration

Substantial progress has been made in embedding ESD into educational content and contexts, yet integration remains inconsistent across education levels and sustainability dimensions. Sustainability education is most advanced in primary and lower secondary levels, while higher education, vocational settings and adult learning show more fragmented integration, often due to institutional autonomy. Analysis of Sustainable Development Goal integration confirms that while environmental dimensions are well-established, social, economic and more complex global challenges are less consistently addressed in curricula.

3. Educator capacity development needs

Professional development for educators shows promising advances but significant capacity gaps persist. While 74% of countries report inclusion of ESD in educator training, this integration often remains superficial or elective, particularly in initial teacher education. One major constraint is the underdeveloped area of leadership training for school principals and education managers, which limits institutional capacity to implement WIAs. This leadership gap directly constrains the scaling of ESD from isolated activities to systemic practice.

4. Variable thematic strand implementation

The implementation of the four Nicosia Framework thematic strands shows uneven progress compared to traditional sustainability dimensions. Countries report the highest activity in entrepreneurship and innovation, followed by digital education and quality education. WIA shows the lowest completion rates, reflecting both the strand's novelty and a lack of established implementation and reporting mechanisms. This variability highlights the need for clearer guidance and stronger integration into national monitoring systems for these emerging priorities.

5. Critical areas requiring attention

Several interconnected areas, all with a less than 55% completion rate, significantly constrain overall implementation. These include research, international cooperation and traditional knowledge integration. ESD research remains largely project-based and externally funded, without systematic integration into national research agendas. International cooperation often

lacks national co-financing for long-term sustainability. The integration of traditional and Indigenous knowledge shows the lowest completion rate, with few mechanisms for its meaningful inclusion in educational systems. Strengthening these dimensions is essential for building evidence-based, globally connected and locally relevant ESD approaches.

6. Reporting process modernization needs

The declining reporting participation (55% of ECE countries) suggests a need to strengthen and modernize the reporting process. The current approach has resulted in significant variability in report quality and content. Developing a standardized, accessible online reporting platform with clear, streamlined indicators and built-in data visualization tools would improve participation rates and data quality and render the process less burdensome for national focal points. This modernization is crucial to capture a more complete picture of progress, including on emerging themes and collaborative networks where reporting is currently lacking.