



**EURYDICE
REPORT**

Learning for sustainability in Europe: Building competences and supporting teachers and schools

**School
education**

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Learning for sustainability in Europe: Building competences and supporting teachers and schools

Foreword



Education is a crucial force supporting the green transition and building a sustainable future for Europe's societies and economies. The EU's unwavering commitment is to ensure that every young European has access to high-quality education and training on sustainability. To achieve this goal, we need to develop comprehensive strategies to prioritise learning for sustainability among schools, educators and students. This involves integrating it as a central theme in education policies.

This new report examines the building blocks of learning for sustainability in European schools. It analyses the inclusion of crucial competences in school curricula and the variety of guidance and support provided to teachers and schools to bolster sustainability education.

According to the key findings of the report, we have made huge strides in embedding learning for sustainability within the educational framework. Sustainability themes are now woven into the curricula in all European countries, with related competences integrated across several or all subject areas. As part of ongoing curricular reforms, there is a concerted effort to deepen the focus on sustainability education.

However, the report also unveils a gap in targeted support, guidance and training opportunities available to teachers and school leaders. And while a majority of European education systems promotes the inclusion of sustainability in all aspects of the learning environment, these policies are not always coupled with financial and non-financial support for specific school activities. Overall, the findings indicate a need for more robust actions to equip our teachers and schools with the tools they need to enable all students to understand and address sustainability challenges.

I am confident that the rich evidence in this comprehensive report will serve as an invaluable resource for educators, policymakers and other stakeholders to foster the development and enhancement of learning for sustainability. I hope that the findings will encourage countries to exchange best practices and to learn from each other, underscoring the urgency of placing sustainability at the heart of school education. By doing so, we can empower every young person to care for the planet and to protect our common future.

Iliana Ivanova

European Commissioner for
Innovation, Research, Culture,
Education and Youth

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Codes and abbreviations

Country codes

EU European Union	FR France	European Free Trade Association and candidate countries
Member States	HR Croatia	
BE Belgium	IT Italy	AL Albania
BE fr Belgium – French Community	CY Cyprus	BA Bosnia and Herzegovina
BE de Belgium – German-speaking Community	LV Latvia	CH Switzerland
BE nl Belgium – Flemish Community	LT Lithuania	IS Iceland
BG Bulgaria	LU Luxembourg	LI Liechtenstein
CZ Czechia	HU Hungary	ME Montenegro
DK Denmark	MT Malta	MK North Macedonia
DE Germany	NL Netherlands	NO Norway
EE Estonia	AT Austria	RS Serbia
IE Ireland	PL Poland	TR Türkiye
EL Greece	PT Portugal	
ES Spain	RO Romania	
	SI Slovenia	
	SK Slovakia	
	FI Finland	
	SE Sweden	

Statistics

- (:) or : Data not available
(-) or – Not applicable

Abbreviations and acronyms

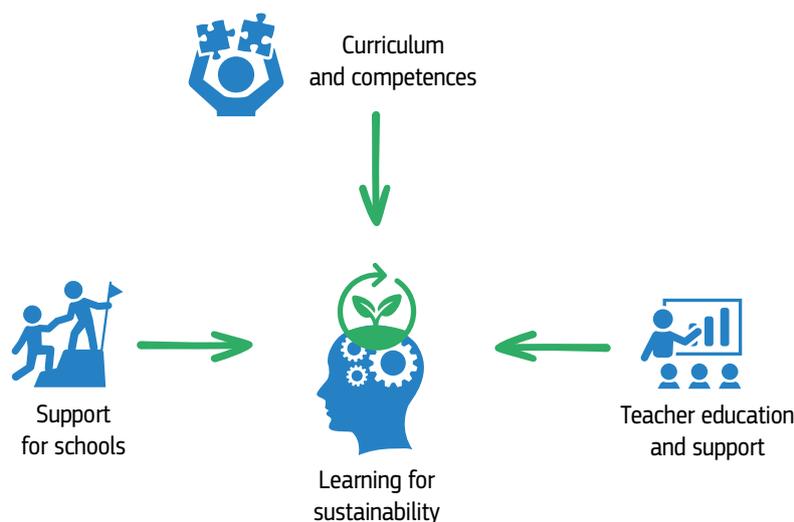
CPD	continuing professional development
ESD	education for sustainable development
GAP	Global Action Programme
ISCED	International Standard Classification of Education
ITE	initial teacher education
NGO	non-governmental organisation
SDGs	sustainable development goals
UNDESD	United Nations decade of education for sustainable development
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization

Executive summary

The last two decades have witnessed increasing recognition of the role of education as a key agent to transform society along more sustainable, equitable and socially just lines (UNESCO, 2005; UN, 2012). Educational institutions are seen as essential agents for addressing the sustainability challenge that societies are facing, because of their key mission of building competences through teaching and learning (UN, 2012; UNESCO, 2020).

In the EU, the 2021–2030 strategic framework for European cooperation in education and training ⁽¹⁾ identifies as a strategic priority the need to ‘support the green and digital transitions in and through education and training’. To support Member States in their efforts to embed sustainability in their education and training systems, the Council of the European Union, in June 2022, adopted a recommendation on learning for the green transition and sustainable development ⁽²⁾, urging Member States to step up and strengthen efforts to support education and training systems, so that learners can access ‘high-quality, equitable and inclusive education and training on sustainability, climate change, environmental protection and biodiversity, with due concern for environmental, social and economic considerations’. The Council recommendation calls for a range of measures at the level of education systems, as well as for schools, educators and learners, in order to establish learning for the green transition and sustainable development as a priority in education and training policies.

In support of the follow-up work for the implementation of the June 2022 Council recommendation, this Eurydice report examines the building blocks of learning for sustainability in European schools. Specifically, the report analyses the top-level curricula, learning competences and support measures for schools, educators and students related to sustainability.



⁽¹⁾ Council resolution of 19 February 2021 on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–2030), 2021/C 66/1 (OJ C 66, 26.2.2021, p. 1).

⁽²⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

The report relies on qualitative data on policies and support measures that have been collected by means of a Eurydice data collection survey. It covers primary and general secondary education in 39 European education systems.

In order to equip learners to deal with the complex sustainability challenges that societies are facing, sustainability competences need to be embedded in the curriculum in a holistic way. In addition, teachers and school leaders need to receive the appropriate training, guidance and support in order to have the necessary knowledge, and to be able to implement sustainability pedagogies and adapted teaching approaches. Finally, learning for sustainability requires a whole-institution approach, embedding sustainability across all school activities, which could be facilitated by top-level guidance and support. The main findings below summarise the results of our data analysis.

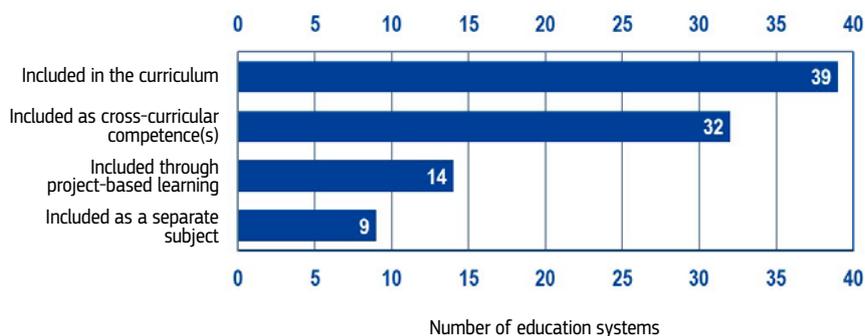
All European countries include the topic of sustainability in their curricula, and sustainability competences are cross-curricular in the majority of education systems

There is no European education system that does not include the topic of sustainability in its top-level curricula (Figure 1). Teaching of sustainability competences most often involves a cross-curricular approach, and this can be achieved in various ways: (1) sustainability can form part of transversal key competence frameworks; (2) sustainability can be defined as a cross-cutting or cross-curricular learning area in a separate part of the curriculum, perhaps even a separate steering document; and (3) sustainability competences can be integrated in several (or even all) different subject areas separately, while learning for sustainability is regarded as a general objective of the education system (see Section 1.1.1).

Sustainability competences are almost always included in science subjects and geography, and to a lesser extent in citizenship education. They are also often integrated into social studies (including economics and economic studies), history, technology and art and design.

Sustainability can be included in the curriculum in an interdisciplinary way through project-based learning, or by adding a separate, interdisciplinary subject as well. Project-based learning is somewhat more common than creating a separate sustainability subject, which only exists in nine European education systems (Figure 1). In most such cases, sustainability as a subject is integrated at secondary level, but is not compulsory (see Section 1.1.3). This also means that not all students study sustainability as a separate subject, even if this option exists in an education system. The only country where education for sustainable development is a compulsory separate subject for all students is Cyprus.

Figure 1: Number of education systems including sustainability in their curricula (ISCED 1, 24 and/or 34), 2022/2023

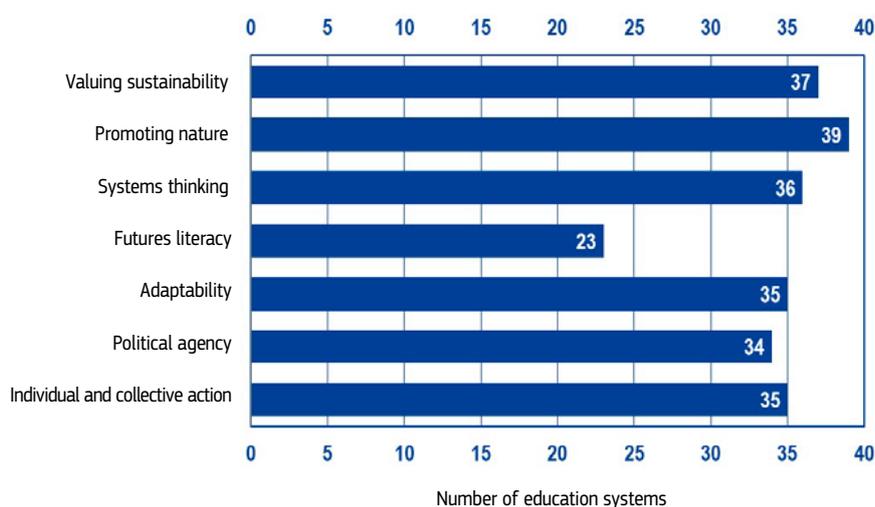


Source: Eurydice.

Among the sustainability competences, futures literacy is the least present in European curricula

Almost all of the seven sustainability competences examined in this report (valuing sustainability, promoting nature, systems thinking, futures literacy, adaptability, political agency and individual and collective action)⁽³⁾ are relatively well represented in European curricula, being included in the curricula of the large majority of European countries. The exception is 'futures literacy': only 23 education systems make reference to this competence (Figure 2).

Figure 2: Number of education systems including key sustainability competences in their curricula (ISCED 1, 24 and/or 34), 2022/2023



Source: Eurydice.

⁽³⁾ These competences were selected and defined based on the European Commission's GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022).

Differences between education levels are significant only for the ‘political agency’ and ‘individual and collective action’ competences, which are more frequently present at secondary level (see Section 1.2). This also means that, regarding the four broad competence areas defined by the GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022), ‘embodying sustainability values’ and ‘embracing complexity in sustainability’ are more frequently part of curricula than the other two, ‘envisioning sustainable futures’ and ‘acting for sustainability’.

Over half of the education systems (23) cover all seven sustainability competences at minimum one education level. Top-level curricula in a further 10 systems include learning outcomes in relation to five or six of the discussed sustainability competences. Top-level steering documents in six education systems contain references to only three or four of the seven competences (see Annex). However, curricular reforms are taking place across Europe, more extensively embedding sustainability competences in the curriculum.

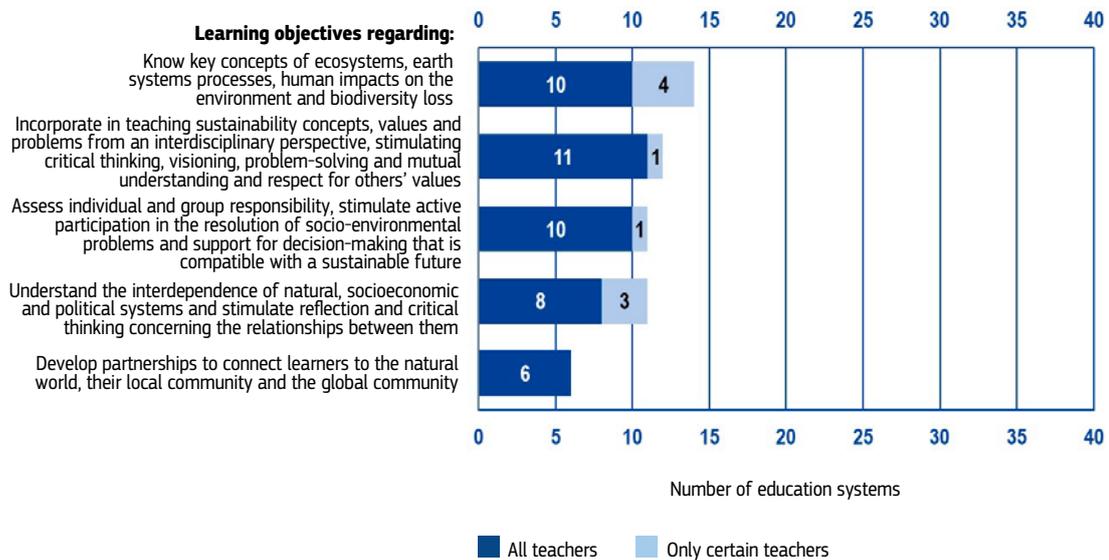
Almost half of the education systems set sustainability-related learning objectives for teacher education programmes

While sustainability competences are, to various extents, included in the school curricula of all European countries in this study, setting relevant learning objectives for initial teacher education (ITE) to ensure that prospective teachers have the necessary skills and knowledge to deliver the curricula is less common. Regulations and guidelines establishing the minimum standards and content for ITE programmes cover sustainability-related learning objectives in 17 education systems (see Section 2.2).

ITE regulations cover the learning objective ‘know key concepts of ecosystems, earth systems processes, human impacts on the environment and biodiversity loss’ in 14 education systems, although, in four of them, only for certain subjects or specialisations (Figure 3). In comparison, the corresponding competence for school students, promoting nature, is included in the curricula of all countries (Figure 2).

In a dozen education systems, regulations and guidelines for ITE cover elements of the learning objective ‘incorporate in teaching sustainability concepts, values and problems from an interdisciplinary perspective, stimulating critical thinking, visioning, problem-solving and mutual understanding and respect for others’ values’. In comparison, European countries report the inclusion of related competences (valuing sustainability, futures literacy, adaptability) in school curricula in higher numbers.

Figure 3: Number of education systems setting sustainability-related learning objectives for initial teacher education (ISCED 1, 24 and/or 34), 2022/2023



Source: Eurydice.

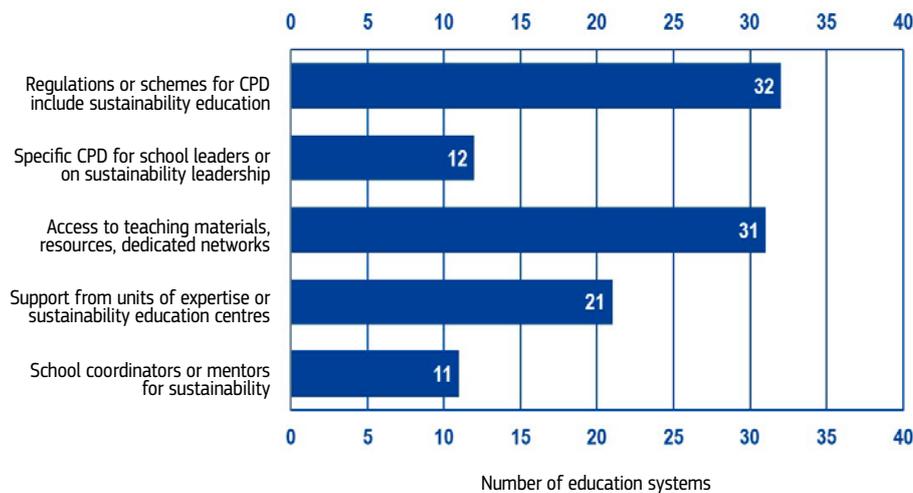
While political agency and individual and collective action are among the competences that learners should acquire during their school years in the large majority of countries, ITE regulations cover the related learning objective 'assess individual and group responsibility, stimulate active participation in the resolution of socio-environmental problems and support for decision-making that is compatible with a sustainable future' in fewer than a dozen education systems.

Minimum standards for ITE cover the learning objective 'understand the interdependence of natural, socioeconomic and political systems and stimulate reflection and critical thinking concerning the relationships between them' in eight education systems, and in three others they do so only for certain subjects or specialisations. In contrast, the systems thinking competence is included in the school curricula of all but four education systems. Finally, the cross-cutting objective 'develop partnerships to connect learners to the natural world, their local community and the global community' is addressed in only six systems.

Education systems usually provide in-service teachers with training, teaching materials, resources and guidelines relating to sustainability education

Sustainability education is included in regulations or schemes for the continuing professional development (CPD) of teachers and school heads in all but seven education systems (Figure 4). However, participation in sustainability-related activities is usually voluntary, even if CPD may be mandatory. Moreover, only a dozen systems provide for specific CPD in sustainability leadership (see Section 2.4).

Figure 4: Number of education systems providing training and support on sustainability for teachers and school leaders (ISCED 1, 24 and/or 34), 2022/2023



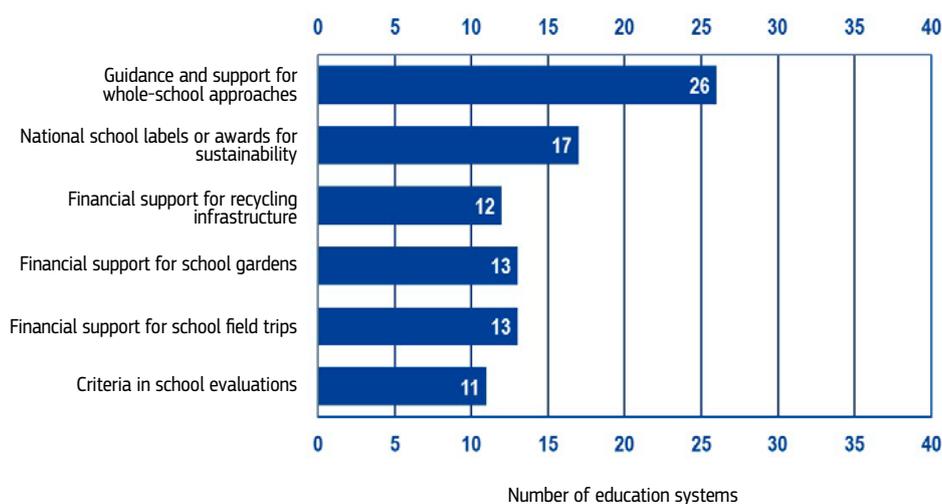
Source: Eurydice.

Around three quarters of the education systems provide teaching materials, resources or guidelines on how to integrate sustainability in teaching – most of which also have dedicated networks or communities of practice where teachers and school heads can exchange information, share best practices and build partnerships. In more than half of the education systems examined, teachers have access to units of expertise or sustainability education centres, but in fewer than a dozen systems can teachers receive support from sustainability coordinators, delegates or mentors (see Section 2.5).

Support for whole-school approaches to sustainability is widespread

Learning for sustainability is a transformative process that requires supportive learning environments. Beyond the key areas of teaching and learning, schools also need guidance and resources to aid their efforts to ‘act and live sustainability on a daily basis’ (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2022). Two thirds of European education systems provide guidance and/or tools to develop whole-school approaches to sustainability (Figure 5). Education ministries and other government bodies publish guidelines, organise webinars, create websites that collect pedagogical resources, compile best practices and publish handbooks and teacher manuals (see Section 3.1).

Figure 5: Number of education systems supporting whole-school approaches, projects and infrastructure related to sustainability (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Nearly half of education systems have national sustainability school labels

Schools can be awarded special labels to show that their pedagogy favours the promotion of sustainability. Such schools can serve as examples to others. Therefore, sustainability school programmes may be important for sustainability education. International sustainability school programmes, such as the Eco (Green) Schools programme and the UNESCO Schools Network are already operating in many European countries (see Section 3.2). In addition to these programmes, there are also comparable national (or regional) sustainability school programmes. Seventeen education systems offer labels, certificates or awards related to learning for sustainability (Figure 5). This shows that the operation of international sustainable school programmes does not preclude the operation of similar national programmes, and vice versa.

Only a third of education systems provide financial support for small-scale infrastructure or field trips related to sustainability, and this support is rarely granted automatically

Learning for sustainability entails wide-ranging changes to schools' culture, facilities and operations. To successfully implement such changes, schools need the support of the education authorities (see Section 3.3). However, financial support for sustainability-related activities remains limited at present. Only 12 education systems offer financial support to schools to invest in recycling infrastructure, and only 13 help fund the creation or maintenance of school gardens or student field trips (Figure 5).

Financial support for infrastructure projects (such as school gardens), where available, must usually be applied for. However, recycling infrastructure in schools, such as recycling bins, is usually funded automatically.

Less than a third of education systems monitor how schools embed sustainability in their activities

If learning for sustainability is to be enhanced, it must be monitored and evaluated as part of the general monitoring and evaluation processes of education systems. However, less than a third of all education systems have established specific criteria related to learning for sustainability in either external or internal school evaluations (Figure 5). Where no specific criteria exist, this could be because the legislation on evaluation is less prescriptive and does not go into this level of detail and/or because this task is delegated to regional or local authorities or to the schools (see Section 3.5).

* * *

Overall, this report highlights a number of positive developments in embedding learning for sustainability in school education in Europe. Sustainability is included in the curricula of all European countries, and related competences are integrated across several or all subject areas. A detailed analysis of the take-up of seven sustainability competences shows that these competences are relatively well represented in European curricula. In this rapidly evolving area, ongoing curricular reforms aim to provide a deeper focus on learning for sustainability by embedding sustainability competences more extensively and in greater detail across the whole curriculum.

However, the report also demonstrates that targeted support, guidance and training opportunities for teachers and school leaders could be reinforced. Regulations and guidelines for education programmes for prospective teachers include sustainability-related competences or learning objectives in less than half of the education systems. Support for the professional development of in-service teachers and school heads is more common, although participation in training is rarely mandatory.

While the majority of European education systems provide guidance for schools to enable them to develop whole-school approaches to sustainability, financial and non-financial support for specific school activities is less common. There is still plenty of room to increase financial support to schools, to enable them to invest in infrastructure that can be used in learning for sustainability or to fund regular school activities related to sustainability, such as field trips.

This report refers to numerous examples of valuable financial and non-financial aid for school-based initiatives and actions. However, such aid may not be available to every school and, in some cases, projects promoting sustainability education may depend on the initiative of individual teachers or school leaders. Finally, the analysis also shows that less than a third of all education systems have established specific criteria related to sustainability in either external or internal school evaluations.

These key findings point to the need for comprehensive policies to promote sustainability at European schools and for stronger actions to support teachers and schools in providing all students with the opportunity to develop their competences in this domain.

Several education systems have demonstrated that such a comprehensive approach is possible: Estonia, Spain, France, Cyprus, Lithuania, Malta and Austria all have comprehensive curricular and teacher training frameworks and provide extensive support for schools that encourage and facilitate learning for sustainability. In Czechia, although the curriculum includes only six of the seven sustainability competences, the support provided to teachers and schools is among the most comprehensive. Finland adopts a holistic approach to sustainability competences in the curriculum and provides a wealth of support to teachers and schools. At the same time, education providers have autonomy regarding how to spend government funding for sustainability projects. These and several other examples in the report illustrate different ways to further enhancing learning for sustainability in schools.

Introduction

Learning for sustainability has become an important policy priority at the international and European levels. Recognising the need for more information on current national approaches and actions to support learning about and for sustainability, this report provides the first comprehensive Eurydice mapping of the field.

Policy context

Countries around the world face global challenges such as climate change, health emergencies, desertification, biodiversity loss, environmental degradation, economic crises, social inequalities, wars and poverty eradication (UN, 2015). In this context, the idea of sustainable development or sustainability has gained international recognition as a pathway for change aimed at improving quality of life, equity among generations and environmental protection (UNESCO, 2009; Lozano, 2011; Lambrechts, Van Liedekerke and Van Petegem, 2018). The quest for sustainability, if it is to succeed, requires not only the development of technical solutions but a deep reorientation of livelihoods and social practices (Sterling, 2001; Wals, 2010). For this reorientation to happen, individuals and communities have to engage in what amounts to significant learning and 'unlearning', particularly in relation to content, competences and vision for the purposes and outcomes of education (Sterling et al., 2017; Lozano and Barreiro-Gen, 2019; Cebrián, Junyent and Mulà, 2020).

The last two decades have witnessed increasing national and international recognition of the role of education as a key agent to transform societies along more sustainable, equitable and socially just lines (UNESCO, 2005; UN, 2012). Educational institutions, in partnership with other stakeholders, such as civil society organisations, academia or the private sector, are seen as essential agents for addressing the sustainability challenge that societies are facing, because of their key mission of building competences through teaching and learning (UN, 2012; UNESCO, 2020).

The declaration of the 2005–2014 United Nations decade of education for sustainable development (UNDESD) acted as a catalyst for integrating the principles of learning for sustainability at all levels of education (UNESCO, 2005). The UNDESD led to the follow-up Global Action Programme, which reiterated the key role of education in creating a more sustainable future (UNESCO, 2014). Moreover, in 2015, world leaders adopted the 2030 Agenda for Sustainable Development and agreed on 17 sustainable development goals (SDGs), one of which (SDG 4) is quality education. The international community has defined a set of targets and indicators for each goal, to be achieved by 2030 (UN, 2015). Education for sustainable development is seen as a key instrument in achieving all SDGs and a range of learning objectives have been defined (UNESCO, 2017). Both the Global Action Programme and the Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030) framework⁽⁴⁾ outline the need to prioritise action in five areas: policy, learning environments, building capacities of educators, youth and local-level action, stressing the relevance of sustainability education in achieving the SDGs and the social transformation required to address the pressing sustainability concerns (UNESCO, 2020).

⁽⁴⁾ [Framework for the implementation of education for sustainable development \(ESD\) beyond 2019 – UNESCO Digital Library.](#)

In order to help countries to tackle the climate crisis by harnessing the critical role of education, UNESCO has also developed its Greening Education Partnership programme. This global initiative is a collaborative platform for governments and other stakeholders aiming to support the development of a whole-system approach to sustainability education. Through its four pillars, 'greening schools', 'greening curriculum', 'greening teacher training and education systems' capacities' and 'greening communities', it 'aims to inspire action from countries to empower learners with the skills required for inclusive and sustainable economic development within the context of the transition toward digital and green economies' (UNESCO, 2024).

The European Commission recognises that education plays an important role in building a sustainable future for European societies and economies ⁽⁵⁾. By helping people to change production and consumption models and design solutions for a green economy, education can contribute to the transformation of society. The 2021–2030 strategic framework for European cooperation in education and training ⁽⁶⁾ identifies as a priority the need to 'support the green and digital transitions in and through education and training'. The European Skills Agenda emphasises the importance of developing 'green skills' to achieve this goal ⁽⁷⁾.

To support Member States in their efforts to embed sustainability in their education and training systems, the Council of the European Union, in June 2022, adopted a recommendation on learning for the green transition and sustainable development ⁽⁸⁾, urging Member States to step up and strengthen efforts to support education and training systems, so that learners can access 'high-quality, equitable and inclusive education and training on sustainability, climate change, environmental protection and biodiversity, with due concern for environmental, social and economic considerations'. The Council recommendation calls for a range of measures at the levels of education systems, schools, educators and learners, in order to establish learning for the green transition and sustainable development as a priority in education and training policies. It also invites the European Commission to facilitate cooperation and peer learning, identify and share good practices, develop resources and undertake research and monitor and report progress in the development of education for the green transition and sustainable development. In this context, the 'education for climate coalition' initiative contributes to the creation of a European participatory community to support teaching and learning for the green transition and sustainable development (European Commission, 2024). The European Commission has also developed and published the GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022), a European lifelong learning framework on key sustainability competences.

Against this background, the Eurydice network undertook the task of producing a report that supports the development of evidence-based policies in the field of learning for sustainability.

⁽⁵⁾ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, 'The European Green Deal', COM(2019) 640 final.

⁽⁶⁾ Council resolution of 19 February 2021 on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–2030), 2021/C 66/1 (OJ C 66, 26.2.2021, p. 1).

⁽⁷⁾ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, 'European Skills Agenda for sustainable competitiveness, social fairness and resilience', COM(2020) 274 final.

⁽⁸⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

Key definitions and concepts

Over the years, various terms related to sustainability have been used in the context of education, at both the international and national levels. Many of these terms refer to similar ideas or concepts, but they do not have exactly the same meaning. Two of the most commonly used terms, education for sustainable development (ESD) and education for sustainability, are often used interchangeably. They are indeed strongly interrelated and have many common elements. However, there are nuanced differences.

The term **education for sustainable development** (ESD) is used in the SDG targets. Target 4.7 prompts policymakers to ‘ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development’⁽⁹⁾. Hence, ESD embraces development, in other words economic growth, provided that it is sustainable. ESD, the 2009 Bonn Declaration⁽¹⁰⁾ explains, ‘is based on the values of justice, equity, tolerance, sufficiency and responsibility. [...] ESD is underpinned by principles that support sustainable living, democracy, and human well-being. Environmental protection and restoration, natural resource conservation and sustainable use, addressing unsustainable production and consumption patterns, and the creation of just and peaceful societies are also important principles’.

Education for sustainability, or sustainability education, shares most, if not all, of the aforementioned characteristics of ESD, but perceives sustainability as a broader concept. It goes beyond the idea of ‘growing green’. Global ecology acquires intrinsic value and becomes an end in itself (McFarlane and Ogazon, 2011). That is because the conditions of planetary habitability have primacy over the conditions of economic production (Latour and Schultz, 2022). Thus, sustainability education is the process of educating individuals about the values, opportunities and choices they have to develop as informed, independent, responsible and active agents of change in an effort to contribute to the future of our society and ecological systems (Sterling, 2010). It is a transformative learning process that engages and equips students, teachers, educators and learners with the knowledge, attitude, skills and values necessary to contribute and safeguard environmental, social and economic well-being, both in the present and for future generations (Kidman, Chang and Wi, 2019).

As emphasised in the 2022 Council recommendation, **learning for the green transition and sustainable development** involves supporting ‘learners of all ages in acquiring the knowledge, skills and attitudes needed to live more sustainably, in changing patterns of consumption and production, in embracing healthier lifestyles and in contributing – both individually and collectively – to a more sustainable economy and society’⁽¹¹⁾. It also ‘promotes understanding of the interconnected global challenges we face, including the climate crisis, environmental degradation, and biodiversity loss, all of which have environmental, social, economic, and cultural dimensions’⁽¹²⁾. ‘Learning for the green transition and sustainable development’ is also referred to in European Commission documents as ‘learning for sustainability’ and ‘sustainability education’.

This report adopts this broad meaning of learning for sustainability as education aiming to improve students’ knowledge and understanding of

⁽⁹⁾ [Goal 4, UN Department of Economic and Social Affairs](#).

⁽¹⁰⁾ UNESCO World Conference on Education for Sustainable Development, 31 March–2 April 2009: [Bonn Declaration – UNESCO Digital Library](#).

⁽¹¹⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽¹²⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

sustainability concepts and problems, and instilling in students, teachers and schools the values and motivation to act for sustainability now and in the future, in their own lives, in their communities and as global citizens. Throughout the report, the terms 'learning for sustainability' and 'sustainability education' are used interchangeably. ESD is used when referring to international- or national-level policy documents that use this term. In addition, when providing examples from specific education systems, the report refers to the original names of sustainability-related subjects or study areas as they are used in the specific education context.

Content and structure of the report

In support of the follow-up work for the implementation of the June 2022 Council recommendation, this report examines the building blocks of learning for sustainability in school education across Europe. Specifically, the report analyses school curricula and guidance and support measures for schools and teachers.

The analysis is divided into three chapters. Chapter 1 explores the inclusion of crucial competences related to sustainability in top-level school curricula and the organisational choices for teaching these competences (i.e., having a cross-curricular approach, having a separate sustainability subject and/or integrating sustainability competences into other subjects). Chapter 2 examines how education authorities address the challenge of developing the capacity of prospective and in-service teachers and school leaders to transmit the relevant knowledge, skills, attitudes, and values to their students. Chapter 3 looks at the support offered to schools to implement a whole-school approach and to promote learning for sustainability at school. It explores the main sources of financial and non-financial support, including the availability of national sustainability school programmes, and the availability of specific criteria related to sustainability in school evaluations.

Methodology and data sources

The report relies on qualitative data on policies and support measures that have been collected by means of a Eurydice data collection survey.

The Eurydice indicators are based on information derived primarily from national regulations or other official top-level education documents, such as curricula, guidelines or similar steering documents. Where available and relevant, comparative indicators are supplemented by examples of approaches in specific education systems.

The Eurydice data collection covers primary and general secondary education (ISCED 1, 24 and 34) in public schools. In the case of Belgium, Ireland and the Netherlands, government-dependent private schools are also taken into account.

The reference year of the data collection is the school year 2022/2023. The report covers 39 education systems across the 27 EU Member States⁽¹³⁾, as well as Albania, Bosnia and Herzegovina, Switzerland, Iceland, Liechtenstein, Montenegro, North Macedonia, Norway, Serbia and Türkiye. All contributors are acknowledged at the end of the report.

⁽¹³⁾ Each of the three Belgian Communities (Flemish Community, French Community and German-speaking Community) is considered a separate education system.



Chapter 1: Building competences for sustainability

Including sustainability in the curriculum aims to equip learners with the competences required to deal with complex sustainability challenges that societies are facing and to empower them to reflect on their own actions, and thus to be able to take informed decisions and make responsible choices. Learners need to acquire a set of key competences to engage in today's world positively, responsibly and collaboratively (Wals and Lenglet, 2016). It is therefore critical that the time and resources devoted to the development of sustainability competences at all levels of education are sufficient to enable learners to become positive change agents in their families and personal lives (Cebrián, Junyent and Mulà, 2020; Winter, Kranz and Möller, 2022). The Council recommendation on learning for the green transition and sustainable development ⁽¹⁴⁾, adopted in 2022, calls for EU Member States to 'develop and support, in close cooperation with relevant stakeholders, curriculum programmes and frameworks, allowing the time and space for learners to develop sustainability competences from an early age'.

To foster curriculum developments and innovations, it is important to define sustainability competences (Mulà, Cebrián and Junyent, 2022). Sustainability competences are understood to be the combination of cognitive skills, practical abilities and ethical values and attitudes that empower individuals and communities to contribute to sustainability (de Haan, 2006; Brundiers et al., 2021; Bianchi, Pisiotis and Cabrera Giraldez, 2022). In the last decade, there has been increasing academic interest in defining what knowledge, skills, attitudes, values and affective dispositions are required to facilitate societal transformation towards sustainability, such as problem-solving, interpersonal competence, systems thinking, futures literacy and strategic and normative competences (Barth et al., 2007; Wiek, Withycombe and Redman, 2011; Shephard et al., 2015; Lambrechts and Van Petegem, 2016; Brundiers et al., 2021). Students should be involved in meaningful and deep learning experiences, in which knowledge, skills and attitudes are acquired through action-oriented, critical reflection and experiential learning processes (Sipos, Battisti and Grimm, 2008; UNESCO, 2017).

However, a challenge persists in terms of developing clear conceptual frameworks and rich descriptions

of these competences that help operationalise sustainability competences in different sociocultural and institutional settings and education levels (Glasser and Hirsh, 2016; Sterling et al., 2017; Bianchi, 2020). To address this gap and 'the lack of coherent educational policy' in sustainability education (Scalabrino, 2022), the European Commission has developed and published the GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022), a lifelong learning European framework on key sustainability competences. GreenComp 'identifies a set of sustainability competences to feed into education programmes to help learners develop knowledge, skills and attitudes that promote ways to think, plan and act with empathy, responsibility, and care for our planet and for public health' (Bianchi, Pisiotis and Cabrera Giraldez, 2022). It organises these competences into four areas (embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures and acting for sustainability) with the objective of supporting educators and policymakers to embed sustainability competences in curricula and education programmes.

Against this background, this chapter analyses how sustainability is taught in schools from primary to upper secondary general education according to top-level steering documents. First, it explores how national curricula embed sustainability at the different levels of education. Second, it looks at the inclusion of specific competences linked to sustainability and examines if and how they are covered in national curricula. This analysis of related competences is based on the GreenComp framework, as the competences were selected among the key learning areas outlined by this framework.

1.1. Embedding sustainability in the curriculum

Climate change and sustainability challenges are global, complex and 'wicked' ⁽¹⁵⁾ problems. Addressing these challenges requires creativity, critical thinking, decision-making and value-based sustainability competences developed in interactive, learner-centred teaching and learning settings (Lambrechts and Van Petegem, 2016; Östman, Van Poeck and Öhman, 2019). It is widely acknowledged in the literature that learning for sustainability

⁽¹⁴⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽¹⁵⁾ In political science, many social and policy problems are described as 'wicked' problems, as they cannot be definitively described, they have no undisputable good solutions, and policies to address them cannot be regarded as correct or false (Rittel and Webber, 1973).

necessitates an action-oriented pedagogy that supports participation and collaboration, inter- and transdisciplinarity⁽¹⁶⁾ and the linking of formal and informal learning to the development of key sustainability competences (Huckle and Sterling, 1996; Sipos, Battisti and Grimm, 2008; Barth, 2015; Jucker and Mathar, 2015; Rieckmann, 2018; Brundiers et al., 2021).

Researchers call for a whole-institution approach such that sustainability, rather than being an add-on to existing subjects and the existing curriculum, is embedded in education in a transdisciplinary and cross-curricular way (Gyberg and Löfgren, 2016; Leicht, Heiss and Byun, 2018; Tilbury and Galvin, 2022). There is widespread consensus within the academic community about the benefits of problem-based and project-based learning, place-based and action-based learning, systems thinking, agile methodologies and collaborative and participatory decision-making processes and learning (Tilbury, 2011; Tejedor et al., 2019; Cebrián, Junyent and Mulà, 2020). UNESCO has published several reports on best practices worldwide that emphasise and show evidence of the potential of using approaches such as action-based learning, systems thinking and collaborative and participatory decision-making processes and learning (UNESCO, 2014, 2017; Leicht, Heiss and Byun, 2018).

Sustainability pedagogies facilitate more than knowledge acquisition: they promote skills, new perspectives and values (Laurie et al., 2016). However, integrating sustainability in primary and secondary curricula across all subjects using clear frameworks remains a challenge (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). According to a comparative report by the European Commission (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021), learning for sustainability can be mainstreamed into the curriculum through different approaches: (1) inclusion in existing subjects (typically science education, geography and civics / citizenship subjects); (2) project-based integration through specific sustainability modules or topics based on local challenges and in collaboration with stakeholders and the community; (3) focusing on teaching and learning methodologies rather than on thematic integration; (4) inclusion through extracurricular activities with the involvement of external partners, including associations, outdoor environmental education centres or student clubs; and (5) creation of a stand-alone subject on environmental sustainability through

multidisciplinary approaches. Yet, as most agree, learning for sustainability goes beyond simply including stand-alone subjects or sustainability topics in the existing curriculum (UNESCO, 2019). As a result, many academics advocate that a holistic learning approach is the best way to embed sustainability in the curriculum (Sterling, 2004; Cebrián, Junyent and Mulà, 2020; Tilbury and Galvin, 2022).

Teaching in a transdisciplinary way is not an easy task due to difficulties linked to existing teacher training approaches and subject-specific requirements (Aikens, McKenzie and Vaughtner, 2016; Rousell and Cutter-Mackenzie-Knowles, 2019; Winter, Kranz and Möller, 2022; Mulà and Tilbury, 2023). Nevertheless, despite these institutional challenges, system-level barriers can be dismantled by providing teachers and school leaders with appropriate guidance and support and by providing schools with legislative and financial governmental support (Corres et al., 2020; UNESCO, 2021; European Commission, Directorate-General for Education, Youth, Sport and Culture, 2022; see also Chapters 2 and 3).

This section explores how and to what extent sustainability themes and competences are embedded in curricula in European education systems, with a special focus on transdisciplinarity and cross-curricular learning.

As the Eurydice data collection reveals, sustainability as a theme is included, in one form or another, in the curricula of all European education systems. Themes and competences linked to sustainability are included in existing subjects in all countries, most frequently in the natural sciences, geography, citizenship education, economics and the social sciences, history and technology. This form of integration of sustainability competences in curricula will be further analysed in the next section.

However, there is more diversity among European education systems when it comes to the cross-curricular nature of sustainability education. Countries also differ regarding the extent of project-based learning and the creation of a stand-alone subject on sustainability. This section therefore concentrates on these differences. First, it examines whether sustainability is envisaged to be a cross-curricular learning area by top-level steering documents. Second, it investigates cases in which sustainability is embedded in curricula on a project basis. Finally, it looks at how sustainability is integrated in the curriculum as a specific, stand-alone subject.

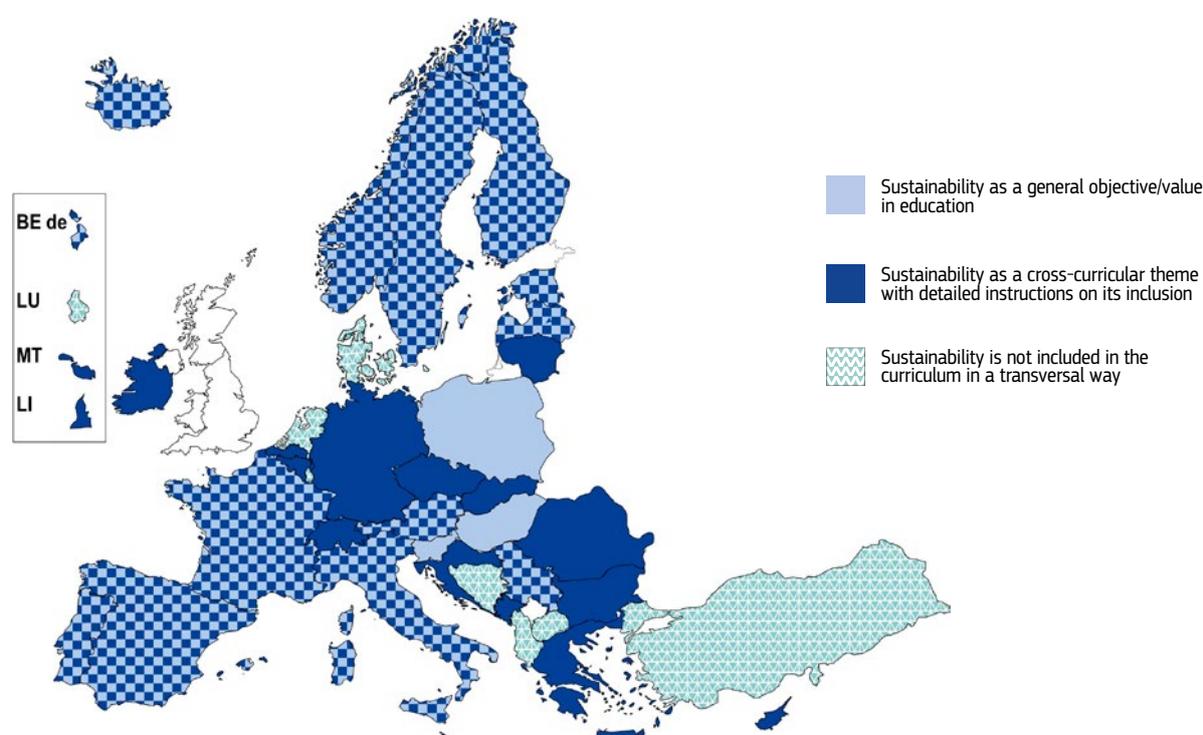
⁽¹⁶⁾ For an explanation of these terms, see the Glossary.

1.1.1. Sustainability as a cross-curricular learning area

The 2022 Council recommendation⁽¹⁷⁾ advises EU Member States to '[f]acilitate learning methods and approaches that are collaborative, experiential, practically oriented and relevant to local contexts and traditions and support interdisciplinary and cross-curricular activities'⁽¹⁸⁾. Indeed, most European education systems include sustainability in their steering documents in a cross-cutting manner. Nevertheless, differences exist in the ways in which this is envisaged and encouraged.

Figure 1.1 shows the geographical distribution of the two main approaches to embedding sustainability throughout the curriculum, which are (1) considering sustainability as a general objective of education or as a value the education system transmits as a whole, and (2) defining sustainability as a cross-curricular theme to be incorporated in all/most subjects of the curriculum, either within or outside the national key competences frameworks⁽¹⁹⁾. These approaches might be present alone or in combination.

Figure 1.1: Sustainability as a cross-curricular learning area in European education systems (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific notes

Belgium (BE fr) and Greece: Refers only to ISCED 1 and ISCED 24.

Romania: Cross-curricular competences are listed in the 2023–2030 'National strategy on environmental and climate change education' adopted in 2023, introducing a gradual reform of the curriculum from 2023/2024.

Switzerland: Refers only to ISCED 1 and ISCED 24. Educational reform is ongoing for ISCED 34.

Serbia: The competence 'responsible attitude towards the environment' is listed both for the end of ISCED 24 and for ISCED 34 in the relevant legislation, but the outcomes in the area of this cross-curricular competence are only described in detail for the end of secondary education.

⁽¹⁷⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽¹⁸⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 6).

⁽¹⁹⁾ Competences are defined as a combination of knowledge, skills and attitudes (see Glossary). In the framework of the Council recommendation of 22 May 2018 on key competences for lifelong learning (2018/C 189/01), key competences 'are those which all individuals need for personal fulfilment and development, employability, social inclusion, sustainable lifestyle, successful life in peaceful societies, health-conscious life management and active citizenship'. Education systems define their own national key competence frameworks.

The first approach, including sustainability in the **general objectives of education**, is taken in the top-level curricula of more than one third of education systems. When this is the sole approach, as in Hungary, Poland and Slovenia, the steering documents, although envisaging that sustainability

values will be transmitted by all schools through the learning process, do not include detailed instructions about how this can be achieved in an interdisciplinary or cross-curricular way – even though the curricula in these countries include detailed learning objectives in relation to specific subjects.

In **Hungary**, one of the objectives of school education is to achieve ‘environmental awareness’: ‘the aim is to develop an attitude of respect for the environment, values and sustainability based on knowledge and the love of nature and the environment. The schools should prepare students to exercise their duties and rights as citizens in relation to the environment. They should familiarise students with the economic and social processes that can cause changes and crises and involve them in preserving and enhancing the values and diversity of their immediate and wider environment’⁽²⁰⁾.

In **Poland**, the Law on School Education stipulates that ‘The education system ensures in particular: [...] the dissemination of knowledge about the principles of sustainable development among children and young people and shaping attitudes conducive to its implementation on a local, national and global scale’⁽²¹⁾.

In **Slovenia**, one of the main educational goals is to ‘educate for sustainable development and active participation in a democratic society, including in-depth knowledge of, and a responsible attitude to, oneself, one’s health, other people, one’s own and other cultures, natural and social environments, and to future generations’⁽²²⁾.

In the second approach, sustainability is an explicitly defined cross-curricular theme. In this case, curricula contain more or less detailed references to how sustainability can be integrated in the learning process in a cross-curricular and interdisciplinary way. National curricula also take different directions in this regard. Sustainability may be defined by education authorities within transversal key competences as a **key competence area of its own**. For example, in Belgium (Flemish Community), ‘sustainability competences’ are one of the 16 key competence areas defined by the curriculum⁽²³⁾. In Italy, the ‘development of responsible behaviour inspired by knowledge and respect for legality, environmental sustainability, landscape assets, heritage and cultural activities’ is one of the main competence areas identified by Law 107/2015 on educational reform⁽²⁴⁾. Similarly, in Finland, ‘participation, influence and building a sustainable future’ is one of seven transversal competence areas in the curriculum for basic education⁽²⁵⁾.

In Sweden and Iceland, sustainability is one of the fundamental values of education, and several elements of learning for sustainability are included

among the cross-curricular competences to be acquired by students by the end of compulsory schooling. In Sweden, it is regarded as part of the schools’ mission to provide an environmental perspective: ‘Through an environmental perspective, [students] get opportunities both to take responsibility for the environment they themselves can directly influence and to acquire a personal approach to overall and global environmental issues. The teaching will highlight how society’s functions and our way of living and working can be adapted to create sustainable development’⁽²⁶⁾.

In Iceland, sustainability is one of the six fundamental pillars of education. It ‘aims at making people able to deal with problems that concern the interaction of the environment, social factors and the economy in the development of society’. According to their curriculum, ‘teaching and working methods of the school are to be interwoven with the idea that the aim of education [for sustainability] is capability for action. This involves training in democratic working methods and that children and youth are trained to be interested in and want to take part in society’⁽²⁷⁾.

⁽²⁰⁾ [Government Decree No 110/2012](#) on the publication, introduction and application of the National core curriculum, Section I.1.1.

⁽²¹⁾ [Act of 14 December 2016 on Educational Law](#), Chapter 1 (General provisions), Article 1.

⁽²²⁾ [Organisation and Financing of Education Act](#), Ministry of Education, Science and Sport of the Republic of Slovenia, 2021.

⁽²³⁾ [Decree on the educational goals](#), 2017.

⁽²⁴⁾ [Law of 13 July 2015, No. 107](#), Art. 1, paragraph 7.

⁽²⁵⁾ [Finnish national core curriculum for basic education](#) (ISCED 1 and 2), 2014.

⁽²⁶⁾ [Swedish curriculum for primary and lower secondary school](#), 2022.

⁽²⁷⁾ [The Icelandic national curriculum guide for compulsory schools – with subjects areas](#), Ministry of Education, Science and Culture, 2014.

Sustainability can also be one of the **major subthemes linked to one or several key competences** listed in curricula. For example, in Belgium (French Community), sustainability forms an important part of three transversal key competences: ‘creativity, commitment and entrepreneurial spirit’; ‘learning to learn and making choices’; and ‘learning to orient oneself’⁽²⁸⁾. In Spain, the eight key competences that must be developed in all areas include concepts related to sustainability. Sustainability concepts are particularly embedded in the mathematics, science, technology and engineering, digital, civic and entrepreneurial key competences⁽²⁹⁾. In Portugal, sustainability forms part of the ‘well-being, health and environment’ competence area⁽³⁰⁾.

Finally, sustainability can also be defined **as a cross-curricular theme outside the main key competences framework**. In this case, the list of ‘cross-cutting’, or cross-curricular themes often features in a separate part of the curriculum, or even in a separate document. For example, in Estonia, the curriculum defines eight cross-curricular themes. One of these themes is ‘environment and sustainable development’, aimed at ‘developing the student into a socially active, responsible and environmentally conscious person who preserves and protects the environment and, valuing sustainability, is ready to find solutions to environmental and human development issues’⁽³¹⁾.

In France, education for sustainable development is built in both within each discipline or disciplinary field (between the different levels of education) and between the different disciplines (at each level). At each level of schooling, students acquire knowledge, skills and attitudes that will be useful for understanding issues related to sustainability themes (in the scientific, economic, social and cultural fields).

In Slovakia, environmental education is one of the six cross-curricular topics defined in the curriculum for lower secondary education: ‘Environmental education allows pupils to acquire knowledge, skills, attitudes and habits to protect and improve the environment important for sustainable living on Earth. It leads pupils to a comprehensive understanding of the mutual relations of man, organisms and environment, where ecological, economic and social aspects are interlinked’⁽³²⁾.

Bulgaria⁽³³⁾, Germany⁽³⁴⁾, Greece⁽³⁵⁾, Croatia⁽³⁶⁾, Austria⁽³⁷⁾, Romania⁽³⁸⁾ and Montenegro⁽³⁹⁾ all define environmental sustainability or sustainable development as a cross-curricular learning area in a separate decision or other governmental steering document. In Croatia, the cross-curricular theme ‘sustainable development’ encompasses all three dimensions of sustainability – environmental, social and economic – and their interdependence. It prepares students to act in order to achieve personal and general well-being.

In Austria, the 2014 ‘Basic decree for environmental education for sustainable development’ applies to all levels and all types of schools. The contents and objectives of the basic decree were to be implemented in initial, further and continuous education at university colleges of teacher education, kindergarten, teacher training colleges and training colleges for social pedagogics. In addition, in the new curricula for primary and secondary education, implemented from the 2023/2024 school year, ‘environmental education for sustainable development’ is defined as one overarching theme (of 13). The new curricula are sustainability oriented and competency based and, for the first time, contain detailed chapters on the teaching principles.

In Montenegro, cross-curricular topics in the curriculum define the knowledge, skills and values that are necessary for life and work in the modern

⁽²⁸⁾ See the different detailed curriculum documents on [education in history, geography, economic and social sciences, philosophy and citizenship education](#) and [science education](#) of the French Community of Belgium (ISCED 1 and 2).

⁽²⁹⁾ [Spanish Royal Decree 157/2022 of 1 March](#), establishing the organisation and the minimum teachings of primary education (ISCED 1); [Royal Decree 217/2022 of 29 March](#), establishing the organisation and the minimum teachings of compulsory secondary education (ISCED 24 and 34); and [Royal Decree 243/2022 of April 5](#), establishing the organisation and the minimum teachings of the Bachillerato (ISCED 34).

⁽³⁰⁾ [Students’ profile by the end of compulsory schooling](#), 2017, p. 23.

⁽³¹⁾ [Estonian national curriculum for basic schools](#), 2011.

⁽³²⁾ [State educational programme for lower secondary education – second level of primary school](#), Slovakia, 2015.

⁽³³⁾ [Ordinance No 13 of 21 September 2016 on ‘Civil, health, environmental and intercultural education’](#).

⁽³⁴⁾ Recommendation of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (KMK) and the German Commission for UNESCO of 15 June 2007 on [‘Education for sustainable development in schools’](#); the [‘Orientation framework for the learning area global development in the framework of education for sustainable development’](#) of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, 2016.

⁽³⁵⁾ Greek national curriculum, ‘Environment and education for sustainable development’ for nursery, primary and lower secondary education, [Government Gazette 2022, Issue B, 02820 / 6 June 2022](#).

⁽³⁶⁾ [Croatian Ministry of Science and Education decision on adopting a curriculum for the cross-curricular topic sustainable development for primary and secondary schools in the Republic of Croatia](#), 14 January 2019.

⁽³⁷⁾ Austrian Federal Ministry for Education and Women’s Affairs, [Basic decree on environmental education for sustainable development](#), 2014.

⁽³⁸⁾ [The 2023–2030 ‘National strategy on environmental and climate change education’](#).

⁽³⁹⁾ [Education for sustainable development – cross-curricular area in the subject programmes – primary school](#), Montenegro, 2023.

world. These are not individual school subjects, but should be learned and developed through all subjects and other activities at school. The Education for Sustainable Development programme is implemented in primary and secondary schools through eight cross-curricular topics: climate change, the green economy, environmental protection, sustainable cities and settlements, biodiversity, health education, education for and about human rights, and entrepreneurial learning.

The way in which these steering documents and curricula define sustainability competences will be discussed in more detail in Section 1.2.

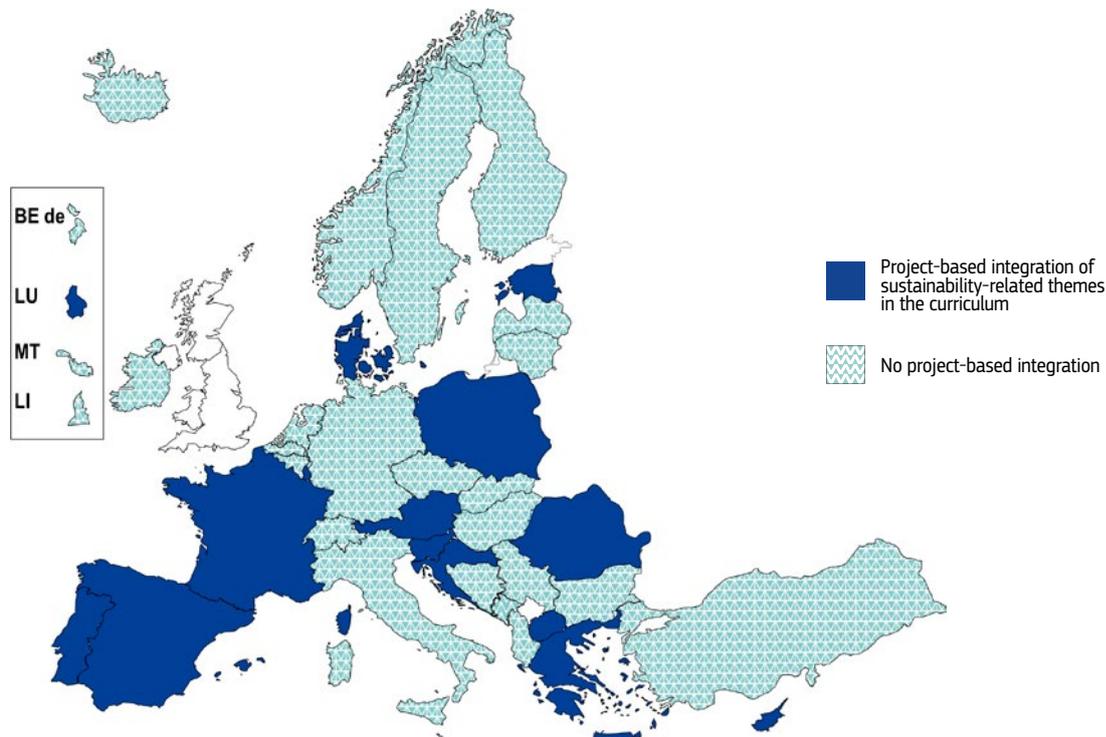
In seven education systems (those of Denmark, Luxembourg, the Netherlands, Albania, Bosnia and Herzegovina, North Macedonia and Türkiye), sustainability is not defined in top-level curricula in a cross-cutting manner. This is either because the steering documents give schools a great deal of autonomy in defining their teaching content (as is the case in Denmark and the Netherlands) or because sustainability competences are taught on

a project basis (as occurs in Denmark, Luxembourg and North Macedonia), within a stand-alone subject (in Türkiye) or only separately in different subject areas (in the Netherlands⁽⁴⁰⁾, Albania and Bosnia and Herzegovina). The options of project-based integration and inclusion through a separate subject are analysed in the following two subsections.

1.1.2. Teaching sustainability through project-based learning

Sustainability can be included in the curriculum in an interdisciplinary way not only by being a cross-curricular competence or learning area but also through project-based learning. This means the inclusion of sustainability-focused cross-curricular modules or themes in national curricula, whereby students can learn about, experiment on and experience sustainability-related issues outside the regular disciplinary approach or subjects. This approach is present in 14 education systems (Figure 1.2).

Figure 1.2: Project-based integration of sustainability (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific notes

Luxembourg: Refers to projects in secondary education. In primary education, one pilot project has been launched.

Poland: The figure refers to ISCED 1 and 24.

North Macedonia: Project activity is organised in ISCED 3 only.

⁽⁴⁰⁾ In the Netherlands, sustainability is integrated within several learning areas. This theme is one of the areas the current update of the core objectives focuses on for both primary and secondary education.

In most of these systems, top-level curricula provide only the basic framework, and schools have a great deal of autonomy to organise and develop the projects themselves. For example, in Denmark, a general objective, inscribed in legislation, is that students should ‘learn to act responsibly and reflect on the world around them: people, nature and society’. However, it is up to schools to determine the specific content and the format of the teaching/projects. The central government in Spain recommends the incorporation of specific ‘learning situations’ as ‘an effective tool to integrate the curricular elements of the different areas through meaningful and relevant tasks and activities to solve problems in a creative and cooperative way, reinforcing self-esteem, autonomy, reflection and responsibility’⁽⁴¹⁾. These ‘learning situations’ should specifically ‘promote aspects related to common interest, sustainability or democratic coexistence’.

Likewise, in Poland, the core curriculum recommends the use of the project method (projects can include partnerships with the local community and parents), which can bring together different subject areas, and which ‘helps to develop entrepreneurship and creativity in students and enables innovative curricular, organisational or methodological solutions to be applied in the educational process’⁽⁴²⁾. In Portugal, teaching through projects can be one of the methodologies used in ‘citizenship and development’, which mobilises different curriculum components and subjects in order to promote sustainable development and consumption, helping students to understand problems and making them informed about issues that affect societies and the subsystems of planet Earth⁽⁴³⁾. In Luxembourg, the SCRIPT (Service de coordination de la recherche et de l’innovation pédagogiques et technologiques)⁽⁴⁴⁾ is supporting projects such as ‘sustainable entrepreneurial schools’ in secondary education.

In some cases, however, education authorities provide more detailed instructions on the integration of sustainability-related projects in school curricula. For example, in Greece, primary and secondary schools can organise long-term projects

on environmental education and education for sustainable development (e.g. on ‘the sustainable house’, ‘the sustainable school’), the duration of which should be more than 3 months. In Romania, organising a ‘green week’ is compulsory in all schools from primary to upper secondary level. Similarly, in Slovenia, all schools participate in the ‘traditional Slovenian breakfast’ project, which aims to raise awareness about locally produced foods, local agriculture and a healthy lifestyle, as well as sustainable packaging and the proper handling of waste. In North Macedonia, upper secondary schools must, every year, organise a project activity (lasting 70 hours) that covers several different areas of the curriculum, including sustainability. The objective is to help students, under the mentorship of a teacher, to plan and carry out research.

1.1.3. Sustainability as a separate subject

Sustainability is taught as a separate subject within the curriculum in only around a quarter of education systems. One reason might be its interdisciplinary nature: sustainability requires a broad focus, which is difficult to achieve in a single subject. Although environmental sciences are, in some countries, taught as separate subjects (e.g. in Estonia as a strand of biology and in Spain as ‘geology and environmental sciences’), these subjects are part of the natural science curriculum. Sustainability is also one of the three major themes within civic education in Italy, but is not a separate subject in its own right.

Figure 1.3 shows the education systems that treat sustainability as a separate subject with an interdisciplinary approach⁽⁴⁵⁾. Sustainability-related subjects are most often offered at general upper secondary level as optional subjects. In some cases, however, these subjects are not proposed by all schools, as schools have the autonomy to decide whether or not they offer this option to students. This also means that not all students can choose to study sustainability as a separate subject, even if this option exists in the education system.

⁽⁴¹⁾ Annex III, [Royal Decree 157/2022](#); Annex III, [Royal Decree 217/2022](#); and Annex III, [Royal Decree 243/2022](#).

⁽⁴²⁾ [Regulation of the Polish Minister of National Education of 14 February 2017 on the core curriculum for preschool education and the core curriculum for general education in primary schools](#), Annex 2, p. 14.

⁽⁴³⁾ [Development Education Guidelines; Students’ profile by the end of compulsory schooling; Decree-Law no. 55/2018 of 6 July](#), Portugal.

⁽⁴⁴⁾ <https://script.lu/en>.

⁽⁴⁵⁾ In Ireland, the subject ‘climate action and sustainable development’ will be introduced into schools, at upper secondary level, on a phased basis from September 2025.

Figure 1.3: Sustainability as a separate subject (ISCED 1, 24 and 34), 2022/2023

	Name of subject (in English)	ISCED level	Type of subject
Spain	Ecology and environmental sustainability	34	Optional ⁽⁴⁶⁾
Cyprus	Education for sustainable development	1	Compulsory
Hungary	Sustainability	34	Optional
Romania	Ecological education and environmental protection education	24	Optional
Slovenia	Environmental education	24	Optional ⁽⁴⁷⁾
	Study of the environment	34	Optional
Sweden	Sustainable society	34	Compulsory within a specialisation
Iceland	Creative sustainability	34	Optional
Serbia	Education for sustainable development	34	Optional
Türkiye	Environmental education and climate change	24	Optional

Source: Eurydice.

The only country where education for sustainable development is a compulsory subject for all students is Cyprus. In Cyprus, education for sustainable development is introduced in the primary education school timetable in grades 1–4 as part of the ‘life education’ subject, which is allocated two teaching periods per week. In grades 5 and 6, the same subject is called ‘education for sustainable development’, and it is taught for one teaching period per week.

Despite not being taught within one specific subject, themes and competences linked to sustainability are present in all European curricula as part of other subjects. The extent of their inclusion in other subjects and the integration of different competence areas in national curricula are analysed in the next section of this chapter.

1.2. Sustainability competences in the curriculum

Sustainability education is a broad concept encompassing ecological, economic and social dimensions. As explained in the Introduction, learning for sustainability is based on the values of justice, equity, tolerance, responsibility and respect and, while it promotes environmental protection and sustainable development, it also endorses gender equality, social cohesion, poverty reduction, democracy and welfare (UNESCO, 2009, 2020). This multidimensional focus poses a challenge for educational authorities and schools: it is not straightforward to include all these diverse aspects of sustainability in the curriculum.

As a recent study of the European Commission concludes, although the inclusion of sustainability in the curriculum is becoming more widespread, differences exist in how sustainability topics and associated pedagogies are being introduced (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021).

This section therefore analyses how and to what extent the different competences linked to sustainability are included in national curricula and steering documents. These competences are defined based on the European Commission’s GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022). This framework distinguishes 12 competences in four broad areas (embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures and acting for sustainability). These competences should contribute to developing students’ ‘knowledge, skills and attitudes to live, work and act in a sustainable manner’ (Bianchi, Pisiotis and Cabrera Giraldez, 2022, p. 2).

Drawing on GreenComp for the analysis of curricula ensures that the cross-country analysis is based on a detailed, coherent and comprehensive conceptual framework. While national curricula may be rooted in different premises or frameworks, GreenComp, as a unique European competence framework, can serve as a reference document for the comparative analysis, providing a basis for examining sustainability competences in a comparable way.

⁽⁴⁶⁾ This subject is offered in the Autonomous Community of Extremadura and the Autonomous Cities of Ceuta and Melilla.

⁽⁴⁷⁾ This subject is offered by less than 3% of schools.

This report examines the following seven sustainability competences defined on the basis of the GreenComp framework:

1. valuing sustainability,
2. promoting nature,
3. systems thinking,
4. futures literacy,
5. adaptability,
6. political agency,
7. individual and collective action.

The list of competences examined here cannot be exhaustive. The selection favours competences more closely linked to the theme of sustainability over more general transversal skills (such as critical thinking). It is important that the list of competences reflects the interdisciplinary nature of sustainability education, linking environmental, economic, social and political aspects. Furthermore, the seven competences were chosen to cover all four broad competence areas, to see which areas are included in national curricula more often than others.

Each of these competences is examined in turn. In all cases, the analysis starts by presenting the working definition of the competence applied in this report, which is followed by a general overview on how and where these competences are included in European curricula. These working definitions summarise the original GreenComp definitions, highlight the important components of a given competence (taking into account both more general and more specific aspects) and serve to assist the comparative analysis by limiting the number of elements considered.

The analysis distinguishes between the following cases: the competence is (a) a cross-curricular competence, (b) included in science subjects, (c) included in citizenship education subjects, (d) included in a separate sustainability subject and/or (e) included in other subjects. The subject areas of science and citizenship education were singled out for a separate analysis based on the following considerations. First, as the Eurydice report on mathematics and science education demonstrates, environmental sustainability topics feature in science subjects in all European education systems (European Commission / EACEA / Eurydice 2022, p. 100). Therefore, it is interesting to examine which competence areas are covered in science education more often than others. Second, citizenship education was chosen because several sustainability competences, such as understanding sustainability values, political agency and individual

and collective action, are closely linked to citizenship competences and democratic participation.

The analysis concludes with examples of excerpts from national curricula that illustrate the way in which the knowledge, skill and attitude components of the seven competences are expressed by national steering documents.

1.2.1. Valuing sustainability

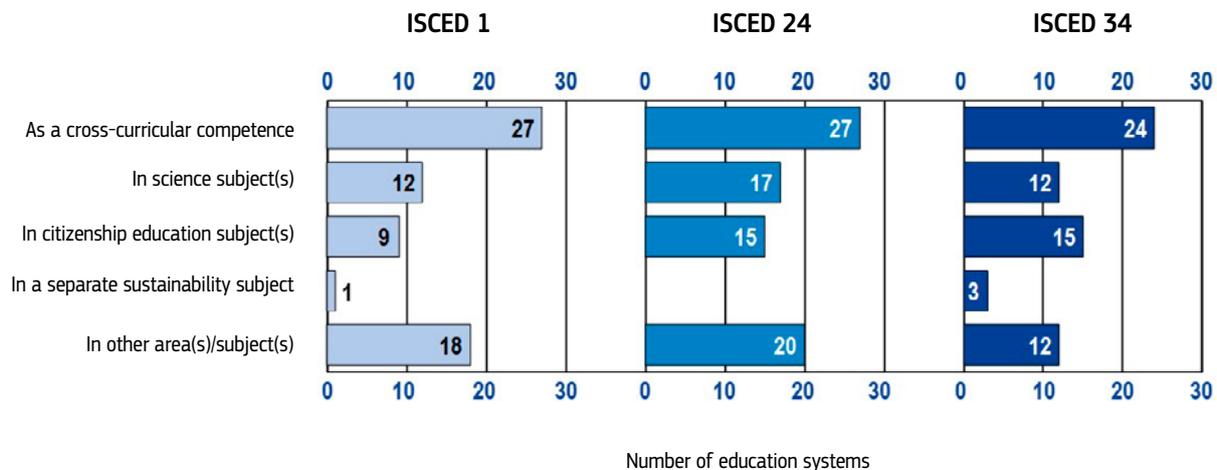
The competence of valuing sustainability is part of the first competence area of the GreenComp framework, 'embodying sustainability values'. This competence area addresses the value dimension of sustainability: it 'encourages us to reflect on and challenge our own personal values and world-views in terms of unsustainability, and sustainability values and world-views. This area advocates equity and justice for current and future generations, while supporting the view that humans are a part of nature' (Bianchi, Pisiotis and Cabrera Giraldez 2022, p. 17). The authors of GreenComp view the competence of valuing sustainability 'as a meta-competence', which primarily centres on fostering reflection (Bianchi, Pisiotis and Cabrera Giraldez 2022, p. 17). In other words, valuing sustainability is not about transmitting specific values, but first and foremost it is about making students realise how values are constructed.

On this basis, 'valuing sustainability' is defined in this report as a competence that allows students to:

- reflect on personal values on sustainability;
- identify, understand and explain how values vary among people, over time and across socioeconomic models;
- critically evaluate how they align with sustainability values (such as justice for current and future generations, fairness, inclusion, intercultural understanding, tolerance, shared responsibility, accountability).

Some elements of this competence are included in the curricula in almost all European countries. In only two education systems (those of Montenegro and North Macedonia) do the curricula contain no examples of competences that can be explicitly linked to the abovementioned aspects. The competence of valuing sustainability most often features as a cross-curricular competence (see Figure 1.4). In some cases, it is included in science and citizenship education subjects and in geography, economic and social studies, and also to some extent in history and technology subjects (see also Figures A1, A2 and A3 in the Annex).

Figure 1.4: Number of education systems including the competence of ‘valuing sustainability’ in their curricula (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers geography, economic and social studies, history and technology, but also, in some cases, literature, arts or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum and how the top-level curriculum is organised. The categories are not mutually exclusive.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

The competence of valuing diversity is often linked to appreciating different cultural perspectives and

identities, but also to preserving local culture and maintaining one’s own cultural heritage and identity.

In **Portugal**, such goals are present in the Citizenship and Development Education Guidelines at all three educational levels. In primary education, these education guidelines include ‘value diversity in terms of nature, ecosystems and ways of human life’⁽⁴⁸⁾. In lower secondary education, the objective is to ‘analyse current problems of the world from different cultural perspectives’⁽⁴⁹⁾. At upper secondary level, students should ‘recognise that different cultures and world views suppose different ways of understanding development’⁽⁵⁰⁾.

In **Finland**, at upper secondary level, the transversal ‘global and cultural competence’ is described as follows: ‘the students learn to recognise and reflect on different types of cultural heritage, values, different operating environments, and other elements on which cultural identities and ways of living are based in their daily lives and Finnish society, in Europe, and globally. At the same time, they learn to appreciate individuals’ and communities’ right to a cultural identity, and to act for cultural diversity’⁽⁵¹⁾.

In **Sweden**, at upper secondary level, a cross-curricular theme is linked to ‘a secure identity and self-awareness’. According to the curriculum, ‘participation in the common cultural heritage strengthens the ability to understand and empathise with the conditions and values of others’, which can be paired with the objective that ‘the environmental perspective in the teaching should give the students insights so that they can partly contribute to preventing harmful environmental impact themselves, and partly acquire a personal approach to the overall and global environmental issues’⁽⁵²⁾.

⁽⁴⁸⁾ [Development Education Guidelines](#), Portugal, pp. 24 and 33.

⁽⁴⁹⁾ [Development Education Guidelines](#), Portugal, p. 43.

⁽⁵⁰⁾ [Development Education Guidelines](#), Portugal, p. 57.

⁽⁵¹⁾ [Finnish national core curriculum for general upper secondary education, 2019](#).

⁽⁵²⁾ [Swedish curriculum for upper secondary school](#), pp. 2 and 4.

Fostering reflection in relation to sustainability values, however, forms part of curricula in only a limited number of cases. The extracts below

illustrate how reflection on values can form part of curricula at different levels of education.

In **Germany**, the ‘Orientation framework for the learning area global development in the framework of education for sustainable development’⁽⁵³⁾ defines the following core competences:

- ▶ change of perspective and empathy: students become aware of, appreciate and reflect on their own and others’ value orientations in terms of their significance for shaping one’s life;
- ▶ critical reflection and opinion: students take a stand on globalisation and development issues through critical reflection and orient themselves towards international consensus building, the model of sustainable development and human rights.

In **Ireland**, sustainability is a theme within the geography curriculum at lower secondary level⁽⁵⁴⁾, with the following competences:

- ▶ students recognise how their decisions and actions impact on local and global sustainability;
- ▶ students critically reflect on current concepts and practices in relation to sustainability;
- ▶ students develop knowledge, skills, behaviours and values to live sustainably.

In **Cyprus**, the curriculum for the subject ‘education for sustainable development’ (primary level) contains the learning outcomes that students should be ‘able to identify, assess, evaluate, and systematise and accept environmental and sustainable values’ and should ‘recognise the values that are implicit in opinions and choices, categorising them into human-centred, eco-centred and biocentric, and analyse them’⁽⁵⁵⁾.

In **Austria**, the following teaching principles and learning outcomes related to valuing sustainability are formulated in the newly adopted⁽⁵⁶⁾ primary and secondary curricula as cross-curricular competences.

- ▶ ‘Students take responsibility and recognize that every action is preceded by a decision based on an assessment, evaluation or judgment. As a result, students build their value system and further develop their ability to change perspectives and empathy’ (primary curriculum)⁽⁵⁷⁾.
- ▶ ‘In an increasingly international and multicultural society, students must be taught to be open to the world, to understand the existential problems of humanity and to share responsibility. In this context, humanity, solidarity, tolerance, peace, justice, gender equality and environmental awareness are guiding values. For all students, opportunities are provided in class to reflect on and critically examine (their own) identities and affiliations’ (curriculum for academic secondary school)⁽⁵⁸⁾.

1.2.2. Promoting nature

The competence of promoting nature is also inherently linked to the value dimension of sustainability competences, and centres attention on humans’ relationship with their natural environment. It emphasises the importance of caring for the planet and for other living beings, respecting nature and helping to restore and regenerate healthy ecosystems (Bianchi, Pisiotis and Cabrera Giraldez 2022, pp. 18–19).

‘Promoting nature’ is defined in this report as a competence allowing students to:

- enhance the understanding of and connections with their own natural surroundings;
- know and critically assess how human action, including their own action, can shape ecosystems;
- identify processes or actions that avoid or reduce the use of natural resources and/or those processes or actions that contribute to the protection of nature.

⁽⁵³⁾ [Orientation framework for the learning area global development in the framework of education for sustainable development](#), Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, 2016, p. 95.

⁽⁵⁴⁾ [Geography curriculum, junior cycle](#), Ireland, p. 12.

⁽⁵⁵⁾ [ESD indicators for primary education curricula](#), Ministry of Education and Culture of Cyprus, 2016, p. 9.

⁽⁵⁶⁾ To be implemented from the 2023/2024 school year.

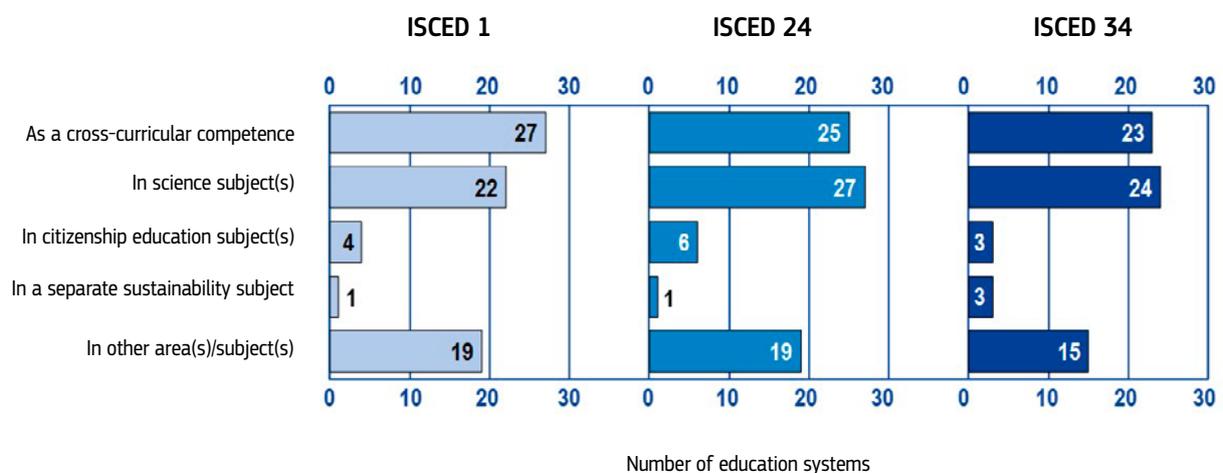
⁽⁵⁷⁾ Austrian curriculum for primary school (Volksschule), [BGBl. II – Ausgegeben am 2. Jänner 2023 – No 1](#), p. 74.

⁽⁵⁸⁾ Austrian curriculum for academic secondary school (Allgemeinbildenden Höheren Schule), [BGBl. II – Ausgegeben am 2. Jänner 2023 – No 1](#), p. 8.

As promoting nature is at the heart of sustainability and sustainable development, each European education system includes this competence in its curriculum. In a handful of education systems this competence is not incorporated in curricula at all levels of education, but there are no significant differences between education levels in terms of how frequently this competence is integrated.

Figure 1.5 illustrates that, while promoting nature is often a cross-curricular competence, in secondary education it is more frequently included in science subjects. After science, the second most widespread subject area in which knowledge, skills and attitudes related to nature promotion are integrated is geography (which features as part of 'other subjects' in Figure 1.5) ⁽⁵⁹⁾.

Figure 1.5: Number of education systems including the competence of 'promoting nature' in their curriculum (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

'Science subjects' include natural science subjects as defined by top-level education authorities. The term 'citizenship education subjects' refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category 'other subjects' most often covers geography and social studies, but also, in some cases, history, technology, foreign languages or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

⁽⁵⁹⁾ Geography is regarded as one of the natural sciences in some education systems.

All three elements of nature promotion listed in the above definition are equally present in national curricula. Linking to and exploring the local surroundings of students is more frequently

mentioned in primary education, while topics related to natural resources and their protection become increasingly linked to scientific discussions in secondary education.

In **Czechia**, the cross-curricular theme ‘environmental education’ at primary and lower secondary level emphasises the objective applicability of natural laws and dynamic contexts from less complex ecosystems all the way to the biosphere as a whole. It discusses humankind’s position in nature and the complex functioning of ecosystems in relation to human society, that is, for maintaining the conditions necessary for life, for finding renewable sources of raw materials and energy and for non-productive values (inspiration, rest) ⁽⁶⁰⁾.

In **France**, promoting nature is a cross-curricular theme that is mainly covered in science subjects, but also in geography. Within the primary geography curriculum (grade 5), one of the main themes is ‘better living’, which includes the following three objectives: ‘promote the place of nature in the city’, ‘recycle’ and ‘develop an eco-district’. During the courses, students are encouraged to explore their local surroundings at different scales (district, municipality, metropolis), and study projects that contribute to improving the living environment ⁽⁶¹⁾.

In **Poland**, the competence of promoting nature is included in the natural science curriculum. It includes similar learning objectives at all three education levels, which are becoming increasingly complex.

- ▶ In primary education, among the learning objectives are that pupils should achieve ‘the ability to understand animal feelings, and express these states by means of oral and written statements and a variety of artistic forms of expression’, that they ‘know the natural and anthropogenic components of the environment, understand simple relationships between these components’ and that pupils ‘recognise the multifaceted value of nature in integral human development’ ⁽⁶²⁾.
- ▶ In lower secondary education, learning objectives in biology include the objectives that pupils should be able to ‘justify the need to protect nature’, ‘present an attitude of respect towards themselves and all living beings’ and ‘describe and present the attitude and behaviour of a person who uses nature responsibly’ ⁽⁶³⁾.
- ▶ In upper secondary education, related learning objectives can again be found in the biology curriculum, which states that pupils should be able to ‘understand the relevance of nature conservation’, ‘present an attitude of respect towards all living beings and the responsible and conscious use of nature / its goods’ and ‘explain the principles of sustainable development’ ⁽⁶⁴⁾.
- ▶ In **Finland**, biology instruction at upper secondary level develops the students’ environmental competence and willingness to preserve biodiversity. It emphasises an understanding of the uniqueness and intrinsic value of nature. The instruction is based on concepts such as applications and ecosystem services in relation to a sustainable future ⁽⁶⁵⁾. Ecosystem services are the benefits of nature contributing to people’s well-being and quality of life, both directly (e.g. by providing food and water) and indirectly (e.g. by reducing stress and anxiety). These free services can be maintained only if ecosystems remain viable and functional. Ecological applications allow students to look at their own or their community’s consumption, and thus influence the state of the environment (ecosystem services) by making sustainable choices and making a difference. Biological applications can also be used to understand the uniqueness of the environment and illustrate ecosystem services. Learning in this way helps students make sustainable choices in their daily lives and apply biological knowledge in deliberations that require ethics.

⁽⁶⁰⁾ [Czech Framework education programme for basic education](#), p. 144.

⁽⁶¹⁾ [French geography curriculum for the third cycle of education](#), p. 1.

⁽⁶²⁾ [Regulation of the Polish Minister of National Education of 14 February 2017 on the core curriculum for preschool education and the core curriculum for general education in primary schools](#), Annex 2, pp. 32–33 (general objectives) and p. 111 (natural science).

⁽⁶³⁾ [Regulation of the Polish Minister of National Education of 14 February 2017 on the core curriculum for preschool education and the core curriculum for general education in primary schools](#), Annex 2, pp. 32–33 (general objectives) and p. 131 (biology).

⁽⁶⁴⁾ [Regulation of the Polish Minister of National Education of 30 January 2018 on the core curriculum for general education in general upper secondary schools, technical upper secondary schools and stage II sectoral vocational schools](#), Annex 1, pp. 202–203 (biology).

⁽⁶⁵⁾ [Finnish national core curriculum for general upper secondary education](#), 2019, biology.

Some education systems link the promotion of nature to healthy living and physical activity. For example, in Croatia, one of the educational objectives for pupils at primary level is ‘observing the connection between nature and a healthy life’, which includes the goal of ‘recognising the importance of a healthy environment while stating the benefits of a healthy life’. This includes recommendations for achieving the following educational outcomes in physical and health culture: ‘pupils [should] develop patterns of healthy behaviour, exercise and be in the fresh air through outdoor team games, walking and cycling’⁽⁶⁶⁾.

The learning objective of experiencing and enjoying nature for its own sake, and not in the context of healthy living, is rarely found in primary and secondary education curricula.

1.2.3. Systems thinking

‘Systems thinking’ is part of ‘embracing complexity in sustainability’ within the GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022). It emphasises a key characteristic of sustainability: ‘environmental challenges are interconnected and interlinked to economic activities and societal lifestyles’ (Bianchi, Pisiotis and Cabrera Giraldez, 2022, p. 19). Sustainability is often defined using a three-pillar model, encompassing ecological, economic and social sustainability (Eilks, 2015). Embracing systems thinking, students are made aware of and are able to think through the lens of these interconnections and linkages; to ‘understand reality in relation to other contexts (local, nation, global) and fields (environment, social, economic, cultural)’ (Bianchi, Pisiotis and Cabrera Giraldez 2022, p. 20).

Therefore, ‘systems thinking’ is defined in this report as thinking that enables students to:

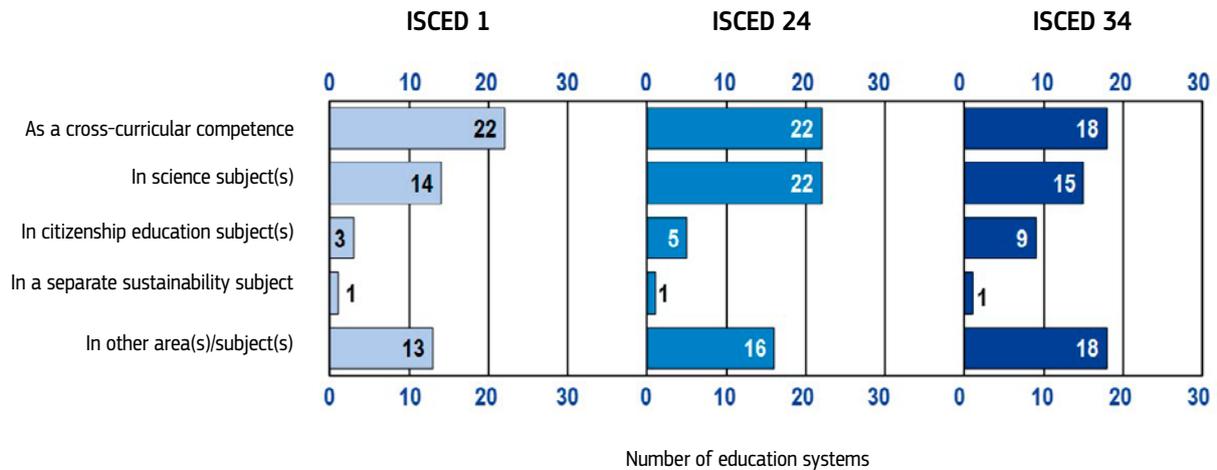
- assess how humans and nature interact across space and time;
- understand the interdependence between the ecological, economic, social and cultural aspects of human action, events and crises;
- understand the main concepts and aspects of complex systems (synthesis, emergence, interconnectedness, feedback loops and cascade effects) and their implications for sustainability.

Like the other competences mentioned previously, elements of systems thinking can be found in the curricula of the large majority of European education systems. Curricula do not contain examples of the systems thinking competence for any education level in three education systems only (those of the Netherlands, Romania and Albania). There are no significant differences between education levels regarding whether or not elements of systems thinking are typically included; nevertheless, there are certainly differences in how such complex ways of thinking are encouraged by curricula at primary and secondary levels.

Systems thinking is most typically a cross-curricular competence, though its elements are also often included in natural science subjects, geography and the social sciences (including economics and economic studies) and also in citizenship education at upper secondary level (Figure 1.6; see also Figures A1, A2 and A3 in the Annex).

⁽⁶⁶⁾ [Decision on adoption of the curriculum for the cross-curricular theme of sustainable development for primary and secondary schools in the Republic of Croatia, OG 7/2019.](#)

Figure 1.6: Number of education systems including the competence of ‘systems thinking’ in their curricula (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers geography and social and economic studies, but also history, technology or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

Regarding the three elements of the definition of systems thinking, many European education systems include in their curricula examples of the first two. The first element (interaction between humans and nature across space and time), however, rarely includes both the spatial and the historical perspectives: most curricula address these questions more generally or include either the geographical (space) or the historical (time) dimension. The complex relationship between nature and human action is usually a cross-curricular theme. For example, in Belgium (Flemish Community), cross-curricular competences related to systems thinking in primary education include the ability of students to ‘illustrate with concrete examples from their environment that environmental problems are often based on conflicting interests’⁽⁶⁷⁾.

The spatial dimension is sometimes embedded in science subjects or geography, whereas analysing the impact of human action on the environment over time forms a part of history courses in some education systems. For example, in Switzerland, ‘history lessons focus on people as actors, ask about decision-making processes and their effects on society, the economy and the environment’⁽⁶⁸⁾.

Learning objectives concerning the interdependence between the ecological, economic, social and cultural aspects of human action can be found in European curricula at all levels, but with different degrees of complexity. The following are good examples of the evolution of the systems thinking competence across education levels and show how the competence becomes increasingly complex, with new dimensions added, at secondary educational levels.

⁽⁶⁷⁾ [Attainment target 1.25 in science and technology, ISCED 1.](#)

⁽⁶⁸⁾ [Canton Bern, Switzerland, curriculum for the gymnasium, history, p. 94.](#)

In **Poland**, a related competence can be found in science and geography curricula.

- ▶ In primary education, the learning objectives for natural sciences include ‘the pupil knows the natural and anthropogenic components of the environment, understands simple relationships between these components’ and ‘the pupil can see the interrelationships occurring between the individual components of the natural environment, as well as between the components of the environment and human activity’ ⁽⁶⁹⁾.
- ▶ In lower secondary education, the geography curriculum includes the following learning objectives: ‘the pupil can identify interdependencies between components of the natural and socio-economic environment and relationships and dependencies in the geographical environment on a local, regional and global scale’ and ‘the pupil identifies relationships and dependencies between elements of the natural, socio-economic and cultural environment, formulates regularity theorems, makes generalisations’ ⁽⁷⁰⁾.

In **Slovakia**, related cross-curricular competences can also be found at all three education levels.

- ▶ The primary education curriculum contains the competence of a ‘comprehensive understanding of the interrelationships of humans, organisms and the environment’ ⁽⁷¹⁾.
- ▶ The lower secondary curriculum includes the objective that the students should ‘obtain a comprehensive understanding of the interrelationships of humans, organisms and the environment, where ecological, economic and social aspects are interconnected’; and should ‘obtain information about human interventions in the environment and to evaluate consequences of human interventions in local and global contexts’ ⁽⁷²⁾.
- ▶ Finally, according to the upper secondary curriculum, at this level, students should gain a ‘comprehensive understanding of the interrelationships of humans, organisms and the environment, where ecological, economic and social aspects are interconnected’ and they should ‘learn about global ecological problems, critically evaluate their impact and propose solutions’ ⁽⁷³⁾.

No examples of curricula addressing the concrete concepts of complex systems (synthesis, emergence, interconnectedness, feedback loops and cascade effects) were identified. It is possible that these concepts are too detailed to be included

in top-level curricula, and can be found in textbooks and manuals instead. An exception is provided by Cyprus, where the ESD curriculum does cover teaching of the concepts of complex systems.

In **Cyprus**, one of the learning objectives of ESD is that ‘students should be able to approach the issues of sustainable development holistically, systemically, interdisciplinary, to understand and critically analyse their parameters’. This includes:

- ▶ recognising the interdependence of the factors inherent in a system;
- ▶ identifying the concept of ‘systemic interdependence’, including:
 - ▶ characteristics of a system (interaction, interdependence, equilibrium, chain reactions);
 - ▶ examples of systems: four interdependent systems of sustainable development: (a) natural systems (...), (b) economic systems (...), (c) social systems (...) and (d) political systems (...);
 - ▶ study of sources and identification of causes (natural processes and human activities) and chain reactions, for example the effect of greenhouse gas emissions on physical, social and environmental factors and economic and political systems ⁽⁷⁴⁾.

⁽⁶⁹⁾ [Regulation of the Polish Minister of National Education of 14 February 2017 on the core curriculum for preschool education and the core curriculum for general education in primary schools](#), Annex 2, pp. 110–111 (nature).

⁽⁷⁰⁾ [Regulation of the Polish Minister of National Education of 14 February 2017 on the core curriculum for preschool education and the core curriculum for general education in primary schools](#), Annex 2, pp. 116–117 (geography).

⁽⁷¹⁾ [State educational programme for primary schools](#) (ISCED 1), Slovakia, p. 12.

⁽⁷²⁾ [State educational programme for lower secondary education](#) (ISCED 2), Slovakia, p. 11.

⁽⁷³⁾ [State educational programme for gymnasium](#) (ISCED 3), Slovakia, p. 10.

⁽⁷⁴⁾ [ESD indicators for primary education curricula](#), Ministry of Education and Culture of Cyprus, 2016, point 2.

1.2.4. Futures literacy

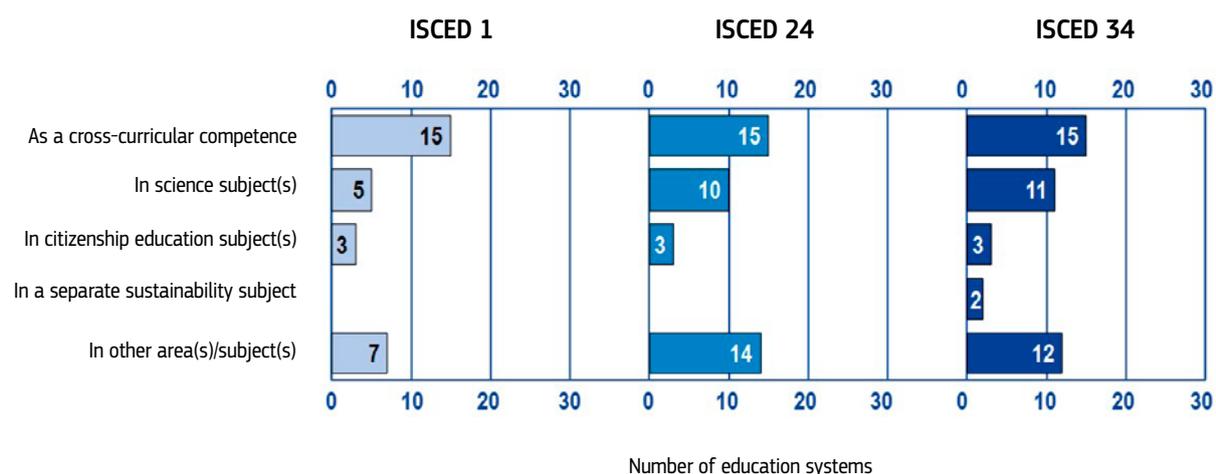
The third area identified by the GreenComp framework is ‘envisioning sustainable futures’, and the competence of ‘futures literacy’ is an integral part of this (Bianchi, Pisiotis and Cabrera Giraldez, 2022). This competence allows students to imagine alternative future scenarios, ‘to move away from looking for certainties but rather think about possibilities’, and to identify action that can lead to expected or preferred futures (Bianchi, Pisiotis and Cabrera Giraldez, 2022, p. 23). On the basis of analysing the present, students should be able to use their imagination and creativity to imagine the future and evaluate how sustainable alternatives can come about.

In the report, therefore, the competence of ‘futures literacy’ includes the ability to:

- envisage alternative sustainable futures;
- develop alternative scenarios (what are the differences, opportunities, limitations and risks?);
- identify the steps needed to achieve a preferred sustainable future.

This competence is the least present in European curricula among the seven competences analysed. It is not included in curricula at any education level in 16 education systems (see Figures A1, A2 and A3 in the Annex). When included, this competence appears in both primary and secondary education, though to varying degrees (see Figure 1.7). In primary education, it is predominantly a cross-curricular competence; at secondary level, it also appears in science subjects, geography and social studies.

Figure 1.7: Number of education systems including the competence of ‘futures literacy’ in their curriculum (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers geography and social and economic studies, but also history, technology or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

Learning objectives linked to the futures literacy competence most often include the goal of developing future scenarios, either generally or through concrete examples. In Germany and Austria, competences linked to futures literacy and processing future scenarios are included in the competence

frameworks on environmental and sustainability education. In Estonia and Portugal, the futures literacy competence forms part of the geography curriculum. In France and Norway, it is linked to scientific predictions. In Hungary, it is embedded in project work in a 'technics and design' course.

In **Germany**, under the competence on recognition (*Erkennen*), the 'Orientation framework for the learning area global development in the framework of education for sustainable development' ⁽⁷⁵⁾ states that '[c]omplex systems require analytical skills (...). These analytical skills make it possible to perceive global processes in their significance for oneself and others, to recognise the need for shaping the globalisation process, and to be able to process future scenarios and approaches to solutions. They generate the knowledge, insights and skills that are the basis for sustainable action. This involves the ability to analyse systems and to recognise and assess their historical and future dimensions'.

In **Estonia**, one learning outcome of the geography curriculum is that 'the student begins to understand the nature of geography and its importance in everyday life and in the development of society; he/she learns to see spatial relationships and understand the possibilities of technological trends by observing and modelling both nature and social processes and creating future scenarios' ⁽⁷⁶⁾.

In **Hungary**, it is recommended that learners studying technics and design at secondary level engage in project work on 'designing the "city of the future" ' based on the storyline method. This includes the modelling of buildings, city infrastructure and energy supply. Modelling should be based on research on the expected evolution of cities and transport and expected changes in living and working conditions. At the end, students should evaluate the models and examine deviations from initial plans ⁽⁷⁷⁾.

In **Austria**, according to the decree for 'Environmental education for sustainable development' ⁽⁷⁸⁾, pupils should be given the opportunity 'to develop sustainable future scenarios together and, if possible, also to take exemplary, encouraging, concrete steps for action in their immediate everyday lives. Environmental education thus promotes the acquisition of competencies to understand the natural foundations of life and resources in their limitedness and to help shape the environment and society with foresight, solidarity and responsibility'.

The teaching of futures literacy may also involve discussions about a preferred sustainable future. This includes discussions on 'responsible attitudes', 'preparedness' and 'common visions for the future', that is, how people can work together to build a sustainable future.

In Greece, for example, striving for a sustainable future is one of the objectives of sustainability projects, mainly at lower secondary level. One of the goals is to make students imagine and understand the consequences of their actions as citizens in their local communities in terms of a sustainable future. Students should learn about the past and design the future; they should predict

the future consequences of non-sustainable development; and they are encouraged to think about the values, attitudes and principles that have to be adopted in a sustainable future ⁽⁷⁹⁾. In Sweden, one of the cross-curricular tasks of primary and lower secondary schools is 'to provide an overview and context. In all teaching, it is important to establish certain overall perspectives. Through a historical perspective, students can develop an understanding of the present and a preparedness for the future as well as develop their ability to think dynamically' ⁽⁸⁰⁾.

⁽⁷⁵⁾ [Orientation framework for the learning area 'global development' in the framework of education for sustainable development](#), Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, 2016, p. 91.

⁽⁷⁶⁾ [Estonian national curriculum for basic school](#) (ISCED 1 and 2), curriculum for geography, p. 19.

⁽⁷⁷⁾ [Hungarian curriculum for technics and design](#), ISCED 2, p. 24.

⁽⁷⁸⁾ [Austrian Federal Ministry for Education and Women's Affairs, Decree for 'Environmental education for sustainable development'](#), 2014, p. 2.

⁽⁷⁹⁾ Greek national curriculum, 'Environment and education for sustainable development' for nursery, primary and lower secondary education, [Government Gazette 2022, Issue B, 02820 / 6 June 2022](#).

⁽⁸⁰⁾ [Swedish curriculum for primary and lower secondary school](#), p. 8.

1.2.5. Adaptability

The competence of ‘adaptability’ is closely related to that of futures literacy, as it also concerns the ability to envisage sustainable futures and act accordingly. Adaptability ‘is about being flexible and able to adapt to new situations and adjust in order to accommodate changes in our complex world’ (Bianchi, Pisiotis and Cabrera Giraldez 2022, p. 24). It is essentially about being able to evaluate one’s own actions and societies’ functioning with respect to how they might contribute to a sustainable future.

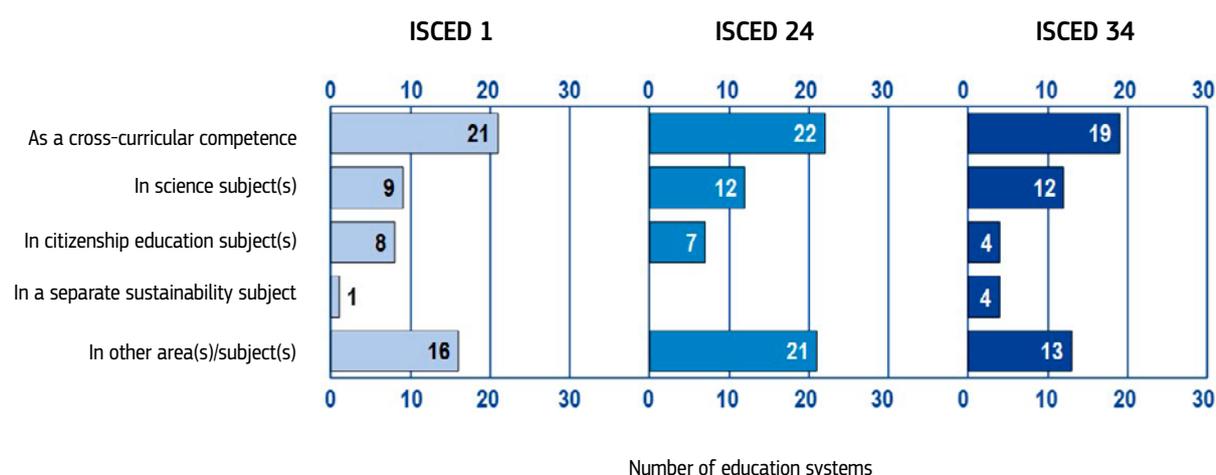
On this basis, the following elements of the adaptability competence were selected for this report:

- identify aspects of lifestyle that impact sustainability and require adaptation (e.g. air travel, car usage, meat consumption, fast fashion);

- understand the concepts of a circular economy and society, and their applications;
- understand life cycle thinking and the principles of sustainable production and consumption.

The competence of adaptability is relatively widespread in European curricula. However, it could not be identified in four education systems (those of Romania, Albania, Bosnia and Herzegovina and North Macedonia). Adaptability, where present in curricula, could be found at all education levels, most commonly as a cross-curricular competence (Figure 1.8; see also Figures A1, A2 and A3 in the Annex). Regarding specific subjects, given the links between adaptability and the functioning of the economy, this competence is often found in social and economic studies, science subjects, technology and, to some extent, citizenship education.

Figure 1.8: Number of education systems including the competence of ‘adaptability’ in their curriculum (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers social and economic studies, but also technology, geography or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

The most common elements of adaptability in European curricula relate to competences on identifying and understanding the need for lifestyle changes and the principles of sustainable production and consumption. References to the circular economy are much less frequent; relevant examples were found in only five education systems.

When it comes to reflections on students' own lifestyles and behaviours, curricula often remain

general, addressing 'consumption behaviour' or 'ethical consumption' generally. When concrete examples of lifestyle changes are discussed, these are most often related to food consumption, shopping (e.g. for clothes) and transport habits. Associated competences are most often cross-curricular but are also often embedded in citizenship education or home economics.

For example, in **Denmark**, within the subject home economics (or 'food science') (ISCED 1 and 2), the common objectives include the theme 'food awareness', which, among other issues, focuses on environmental sustainability: 'The students must learn to take part in and have co-responsibility for issues that relates to food, food choices, cooking and meals in relation to culture, well-being, health and sustainability' ⁽⁸¹⁾.

In **Spain**, promoting ethical lifestyle changes is mostly part of citizenship education. At lower secondary level, the learning outcomes are phrased as follows: 'Promote lifestyles ethically committed to achieving sustainable development, contributing by itself and in its environment to the prevention of waste, the sustainable management of resources, safe, sustainable and healthy mobility, fair trade, consumption responsibility, the care of natural heritage, respect for ethnocultural diversity and the care and protection of animals' ⁽⁸²⁾.

In **Montenegro**, sustainable transport is a cross-curricular topic at primary level. Learners need to:

- ▶ compare the advantages and disadvantages of diverse forms of transport;
- ▶ make critical decisions in the process of choosing transportation;
- ▶ know the effects of modern means of transportation on the environment;
- ▶ develop the ability to assess and evaluate objectively their personal participation in pollution;
- ▶ contribute to pollution reduction through a personal example related to transport ⁽⁸³⁾.

References to sustainable production and consumption are also widespread in European curricula. Such references are frequently general. The specific topics most often covered are sustainable technology and technological

development, sustainable consumption (e.g. through the example of tourism) and understanding the life cycle of objects and their production (the last being most often addressed in technology subjects or in science, e.g. in chemistry).

For example, in **Bulgaria**, one of the aims of the technology and entrepreneurship subject at upper secondary level is that 'students understand the interrelationship between technology and production efficiency. They evaluate the economic and environmental benefits of energy saving and waste-free technologies. They understand that the technical and operational characteristics of machines and equipment are related to the life cycle of the products, health, safety, environmental protection and sustainable development. Practical skills for creating models and projects are evaluated according to criteria of quality, safety, energy efficiency and economy' ⁽⁸⁴⁾.

In **Croatia**, at upper secondary level, one of the educational outcomes for pupils is the ability to analyse 'the principles of sustainable production and consumption', which includes 'recognition and use of products that are produced without harmful effects on the environment'. This involves recommendations for embedding related themes in different subjects, including social sciences, geography, citizenship education and science ⁽⁸⁵⁾.

⁽⁸¹⁾ [Danish curriculum for home economics / food science](#), ISCED 1 and 2, pp. 3–5.

⁽⁸²⁾ [Spanish Royal Decree 217/2022 of 29 March, which establishes the organisation and the basic teachings of compulsory secondary education \(ISCED 24 and 34\)](#), p. 74.

⁽⁸³⁾ [Education for sustainable development, cross-curricular competences in the primary school](#), Montenegro, pp. 42–43.

⁽⁸⁴⁾ [Bulgarian technology and entrepreneurship curriculum for grade 9](#), p. 11.

⁽⁸⁵⁾ [Decision on adoption of the curriculum for the cross-curricular theme of sustainable development for primary and secondary schools in the Republic of Croatia](#), OG 7/2019.

Finally, as mentioned above, the circular economy is rarely mentioned in curricula. Only in Estonia, Greece, Lithuania, Portugal and Finland do the top-level steering documents refer to this concept, and

it is most often linked to the other elements of the adaptability competence: to sustainable production and consumption and/or to lifestyle changes.

In **Lithuania**, the study of ‘engineering technology’ involves ‘analysing the life cycle of an engineering product’, which includes ‘identifying its characteristics and purpose, interaction with the user and the external environment, operation and recycling, reuse (sustainability of the solution and the circular economy principles, cycles), patents for engineering solutions or products, intellectual property law and protection’. In addition, the topic ‘engineering for sustainable living and green energy’ covers the principles of ‘sustainable living, sustainable urban technologies (including water supply, wastewater disposal, etc.) and their application’, ‘research on air, water and soil quality and discussion of improvement technologies (pollution reduction, waste management) and recycling, recovery of used materials; and the circular economy system and its processes (waste prevention, eco-design, waste reuse)’⁽⁸⁶⁾.

Finland follows a holistic approach, centring attention on students’ ‘ecosocial knowledge’. One of the underlying values of basic education is the ‘necessity of a sustainable way of living’. In this context, ‘basic education acknowledges the necessity of sustainable development and ecosocial knowledge and ability, follows their principles and guides the pupils in adopting a sustainable way of living. Sustainable development and ways of living comprise an ecological and economic dimension as well as a social and cultural dimension. The leading idea of ecosocial knowledge and ability is creating ways of living and a culture that foster the inviolability of human dignity and the diversity and ability for renewal of ecosystems while building a competence base for a circular economy underpinned by sustainable use of natural resources. Ecosocial knowledge and ability means that the pupils understand the seriousness of climate change, in particular, and strive for sustainability’⁽⁸⁷⁾.

1.2.6. Political agency

The fourth and final competence area of the GreenComp framework is ‘acting for sustainability’; it includes the knowledge, skills and attitudes that encourage learners ‘to take action at individual and collective level to shape sustainable futures, to the extent possible’ (Bianchi, Pisiotis and Cabrera Giraldez, 2022, p. 25). Within this broad area, the competence of ‘political agency’ is about knowing how the political system works, identifying ‘political responsibility and accountability for unsustainable behaviour’ and being able to demand the policies that are necessary for a sustainable future (Bianchi, Pisiotis and Cabrera Giraldez, 2022, p. 25).

In this report, the competence of ‘political agency’ is defined as a set of knowledge, skills and attitudes that helps students to:

- identify the relevant political actors;
- understand the impact of public policies and political actions on sustainability at different levels;
- identify political responsibility and accountability for unsustainable behaviour.

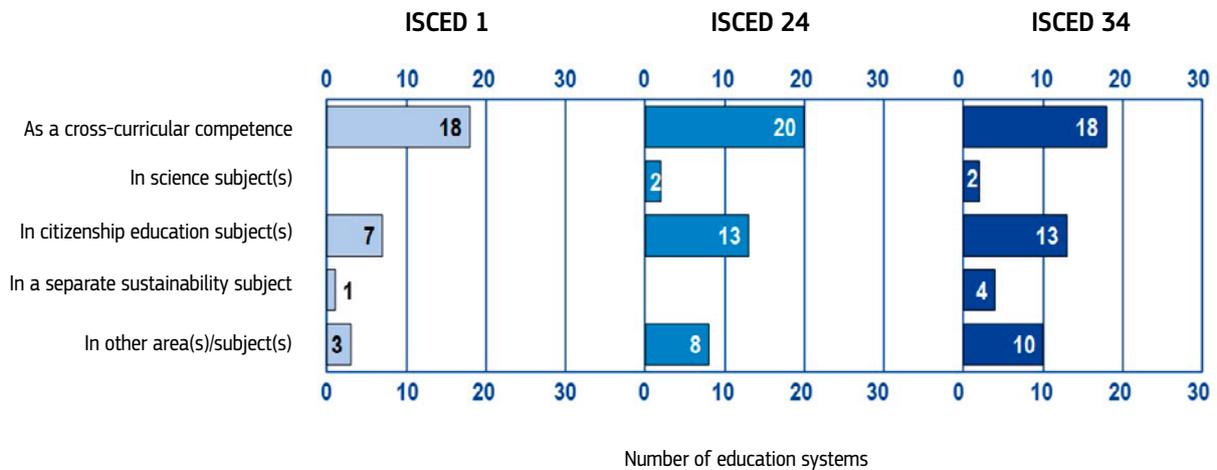
This competence is somewhat less present in European curricula than most others: five education systems (those of Belgium – French Community, Slovakia, Bosnia and Herzegovina, North Macedonia and Türkiye) provide no examples at any education level. In addition, in the case of this competence, there are clear differences between education levels: no examples of the ‘political agency’ competence are found in 17 education systems at primary level, in nine education systems at lower secondary level, but only in seven education systems at upper secondary level (see Tables A1, A2 and A3 in the Annex for more details). Therefore, the higher the level of education, the more likely it is that the political agency competence is included in the curricula.

When present, competences related to ‘political agency’ are primarily cross-curricular, but they are also often included in citizenship education subjects and, in some cases, in social studies at secondary education level (Figure 1.9).

⁽⁸⁶⁾ [Lithuanian general programme for engineering technology](#), points 23.1.2 and 24.5.1.

⁽⁸⁷⁾ [Finnish national core curriculum for basic education](#), 2014.

Figure 1.9: Number of education systems including the competence of ‘political agency’ in their curricula (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers social studies, but also history, geography or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

Most examples concern identifying the relevant actors at different levels, and understanding the impact of policies and political actions. Regarding the former, curricula often refer to policymaking at

different levels (regional, national and global), in some cases explicitly mentioning the EU or specific international organisations.

In **Ireland**, in the subject ‘politics and society’, one of the learning objectives at upper secondary level is that students should be able to ‘critically examine the role of intergovernmental/supranational bodies, (including, where appropriate, the International Monetary Fund, World Trade Organisation, World Bank and the United Nations Development Programme) in the process of decision-making in relation to a policy that impacts upon young people’ ⁽⁸⁸⁾.

In **Cyprus**, as part of the subject ‘education for sustainable development’, students learn to ‘identify local and global stakeholders organising actions that aimed at sustainable development’ and ‘understand the need to organise and implement environmental actions / sustainable development actions at local, national and global levels’ ⁽⁸⁹⁾.

In **Portugal**, ‘identify[ing] the roles of several kinds of actors (individual and collective) in terms of responsibility for promoting well-being, at local, national and worldwide levels’ is part of development education at primary level ⁽⁹⁰⁾.

⁽⁸⁸⁾ [Curriculum specification, politics and society \(senior cycle\)](#), Ireland, p. 37.

⁽⁸⁹⁾ [ESD indicators for primary education curricula](#), Ministry of Education and Culture of Cyprus, 2016, p. 10.

⁽⁹⁰⁾ [Development Education Guidelines](#), Portugal, p. 39.

Competences related to understanding the impact of policies and political actions either are framed in a general way or are embedded in curricula through various case studies and policy examples. These policy examples are often linked to either the social or the ecological dimension of sustainability. For example, one of the cross-curricular learning objectives in Croatia at lower secondary level is to ‘analyse social policies and their impact on fairness in society’⁽⁹¹⁾. In Norway, the social studies curriculum in lower secondary education aims to ‘explore and describe how human rights and the rights of indigenous peoples, as well as other international treaties and international cooperation, are important for national policies, people’s lives, equal rights and equality’⁽⁹²⁾. At upper secondary level, in Malta, students need to ‘critically analyse waste reduction and waste management policies’⁽⁹³⁾; in Poland, they should ‘understand the rationale of European climate policy and can characterise its economic and social consequences for the first half of the 21st century’⁽⁹⁴⁾; and in Sweden, students study the political framework for the utilisation of national resources⁽⁹⁵⁾.

The final aspect of the ‘political agency’ competence considered here, the ability to identify political responsibility and accountability for unsustainable behaviour, is most often absent. Only five European education systems (those of Czechia, Cyprus, Hungary, Montenegro and Serbia) include examples of learning outcomes that go beyond individual responsibility for sustainable development. In Czechia, Cyprus and Serbia, the concepts of social/collective responsibility and the ‘responsibility of various social actors’⁽⁹⁶⁾ are mentioned only briefly.

In the curricula of Hungary and Montenegro, these issues are discussed in a little more detail, focusing on the identification of the actors responsible for environmental disasters and finding remedies. In Hungary, during geography lessons at upper secondary level, one recommended activity is that students stage court hearings on different real-life environmental emergencies and disasters (e.g. the ‘red sludge disaster’, water foaming on the Rába (river in Hungary), cyanide pollution on the Tisza (river in Hungary))⁽⁹⁷⁾. In Montenegro, the cross-curricular theme of ESD includes learning objectives

on knowing about and practising ‘eco-remediation’. Specifically, students should be able to ‘identify key actors polluting the environment and seek solutions to these problems by applying eco-remediation (industry, transport, intensive agriculture and increased urbanization)’⁽⁹⁸⁾.

1.2.7. Individual and collective action

The last competence area analysed in this section merges two competences from the GreenComp framework, ‘collective action’ and ‘individual initiative’, both forming part of the ‘acting for sustainability’ competence area. In contrast to the competence on political agency, which is primarily about knowing how the political system works and how it influences sustainable development, this competence centres on the ability of students to act for sustainability themselves, individually and/or in collaboration with others.

This competence therefore has two main elements:

- understanding the meaning of preventive action and the precautionary principle and applying them in their own actions;
- working collectively in sustainability change processes and identifying opportunities for collective action.

Competences related to individual and collective action form part of the curricula in the large majority of European education systems. No examples were identified in this competence area in only four education systems (in the Netherlands, Albania, Bosnia and Herzegovina and Türkiye). Like the political agency competence, the individual and collective action competence is more widespread in secondary than in primary education, but the difference is less pronounced in this case (see Tables A1, A2 and A3 in the Annex for more details). As Figure 1.10 depicts, individual and collective action is predominantly a cross-curricular theme, but it is also embedded in the citizenship education, geography and social studies curricula.

⁽⁹¹⁾ [Decision on adoption of the curriculum for the cross-curricular theme of sustainable development for primary and secondary schools in the Republic of Croatia](#), OG 7/2019.

⁽⁹²⁾ [Social studies, competence aims and assessment](#), Norway, year 10.

⁽⁹³⁾ [Environmental studies](#), Malta, level 10 (upper secondary education).

⁽⁹⁴⁾ [Regulation of the Polish Minister of National Education and Science of 8 March 2022 amending the regulation on the core curriculum of general education for general upper secondary schools, technical upper secondary schools and stage II sectoral vocational schools](#), Annex 1, p. 35 (social studies).

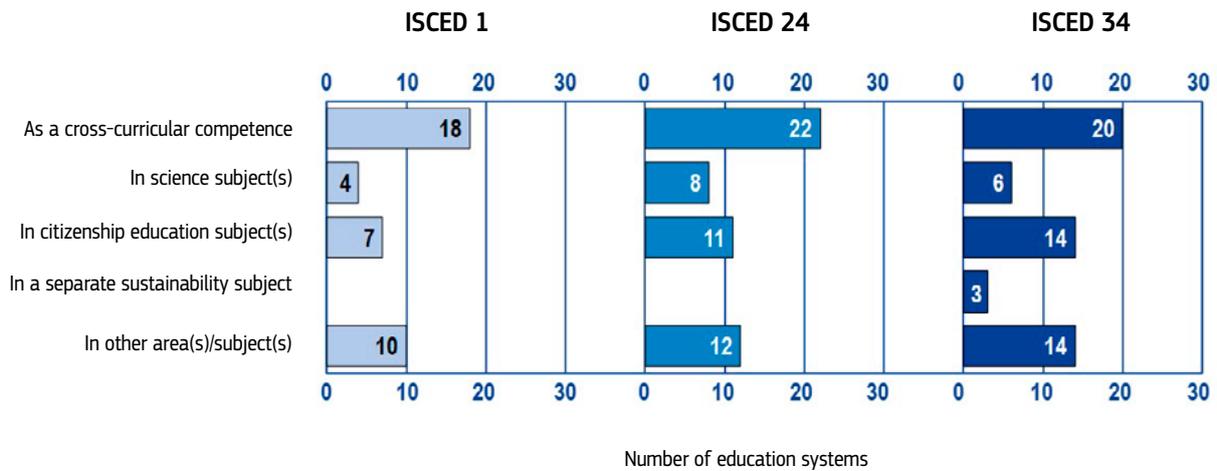
⁽⁹⁵⁾ [Commentary to the geography curriculum](#), Sweden, upper secondary education, p. 3.

⁽⁹⁶⁾ [By-law of Serbia on the plan and programme of teaching and learning for general upper secondary education](#), 2020, p. 650.

⁽⁹⁷⁾ [Hungarian curriculum for geography](#), upper secondary education, pp. 17–18.

⁽⁹⁸⁾ [Education for sustainable development, cross-curricular competences in the primary school](#), Montenegro, p. 35.

Figure 1.10: Number of education systems including the competence of ‘individual and collective action’ in their curricula (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

‘Science subjects’ include natural science subjects as defined by top-level education authorities. The term ‘citizenship education subjects’ refers to subjects / curriculum areas linked to citizenship education, which might be found in curricula under different names. The category ‘other subjects’ most often covers geography, but also social studies, history or other subjects. One education system can feature in several different categories, depending on how sustainability topics are included in the curriculum.

For country-specific information, see Figures A1, A2 and A3 in the Annex.

When looking at the main elements of this competence, the examples reported predominantly feature individual action and responsibility. Collective action is found in only one third of national curricula. This finding echoes previous studies on teacher perceptions, which found that teachers are inclined to emphasise individual actions in the private sphere in relation to action-related competences, and they tend to perceive

collective action as less appropriate or suitable for students (see Stagell et al. (2014), on Swedish Eco-School teachers, and the small-scale study of Aarnio-Linnanvuori (2019), on Finnish teachers).

The few references to collective action and responsibility often involve action at the level of the school or the local community, especially at primary level.

For example, in **Croatia**, at primary level, one of the educational outcomes for pupils is ‘Participation in the school’s environmental protection activities in cooperation between the school and the community’, which includes ‘Willingness to contribute to cooperation in the community and the preservation of the environment with one’s activity and behaviour’. This can be achieved through the preparation and implementation of school projects on sustainability (waste sorting, recycling, energy saving, etc.) and projects involving the local community (e.g. participating in cleaning activities with parents and teachers) ⁽⁹⁹⁾.

In **Austria**, also in primary education, students and the entire school team take responsibility together, making the schools models for a sustainable way of life: the ‘school (...) makes it possible to test oneself, to experience the effects of one’s own actions and to reflect on them critically. It is important to jointly develop and assume responsibility for the formation of a sustainable way of life for individuals and society on a global and local level, and to promote a holistic view of humanity in the sense of an inclusive society’ ⁽¹⁰⁰⁾.

⁽⁹⁹⁾ [Decision on adoption of the curriculum for the cross-curricular theme of sustainable development for primary and secondary schools in the Republic of Croatia](#), OG 7/2019.

⁽¹⁰⁰⁾ Austrian curriculum for primary school, [BGBl. II – Ausgegeben am 2. Jänner 2023 – No 1](#), p. 2.

In **Serbia**, one of the goals of the optional subject ‘education for sustainable development’ at upper secondary level is that the ‘student actively participates in the actions of the local community and creatively contributes to the work of the group in the field of environmental protection’ ⁽¹⁰¹⁾.

Alternatively, curricula can take a more theoretical approach to individual or collective action, as

illustrated by the French upper secondary science curriculum, for example.

‘The scientific approach nourishes critical judgment and meets ethical concerns. Thus, it is in a rationally informed way in which everyone must be able to participate in decision-making, individual and collective, local or global [...]. For societies, the climate and environmental challenge is that of a transition between the current situation and development based on a sustainable regime of conversion and use of energy. The complexity of this transition requires knowing, understanding and prioritising the parameters on which it is possible to act, individually and collectively’ ⁽¹⁰²⁾.

The notions of ‘prevention’ or ‘preventive action’ are rarely mentioned; they form part of only around a quarter of the examples chosen by European countries. One example is from Portugal, where the upper secondary biology curriculum specifies that students should ‘carry out responsible citizenship interventions (feasible and substantiated) aimed at preventing / minimizing / remedying the problem under study and promoting the sustainable use of natural resources’ ⁽¹⁰³⁾. The precautionary principle is included in examples from Czechia and Greece. In Czechia, the cross-curricular educational area of ‘people and society’ should, at the primary and lower secondary levels, ‘uncover connections between ecological, technical-economic and social phenomena while emphasising the precautionary principle and other principles of sustainable development in actions’ ⁽¹⁰⁴⁾. In Greece, the cross-curricular objectives for ‘environment and education for sustainable development’ include that ‘students as responsible and active citizens should apply in everyday life [...] the precautionary principle, i.e. knowledge of the consequences of human activities on the environment’ ⁽¹⁰⁵⁾.

1.3. Conclusion

This chapter has analysed how sustainability is taught in schools from primary to upper secondary general education according to top-level curricula. It has examined how and to what extent sustainability themes and competences are embedded in European education systems, with a special focus on transdisciplinarity and transversal learning. As the chapter has shown, sustainability and related competences are included as cross-curricular themes and competences in the majority of education systems, and only very few European countries have opted to create a separate sustainability subject.

There is no European education system that does not include the topic of sustainability in its curricula. Besides being a cross-curricular theme, sustainability is most often included in science subjects and citizenship education. Differences between education levels in the extent to which sustainability is a transversal competence or included in science curricula are minor. However, in the case of citizenship education, sustainability topics are more frequently addressed at secondary level than at primary level.

⁽¹⁰¹⁾ [By-law of Serbia on the plan and programme of teaching and learning for general upper secondary education](#), 2020, p. 697.

⁽¹⁰²⁾ [Scientific teaching programme for the final year](#), France, ISCED 34, grade 12, pp. 1 and 13. The scientific teaching programmes for grades 11 and 12 have been updated since June 2023. The [programme for grade 11](#) has been implemented since September 2023; while the [one for grade 12](#) will come into effect in September 2024. The changes enhance the sustainability dimension and training on biodiversity.

⁽¹⁰³⁾ [Upper secondary biology curriculum](#) of Portugal, grade 12, p. 9.

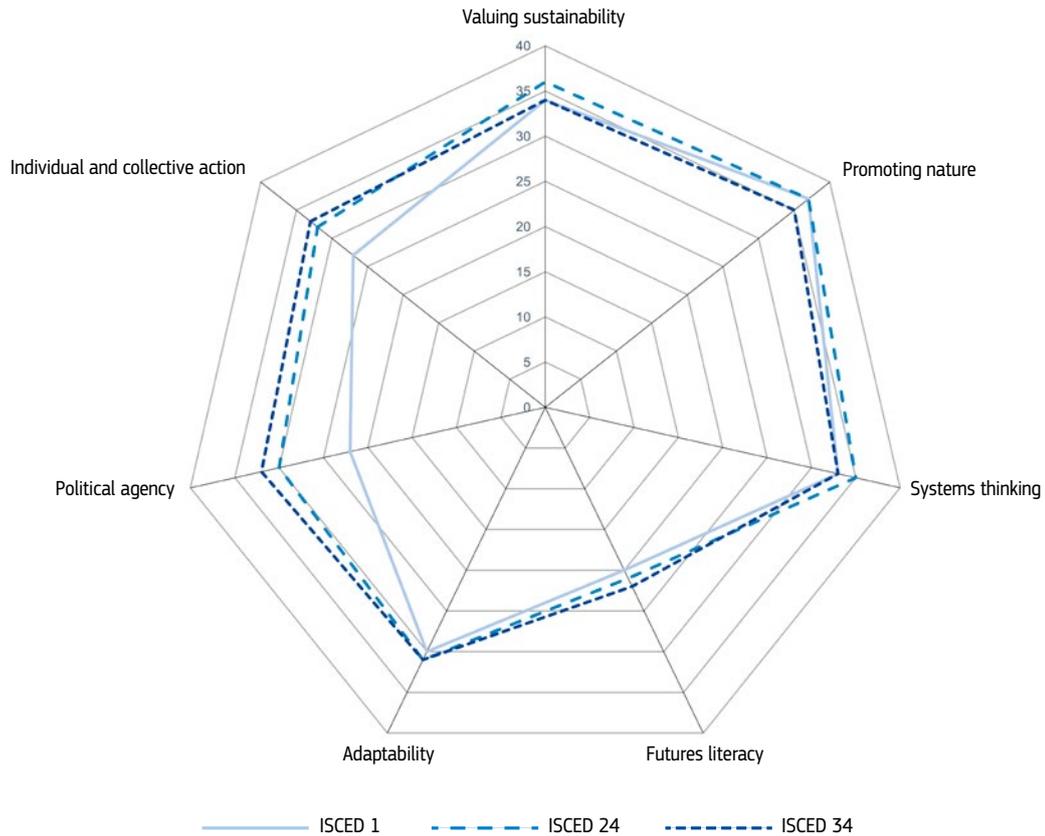
⁽¹⁰⁴⁾ [Framework education programme for basic education](#), 2023, p. 135.

⁽¹⁰⁵⁾ Greek national curriculum, ‘Environment and education for sustainable development’ for nursery, primary and lower secondary education, [Government Gazette 2022, Issue B, 02820 / 6 June 2022](#), p. 27915.

Regarding the category ‘other subjects’, sustainability competences are most often integrated in curricula for geography, social and economic studies, history, technology and art and design. However, in some cases, subjects such as literature, foreign languages, physical education or

mathematics may also include some elements of sustainability competences. In only nine education systems is sustainability included in the curricula as a separate subject. In most cases, these subjects are offered at secondary level, but are not compulsory (see Figure 1.3).

Figure 1.11: Number of education systems including key sustainability competences in their curricula, by competence area (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Explanatory notes

This figure summarises and integrates information regarding the seven competences discussed in Section 1.2 (Figures 1.4 to 1.10). It shows the number of education systems covering each sustainability competence in their curricula, regardless of whether these are cross-curricular themes or are integrated in compulsory or optional subjects. The three lines represent the three education levels (primary, general lower secondary and general upper secondary).

For country-specific information, see Figures A1, A2 and A3 in the Annex.

As regards the different competences related to sustainability, Section 1.2 of this chapter analysed in detail the extent to which different knowledge, skills and attitude elements are included in the top-level steering documents of European education systems. As Figure 1.11 shows, almost all the competences examined are relatively well represented in European curricula, with the exception of 'futures literacy'. Differences between education levels are pronounced only in the cases of the 'political agency' and 'individual and collective action' competences, which are more frequently present at secondary level. This also means that, regarding the four broad competence areas defined by the GreenComp framework (Bianchi, Pisiotis and Cabrera Giraldez, 2022), 'embodying sustainability values' and 'embracing complexity in sustainability' are more frequently part of curricula than the other two, 'envisioning sustainable futures' and 'acting for sustainability'.

Over half of the education systems (23) cover all seven sustainability competences, in more or less detail, in at least one education level. In a further 10 education systems, top-level steering documents include learning outcomes for five or six of the sustainability competences discussed here. Curricula in the Netherlands, Romania, Albania, Bosnia and Herzegovina, North Macedonia and Türkiye contain references to only three or four of the seven competences.

The picture becomes even more nuanced when looking at the sub-components of the analysed competences (see definitions in Section 1.2). Not all education systems include these different aspects to the same degree in their curricula. The countries where most components of sustainability competences are present are the education systems which take a holistic approach, that is, sustainability competences are included throughout the curricula, with learning objectives related to many different aspects. These countries are Greece, France, Croatia, Cyprus, Lithuania, Austria, Portugal, Finland, Sweden, Switzerland and Norway.

Regarding the patterns of the various components of sustainability competences, as the analysis revealed, while general sustainability competences are present, detailed concepts (such as the circular economy, preventive action, the main concepts of complex systems) are often missing from national curricula. This might stem from the nature of such top-level frameworks, which by definition can provide only broad guidelines, and not detailed concepts. Alternatively, it may be the case that the international sustainability vocabulary is not used in all education systems to the same extent.

Furthermore, while most curricula contain references to what individuals can do to promote sustainable development and individual responsibilities, references to collective action or to social/political/collective responsibility for unsustainable behaviour are less frequent. In addition, while most curricula include references to sustainability values and the need to respect diversity and different world views, fostering reflection on individual and collective value creation is rare. Thus, there is still room to change curricula to better equip students with the competences required to deal with complex sustainability challenges and act responsibly.

Finally, while competences related to promoting and appreciating nature are widely included in European steering documents, there are fewer references to the need to be outdoors and enjoy nature. Being outdoors might be less feasible to achieve in a school context, but it supports hands-on learning and development and could also be a step forward towards a sustainable future.



Chapter 2: Teachers and school leaders for sustainability

The essential role of teachers and school leaders in the process of embedding sustainability education in schools has been widely acknowledged in the literature (Birney and Reed, 2009; Timm and Barth, 2021). Teachers are key actors in ensuring the inclusion of sustainability in the curriculum and promoting sustainability competences among learners, as they have the capacity to become leaders and change agents within their own institutions (Bürgener and Barth, 2018; Gan, 2021).

The Global Action Programme, following the declaration of the UNDESD, underlined the need to improve teachers' knowledge and skills to accelerate progress towards sustainable development (UNESCO, 2014). Building the capacity of educators is also one of the priority actions in the 'Education for sustainable development: towards achieving the sustainable development goals (SDGs)' framework (UNESCO, 2020).

Teachers' sustainability literacy involves not only knowledge but also values that inform individual mindsets and behaviours. It encompasses knowing things about the environment, economics and social issues, and also a willingness and ability to engage intellectually and personally with the tensions that are created by the interconnectedness of these systems (Nolet, 2009). Teachers need to understand sustainability, know the competences that learners should acquire, and possess the necessary knowledge of both content (what to teach) and pedagogy (how to teach) (Brandt et al., 2019; Rieckmann and Barth, 2022).

Over the last years, researchers and experts have engaged in defining the competences that teachers and other educators need in order to develop sustainability competences among learners. The 2004 – 2007 Comenius-2 CSCT (curriculum, sustainable development, competences, teacher training) project⁽¹⁰⁶⁾ developed a competence-based curriculum for ESD for teacher education programmes. It defined competences in terms of knowledge, systems thinking, emotions, values and action in three areas: teaching and learning, reflection and visioning, and networking (Sleurs, 2008). As part of the project, an Austrian research

group developed KOM-BiNE, a competence framework on sustainable development for teachers, which includes competences in five domains: knowing and acting, valuing and feeling, communicating and reflecting, visioning, planning and organising, and networking (Rauch and Steiner, 2013).

The United Nations Economic Commission for Europe (UNECE) has also developed a sustainability competence framework for educators. The framework covers learning to know (awareness of the challenges facing society both locally and globally and the potential of educators and learners to tackle them), learning to do (development of practical skills for action), learning to live together (how to develop partnerships and appreciate interdependence, pluralism and respect) and learning to be (how to act with judgement and personal responsibility) (UNECE, 2012, 2013). More recently, the Erasmus+ rounder sense of purpose (RSP)-I and RSP-II projects⁽¹⁰⁷⁾ developed a competence framework for educators for each of the SDGs along four dimensions: integration (systems, futures, participation), involvement (attentiveness, empathy, values), practice (transdisciplinarity, creativity, action) and reflexivity (criticality, responsibility and decisiveness) (Vare et al., 2019).

A recent review on teacher education for the green transition and sustainable development examined how these frameworks have been implemented in countries around the world (Mulà and Tilbury, 2023). Although empirical evidence is still limited, the complexity and lack of operationalisation of these frameworks (in terms of developing clear implementation and assessment paths) might be hindering their integration into teacher education programmes (Mulà and Tilbury, 2023; Vare, Lousselet and Rieckmann, 2022). Evidence is also sparse with regard to the impact that the introduction of these competence frameworks in teacher education may have in practice (Albareda-Tiana et al., 2019; Brandt et al., 2019; Richter-Beuschel and Bögeholz, 2019; Cebrián, Junyent and Mulà, 2020). The challenge lies in measuring the acquisition of competences involving

⁽¹⁰⁶⁾ https://www.ensi.org/Projects/Our_Projects/CSCT/.

⁽¹⁰⁷⁾ <https://arundersenseofpurpose.eu/>.

knowledge, pedagogy (effective teaching and learning approaches) and attitude (willingness and intrinsic motivation) (Rieckmann and Barth, 2022). Funded by the Erasmus+ programme, the Academy for Sustainable Future Educators (EduSTA) ⁽¹⁰⁸⁾ is developing digital open badges supported by multimodal learning modules with the objectives of providing shareable and portable micro-credentials, defining clear evaluation criteria and contributing to quality assurance (Mulà and Tilbury, 2023). Researchers are also investigating specific pedagogical approaches to sustainability competences and exploring the potential of communities of practice and open learning environments to support the acquisition of these competences (Lozano et al., 2017; Bürgener and Barth, 2018; Lozano and Barreiro-Gen, 2019).

Despite the growing attention that teachers' competences in sustainability education are receiving among researchers and policymakers, a recent survey shows that, even though teachers usually acknowledge the importance of sustainability and are willing to include it in their teaching, they tend to lack the necessary knowledge and confidence (UNESCO, 2021). If teachers are to develop the sustainability competences they need to become active agents of change, it is essential that the relevant knowledge and pedagogies are embedded in university courses and teacher education programmes (Bertschy, Künzli and Lehmann, 2013; Redman, Wiek and Redman, 2018; UNESCO, 2020). However, many challenges and lacunas remain regarding the integration of sustainability issues in teacher training programmes. According to the report *Education for Environmental Sustainability – Policies and approaches in European Union Member States*, it is common for pre-service students of only certain subjects to receive training on sustainability (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). Moreover, continuing professional development (CPD) activities are usually voluntary, and it can be difficult to encourage teachers to participate. This study identifies other concerns, too, such as the difficulties associated with interdisciplinary teaching and the lack of professionals to train teachers in the necessary competences, principles, pedagogical practices, innovative concepts and learning tools.

Integrating sustainability in teacher education and training programmes, the development of specific pedagogy, the creation of collaborative communities of practice and networks, the provision of resources and expert guidance, the recognition of competences and the reward of best practices can all contribute to improving teacher literacy and competence (Dymont and Hill, 2015; Jucker and Mathar, 2015; Taylor et al., 2019; Glavic, 2020; Timm and Barth, 2021; Cebrián et al., 2022).

The Council recommendation of 16 June 2022 on learning for the green transition and sustainable development acknowledges that, despite the spread of policies to enhance learning for sustainability in EU Member States, educators need further targeted support, expertise and training opportunities to incorporate the principles of the green transition and sustainable development in their teaching and training practices ⁽¹⁰⁹⁾. The recommendation sets out concrete measures that could contribute to equipping educators with the competences necessary to help their students prepare for the green transition. Which measures should be implemented will depend on the national context, but they include the integration of learning for sustainability in teacher professional standards or competence frameworks and teacher education and CPD programmes; support for the creation of mentoring schemes and school coordinator roles; the adoption of pedagogies that enhance teaching and learning in interdisciplinary ways and develop the socio-emotional aspects of learning; and access to centres of expertise, including centres for environmental education and training.

This chapter provides insights into public policies and measures across Europe that aim to improve the capacity of teachers to deliver sustainability education. Section 2.1 investigates the introduction of sustainability-related competences in teacher competence frameworks. The chapter continues by examining, in Section 2.2, how sustainability is addressed in regulations and guidelines for initial teacher education (ITE) and, in Section 2.3, how sustainability is addressed in regulations and schemes for the professional development of in-service teachers. Section 2.4 focuses on specific provisions regarding the building of school leadership for sustainability. Finally, Section 2.5 examines other support measures, such as the provision of learning materials, teaching resources, mentoring, communities of practice and networks.

⁽¹⁰⁸⁾ <https://projects.tuni.fi/edusta/>.

⁽¹⁰⁹⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

2.1. Embedding sustainability in teacher competence frameworks

Competence frameworks or professional standards are understood as a collection of competences that teachers are expected to know, understand and be able to do. They may be defined in a specific document or included in a regulation with a broader scope. Teacher competence frameworks are usually used to define common standards for ITE programmes, but they can also be used to steer the professional development of teachers or constitute a tool for their appraisal and promotion (European Commission / EACEA / Eurydice, 2018). While certain competences apply to all teachers, others may be specific to certain specialists or subject teachers.

This section examines how sustainability-related competences are embedded in teacher competence frameworks or professional standards for all teachers, regardless their specialisation or the subject that they teach. As shown in Figure 2.1, only eight education systems have embedded sustainability-related competences in the general teacher competence framework, while another four have developed a specific competence framework for sustainability education. Sustainability is not included in general or specific teacher competence frameworks in more than two thirds of education systems.

Sustainability-related competences are embedded in the teacher competence frameworks that set the standards for ITE programmes in Denmark, Ireland, Spain, Hungary and Sweden. In Denmark, fresh legislation on ITE for primary and lower secondary teachers stipulates that teacher education programmes should equip teacher candidates with a perspective on sustainability and sets specific learning objectives for some core subjects⁽¹¹⁰⁾. In Ireland, global citizenship education, which includes, among other things, the promotion of sustainable development and sustainable lifestyles, is one of the core elements that all ITE programmes should

cover according to the standards for ITE⁽¹¹¹⁾. In Spain, regulations on education university degrees define the sustainability-related competences that primary and secondary teachers should acquire during their studies⁽¹¹²⁾. Prospective primary teachers should be able to assess individual and collective responsibility for achieving a sustainable future; critically analyse and incorporate in their teaching the most relevant social issues, including sustainable development; recognise the mutual influence between science, society and technological development; and identify citizen behaviours to ensure a sustainable future⁽¹¹³⁾. Prospective secondary teachers should be able to design and develop learning environments that contribute to the creation of a sustainable future⁽¹¹⁴⁾.

In Hungary, the guidelines for qualification degrees of primary and secondary teachers establish that all teachers must be proficient in sustainability education and its values and know how to develop positive attitudes and increase environmental awareness among their students; know how to use the existing pedagogical methods; be able to help their students understand the differences between unsustainable and sustainable development and think creatively about the future in light of the past and the present; and enable them to contribute to a more sustainable world⁽¹¹⁵⁾. In Sweden, all ITE students should develop the ability to make assessments in educational processes on the basis of relevant scientific, societal and ethical aspects with particular respect for sustainable development⁽¹¹⁶⁾.

⁽¹¹⁰⁾ Ministerial order for the teacher education programme for primary and lower secondary school ('Bekendtgørelse om uddannelse til professionsbachelor som lærer i folkeskolen') (<https://www.retsinformation.dk/eli/lta/2023/374>).

⁽¹¹¹⁾ Céim: Standards for Initial Teacher Education, 2020 (<https://www.teachingcouncil.ie/assets/uploads/2023/08/ceim-standards-for-initial-teacher-education.pdf>).

⁽¹¹²⁾ An additional provision of the education law states the obligation to incorporate ESD knowledge, skills and attitudes into teaching, but it is pending further implementation, ley orgánica por la que se modifica la ley orgánica de educación (LOMLOE), 2020 (<https://www.boe.es/buscar/pdf/2020/BOE-A-2020-17264-consolidado.pdf>).

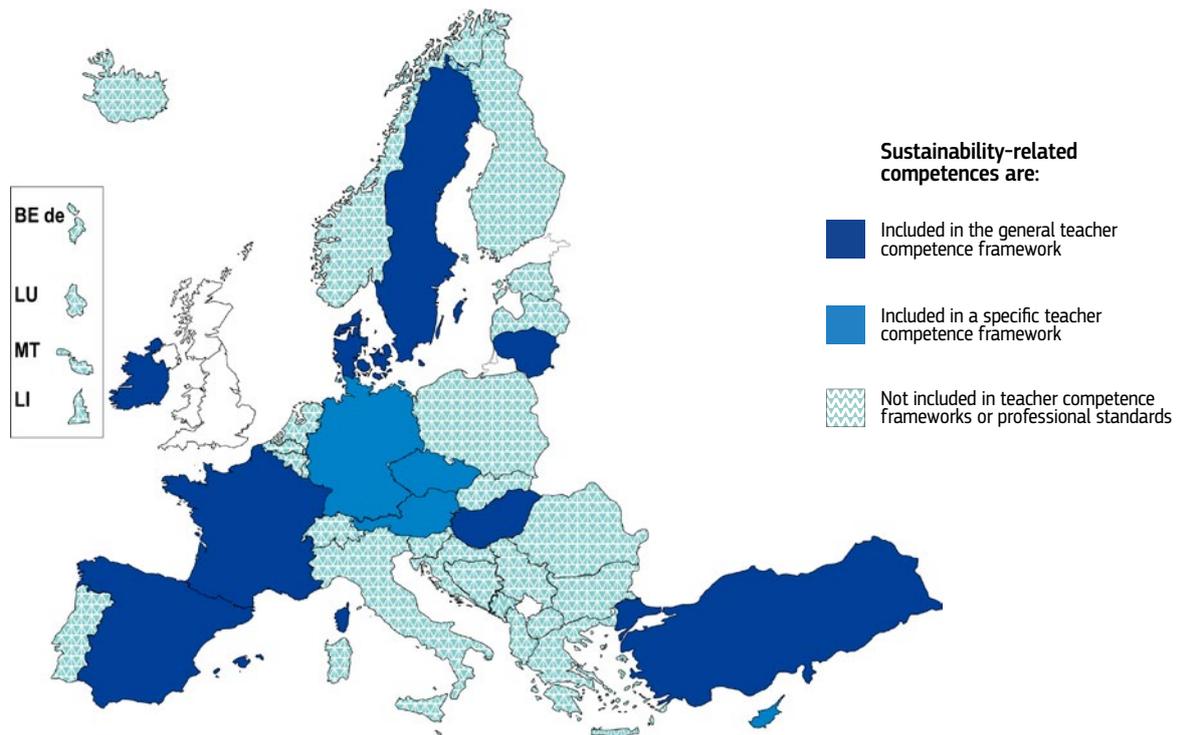
⁽¹¹³⁾ Order ECI/3857/2007 strengthening criteria for the recognition of university degrees for primary teachers (https://www.boe.es/diario_boe/txt.php?id=BOE-A-2007-22449).

⁽¹¹⁴⁾ Order ECI/3858/2007 strengthening criteria for the recognition of university degrees for secondary teachers (<https://www.boe.es/buscar/act.php?id=BOE-A-2007-22450>).

⁽¹¹⁵⁾ Education Office guidelines for qualification degrees of primary and secondary teachers, 2013 (https://www.oktatas.hu/pub_bin/dload/unios_projektek/kiadvanyok/utmutato_a_pedagogusok_minositesi_rendszereben_6.pdf).

⁽¹¹⁶⁾ Degree of Bachelor/Master of Arts in Primary Education [Grundlärarexamen] (https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/The-Higher-Education-Ordinance/Annex-2/#BAMA_PrimEdu). Degree of Master of Arts/Science in Secondary/Upper Secondary Education [Ämneslärarexamen] (<https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/ordinance-on-supplementary-teacher-education-third-cycle-2016705/>).

Figure 2.1: Inclusion of sustainability in teacher competence frameworks (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Denmark: Information in the figure refers to the 2023 ministerial order for teacher education programmes for primary and lower secondary education. At ISCED level 34, there is no teacher competence framework set by top-level authorities.

Sustainability is included in the teacher competence framework that is used for both prospective and in-service teachers in three other countries, but in a more general manner. In France, all teachers must contribute to the cross-cutting area of ESD⁽¹¹⁷⁾. In Lithuania, teachers must be prepared to participate in the process of societal and educational change using advances in the social and natural sciences and in new technologies, and must be able to respond to the challenges of modern society⁽¹¹⁸⁾. In Türkiye, teachers must contribute to the protection of the natural environment⁽¹¹⁹⁾.

A second group of countries have developed a specific teacher competence framework for sustainability that can be used by teacher education and training providers or teachers themselves on a voluntary basis. In Czechia, the education act states that teachers must acquire and apply knowledge about the environment and its protection based on the principles of sustainable development⁽¹²⁰⁾, while specific steering documents specify the relevant ESD competences that teachers should develop⁽¹²¹⁾. In Germany, the recommendation of the Standing Conference and the German Commission for

⁽¹¹⁷⁾ Référentiel de compétences professionnelles des métiers du professorat et de l'éducation, 2013 (https://www.education.gouv.fr/bo/13/Hebdo30/MENE1315928A.htm?cid_bo=73066).

⁽¹¹⁸⁾ Competences for the teaching profession, 2007 (<https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.291726>).

⁽¹¹⁹⁾ General Competencies for Teaching Profession, 2017 (https://oygm.meb.gov.tr/meb_iys_dosyalar/2018_06/29111119_TeachersGeneralCompetencies.pdf).

⁽¹²⁰⁾ Act on Pre-primary, Basic, Secondary, Tertiary Professional and Other Education (Education Act) (Zákon č. 561/2004 o předškolním, základním, středním, vyšším odborném a jiném vzdělávání (Školskýzákon)) (<https://www.zakonyprolidi.cz/cs/2004-561>).

⁽¹²¹⁾ Decree on in-service training of education staff, accreditation commission and career scheme of educational staff (Vyhláška č. 317/2005 o dalším vzdělávání pedagogických pracovníků, akreditační komisi a kariérním systému pedagogických pracovníků), 2005 (<https://www.zakonyprolidi.cz/cs/2005-317>).

UNESCO on ESD in schools details the competences that pre-service and in-service teachers should gradually acquire ⁽¹²²⁾. Cyprus has reformed teacher professional development to align it with UNECE and RSP competence frameworks ⁽¹²³⁾. In Austria, the competence compass (published in 2022 on behalf of the Ministry of Education, Science and Research) constitutes a voluntary framework of teacher competences on environmental ESD ⁽¹²⁴⁾. In addition, the project UniNetz has produced recommendations and actions to implement the SDGs, including the strengthening of teacher competences ⁽¹²⁵⁾.

2.2. Integrating sustainability in initial teacher education

This section investigates the integration of sustainability education in regulations and guidelines for ITE programmes produced by top-level education authorities. These provisions may refer to the teacher competence frameworks described in the previous section or to other regulations and steering documents establishing the minimum standards or content for ITE programmes or teacher education degrees.

The nature and level of detail of these provisions are very different across countries. Therefore, the analysis focuses on the following five overarching learning objectives relating to sustainability education for prospective teachers, and how they are addressed in regulations and guidelines for ITE programmes:

- know the key concepts of ecosystems, earth systems processes, human impacts on the environment and biodiversity loss;
- understand the interdependence of natural, socioeconomic and political systems, and stimulate reflection and critical thinking concerning the relationships between them;
- critically analyse and incorporate in teaching sustainability concepts, values and problems from an interdisciplinary perspective, stimulating critical thinking, visioning, problem-solving and mutual understanding and respect for others' values;

- assess individual and group responsibility for a sustainable future and stimulate active participation in the resolution of socio-environmental problems and support for decision-making that is compatible with a sustainable future;
- develop partnerships to connect learners to the natural world, their local community and the global community.

These overarching learning objectives cover the main teacher competences identified by the literature and the relevant international frameworks. They also encompass the main aspects of key sustainability competences that students need to develop throughout their school years (see Chapter 1). Promoting nature is covered by the first learning objective, systems thinking by the second, valuing sustainability, futures literacy and adaptability by the third, and political agency and individual and collective action competences are covered in the fourth learning objective. The fifth learning objective cuts across several competences.

It is worth noting that the implementation of regulations and guidelines to promote the integration of sustainability in ITE can vary substantially within the same country, especially when the regulations and guidelines are not mandatory or lack systematic operationalisation and effective evaluation mechanisms. ITE providers usually enjoy a great degree of autonomy regarding the development of their programmes. For the same reason, some teacher education programmes include sustainability-related content even in the absence of specific regulations or recommendations by education authorities, especially when sustainability is part of the school curriculum (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). In any case, the adoption of these regulations and recommendations can be considered an indication of efforts by public authorities to embed sustainability in school education and can help to identify where priorities lie.

As shown in Figure 2.2, regulations or guidelines for ITE include provisions relating to sustainability education in less than half of the education systems examined. These provisions usually affect all prospective teachers, but are sometimes

⁽¹²²⁾ Recommendation of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany and the German Commission for UNESCO of 15 June 2007 on education for sustainable development in schools (https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2007/2007_06_15_Bildung_f_nachh_Entwicklung.pdf).

⁽¹²³⁾ Cyprus national report on the implementation of the 2017–2019 UNECE strategy for education for sustainable development (https://unece.org/DAM/env/esd/Implementation/NIR_2018/Final_Cyprus_3rd_evaluation_Cycle_2017-2019.pdf).

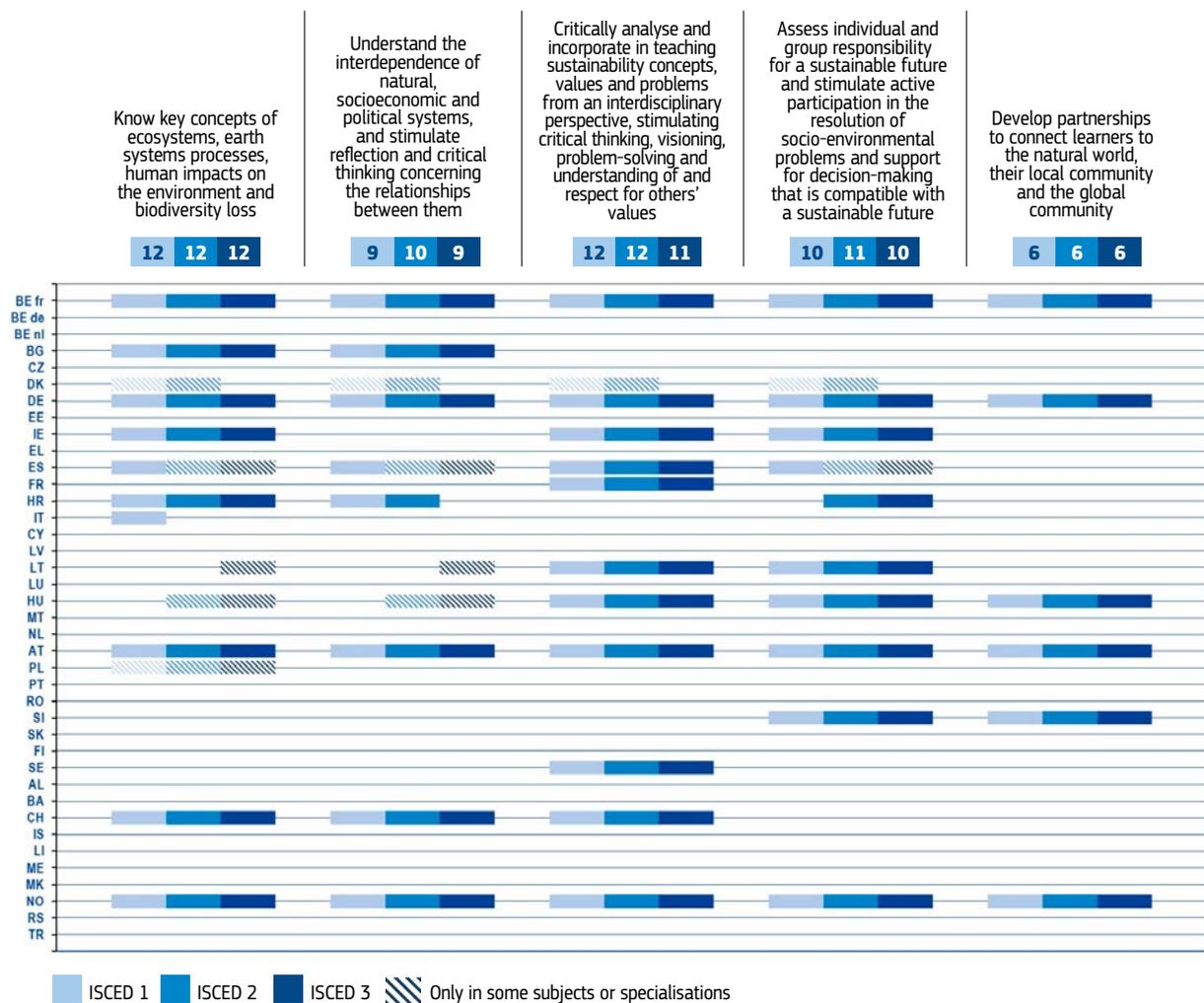
⁽¹²⁴⁾ Federal Ministry of Education, Science and Research, 'Kompetenzen von Pädagoginnen und Pädagogen zur Umweltbildung für nachhaltige Entwicklung', 2019 (https://www.oekolog.at/static/fileadmin/oekolog/dokumente/Publikationen/Broschuere_Kompetenzenkompass.pdf).

⁽¹²⁵⁾ UniNetz, 2022. 'Option 04_05 Teacher Education for Sustainable Development', 2019 (https://www.uninetz.at/optionenbericht_downloads/SDG_04_Option_04_05_pdf.pdf).

applicable only to teachers of certain subjects. In around a third of education systems, they refer to the understanding of sustainability issues and concepts. The incorporation of sustainability in teaching from an interdisciplinary perspective, stimulating critical thinking, visioning, problem-solving and understanding of and respect for others' values, is addressed to different degrees in a dozen education systems. The other learning objectives are covered less often, particularly the development of partnerships to connect learners with the natural world and local and global communities, which is addressed in only six education systems.

The relevant regulations or guidelines cover elements of these five overarching learning objectives and apply to all ITE students in the French Community of Belgium, Germany, Austria and Norway. In the French Community of Belgium, all prospective teachers, regardless of their specialisation, must acquire during their ITE basic notions of sustainability and the socioecological transition, and must develop the skills necessary to address sustainability issues (systemic thinking, capacity for anticipation, normative competence, strategic and interpersonal competence) and the pedagogy to incorporate them in their teaching ⁽¹²⁶⁾.

Figure 2.2: Sustainability learning objectives in regulations and guidelines for ITE programmes (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Finland: The 2022–2026 teacher education development programme includes sustainability expertise as one element of the broad-based teacher competence but does not define it at this level of detail ⁽¹²⁷⁾.

⁽¹²⁶⁾ Sustainable Development Commission (CDD), Implementation of the decree relating to initial teacher training and sustainable development, 2022 (<https://rfe.ares-ac.be/boite-a-outils/th%C3%A9matiques-transversales/cdd>).

⁽¹²⁷⁾ Ministry of Education and Culture, 2022, 'Teacher education development programme 2022 – 2026'. (<https://julkaisut.valtioneuvosto.fi/handle/10024/164179>).

In Germany, teachers must be able to meet the special challenges of ESD and global development education as part of their subject-specific and general pedagogical qualification. Sustainability-related competences are comprehensively covered in the content requirements for individual subjects and their didactics in teacher training programmes ⁽¹²⁸⁾, and in the orientation framework for the learning area of global development ⁽¹²⁹⁾. In Austria, both the competence compass ⁽¹³⁰⁾ and the UniNetz framework ⁽¹³¹⁾, which are used to prepare prospective teachers, cover the five learning objectives listed above. In Norway, ITE programmes for primary and lower (differentiated) secondary education must provide research-based knowledge about the climate, the environment and development, and ensure that teachers acquire the competences they need to support their pupils' learning about, valuing and acting to promote sustainable development ⁽¹³²⁾.

In Denmark, Ireland, Spain, France, Lithuania, Hungary and Sweden, as described in Section 2.1, the teacher competence frameworks include sustainability-related competences that all prospective teachers should have, and which relate to one or more of the five overarching learning objectives. Moreover, in Lithuania, steering documents for ITE programmes also specify that ITE students should develop their capacity to think creatively, systematically and critically, and should apply innovative approaches to practice, professional development and the principles of sustainable development ⁽¹³³⁾. In Denmark, Spain, Lithuania and Hungary, teachers of certain subjects (biology, geology, geography, natural science or environmental science) are expected to develop additional sustainability-related competences.

Regulations or guidelines for ITE programmes cover one or more of these learning objectives in six other countries. In Bulgaria, health and environmental education is one of the two elective subjects in ITE programmes. In Croatia, the national examination that students must pass to obtain a teaching qualification evaluates teachers' capacity to deliver the curriculum including the cross-curricular competence on sustainable development (see Chapter 1 and the Annex). In Italy, ITE students intending to teach in primary education learn the key concepts of sustainability in several subjects ⁽¹³⁴⁾. In Poland, the competence of understanding sustainability-related key concepts is included in the programmes of natural science (ISCED 1), biology and geography (ISCED 2 and 3) ⁽¹³⁵⁾. In Slovenia, all ITE students must learn how to address ethical issues in line with sustainability principles, to develop activities accordingly and to establish partnerships ⁽¹³⁶⁾. In Switzerland, ITE guidelines recommend that all prospective teachers learn basic concepts and skills on sustainability and how to integrate them in their teaching following the *éducation21* competence framework ⁽¹³⁷⁾.

⁽¹²⁸⁾ Content requirements for subject-related studies and subject-related didactics in teacher training which apply to all Länder. Resolution of the Standing Conference of 16 October 2008, as amended on 16 May 2019 (https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2008/2008_10_16-Fachprofile-Lehrerbildung.pdf).

⁽¹²⁹⁾ Orientation framework for the learning area global development in the framework of education for sustainable development [Orientierungsrahmen für den Lernbereich Globale Entwicklung im Rahmen einer Bildung für nachhaltige Entwicklung], Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland, 2016 (https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2007/2007_06_15_Bildung_f_nachh_Entwicklung.pdf).

⁽¹³⁰⁾ Federal Ministry of Education, Science and Research, 'Kompetenzen von Pädagoginnen und Pädagogen zur Umweltbildung für nachhaltige Entwicklung', 2019 (https://www.oekolog.at/static/fileadmin/oekolog/dokumente/Publikationen/Broschuere_Kompetenzenkompass.pdf).

⁽¹³¹⁾ UniNetz, 2022. 'Option 04_05 Teacher Education for Sustainable Development', 2019 (https://www.uninetz.at/optionenbericht_downloads/SDG_04_Option_04_05_pdf.pdf).

⁽¹³²⁾ National curriculum regulations for differentiated primary and lower secondary teacher education for years 1–7, 2016 (<https://lovdata.no/dokument/SF/forskrift/2016-06-07-860?q=forskrift%20grunnskolelaererutdanning>). National regulations and guidelines for ITE for practical and aesthetic subjects and integrated secondary education also cover sustainable development.

⁽¹³³⁾ Ministerial order on the approval of the description of the group of study fields of education and training (<https://e-seimas.lrs.lt/portal/legalAct/t/TAD/5c4faf0a04a11e591078486468c1c39?jfwid=j7125jw5g>).

⁽¹³⁴⁾ In July 2023, the Italian government signed a memorandum of understanding with the Italian Alliance for Sustainable Development to promote the development and implementation of training on sustainability for ITE students (and in-service teachers), including innovative pedagogies and cross-curricular and interdisciplinary approaches.

⁽¹³⁵⁾ Standards for the education of future teachers (regulation of the Minister of Science and Higher Education of 25 July 2019) (<https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20190001450>).

⁽¹³⁶⁾ Internal instructions on criteria for consenting to the study programmes for education staff (<https://www.gov.si/teme/ustrznost-izobrazbe-strokovnih-delavcev/>).

⁽¹³⁷⁾ Recommendations for ITE institution on how to integrate sustainability education in initial teacher education from 2012 (https://www.swissuniversities.ch/fileadmin/swissuniversities/Dokumente/Kammern/Kammer_PH/Empf/121112_D_Massnahmen_zur_Integration_von_Bildung_für_Nachhaltige_Entwicklung_M7.pdf). 'Éducation21' competence framework (<https://www.education21.ch/de/bne-kompetenzen>).

2.3. Promoting teacher professional development in sustainability

Not only new teachers, but also those already in service, need to build their knowledge and skills to deliver sustainability education. Although knowledge of sustainability issues can be acquired in school, through interaction between peers, by receiving guidance and support from school coordinators or by participating in sustainability projects or initiatives, it is also important that teachers have access to a range of relevant and high-quality CPD activities relating to sustainability education. This will facilitate teachers' understanding of sustainability issues, concepts and values and equip them with the skills and techniques to convey this understanding to their pupils.

This section investigates how regulations and schemes for CPD drawn up by top-level education authorities cover the following dimensions of sustainability education:

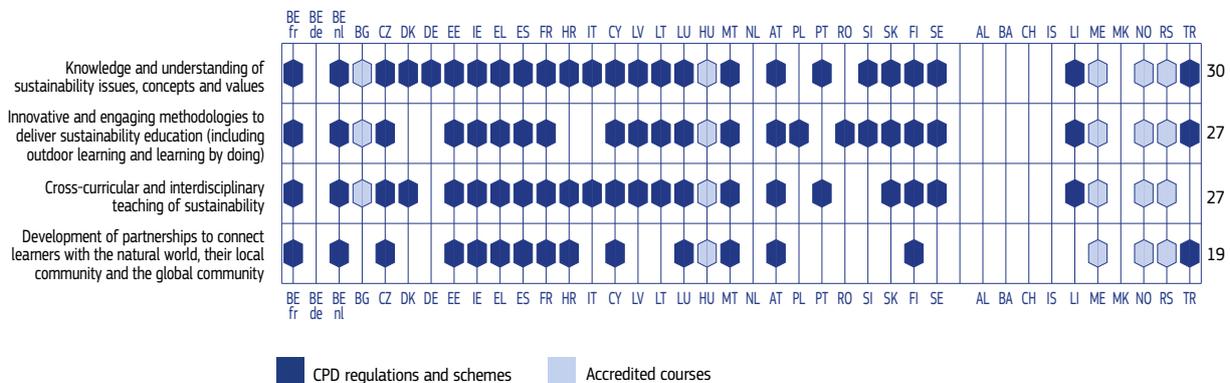
- knowledge and understanding of sustainability issues, concepts and values;
- innovative and engaging methodologies to deliver sustainability education (including, for instance, outdoor learning and learning by doing);
- cross-curricular and interdisciplinary teaching of sustainability;
- development of partnerships to connect learners with the natural world, their local community and the global community.

These four dimensions encompass the five overarching learning objectives for prospective teachers (Section 2.2). Rather than mapping the content of existing CPD programmes, the objective of this analysis is to provide insights into how education authorities ensure that teachers have the opportunity to learning about sustainability. However, CPD activities on sustainability may be available in the absence of these regulations, in particular in those countries that have decentralised training systems such as Poland, the Netherlands and Switzerland.

Figure 2.3 shows that regulations or schemes for teachers' professional development include sustainability education (albeit to different degrees) in all but seven education systems. However, the decision to take part in these courses or activities is usually left to the discretion of individual teachers or school managers. Whether and how education authorities monitor and evaluate actual participation rates deserves further investigation. CPD regulations or schemes include the learning of key sustainability issues, concepts and values in almost all of these education systems. Around two thirds cover innovative teaching methodologies and cross-curricular and interdisciplinary approaches, while just half address the development of partnerships for sustainability.

In a dozen education systems, regulations or schemes for CPD cover the four dimensions of sustainability education for primary, lower and upper secondary teachers. In half of these (i.e. in the Flemish Community of Belgium, Czechia, Estonia, Spain, Cyprus and Austria), these provisions are part of specific policy strategies regarding sustainability education.

Figure 2.3: Sustainability education in regulations and schemes for CPD (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Poland: The category 'innovative and engaging methodologies to deliver sustainability education' refers to ISCED levels 1 and 24.

In the Flemish Community of Belgium, the MOS sustainable schools programme and the sustainability education hub managed by the environment department provide CPD activities on sustainability for both teachers and school heads ⁽¹³⁸⁾. In Czechia, teacher CPD in environmental education and awareness raising (Environmentální vzdělávání, výchova a osvěta (EVVO)) is addressed in various strategic and methodological documents, and the National Pedagogical Institute and other accredited institutions provide a wide range of CPD activities in the field. The national environment fund provides financial support for teacher education in EVVO, relating to climate change education, outdoor and nature-based teaching, local community-based learning initiatives, digital teaching, waste prevention and the transition to a recycling economy. There is also dedicated training for school EVVO coordinators, which covers the four areas extensively (Section 2.4). In Estonia, the environmental education and awareness action plan, implemented by the Ministry of Education and Research and Ministry of Climate, supports the training of teachers and school leaders in areas such as outdoor learning, the green transition, the circular economy and biodiversity; it also supports the development of interdisciplinary materials, self-assessment methodologies and community-based initiatives ⁽¹³⁹⁾.

In Spain, the National Centre for Environmental Education (Centro Nacional de Educación Ambiental (Ceneam)) organises workshops, courses, seminars and study visits ⁽¹⁴⁰⁾. The environmental education action plan for sustainability (Plan de acción de educación ambiental para la sostenibilidad (PAEAS)), coordinated by the Ministry for Education, Vocational Training and Sports and the Ministry for Ecological Transition and Demographic Change and implemented by the autonomous communities, includes specific objectives and actions regarding the development of education programmes for teachers and cooperation between schools and universities ⁽¹⁴¹⁾. In Cyprus, following the national report on implementation of the UNECE strategy for ESD, sustainability coordinators in primary

schools receive dedicated training and then train the other teachers in their schools ⁽¹⁴²⁾. The Cyprus Pedagogical Institute also organises a wide range of optional programmes for primary and secondary teachers based on UNECE and RSP competence frameworks ⁽¹⁴³⁾. In Austria, teacher training organisations must comply with the content and objectives of the decree for environmental education for sustainable development and are recommended to use the competence compass (Section 2.1).

In the other six countries (French Community of Belgium, Greece, France, Luxembourg, Malta and Finland), the national teacher development programmes or training agencies provide CPD in the four dimensions for the three education levels. In the French Community of Belgium, the teacher professional development programme has a specific theme on sustainability. In Greece, the skills labs offer dedicated teacher training modules for primary and lower secondary teachers ⁽¹⁴⁴⁾, while education directorates, the Institute of Educational Policy and the environment and sustainability education centres (KEPEA) organise a wide range of courses, seminars and workshops. In France, CPD activities relating to ESD are organised by the national agency for CPD (Canopé) and, in each *académie* (education districts), by specialised teacher trainers.

In Luxembourg, sustainable development is one of the themes of the programme of the teacher education institute. Based on the SDGs, the relevant CPD activities cover the acquisition of key competences, the identification of links with the curriculum and interdisciplinary teaching. In Malta, the Institute for Education organises various CPD activities on sustainability concepts, issues and values, innovative methodologies, cross-curricular approaches and the development of partnerships. In Finland, sustainability is one of the policy priorities, and the Finnish National Agency for Education funds CPD activities aiming to strengthen a sustainable lifestyle and climate responsibility, prevent nature loss and promote the earth's health and a circular economy ⁽¹⁴⁵⁾. The activities cover

⁽¹³⁸⁾ <https://omgeving.vlaanderen.be/nl/homepage-duurzaam-educatiepunt>; <https://www.mosvlaanderen.be/>

⁽¹³⁹⁾ The 2023–2025 environmental education and awareness action plan (<https://kliimaministerium.ee/rohereform-kliima/keskkonnateadlikkus/keskkonnahariduse-ja-teadlikkuse-tegevuskava-2023-2025>).

⁽¹⁴⁰⁾ <https://www.miteco.gob.es/es/ceneam/quienes-somos.html>

⁽¹⁴¹⁾ Plan de acción de educación ambiental para la sostenibilidad, PAEAS, 2023 (<https://www.miteco.gob.es/es/ceneam/plan-accion-educacion-ambiental.html>).

⁽¹⁴²⁾ Cyprus national report on implementation of the 2017–2019 UNECE strategy for education for sustainable development (https://unece.org/DAM/env/esd/Implementation/NIR_2018/Final_Cyprus_3rd_evaluation_Cycle_2017-2019.pdf).

⁽¹⁴³⁾ Ministry of Education and Culture, 2017, *Υλοποίηση της Ενιαίας Πολιτικής για την Επαγγελματική Μάθηση των εκπαιδευτικών κατά το 2017–2018* (Implementing a unified policy for teachers' professional development during 2017–2018) (<http://enimerosi.moec.gov.cy/archeia/1/ypp6177a>).

⁽¹⁴⁴⁾ <http://iep.edu.gr/el/psifiako-apothetirio/skill-labs>

⁽¹⁴⁵⁾ Ministry of Education and Culture, 2022, 'Teacher education development programme 2022 – 2026'. (<https://julkaisut.valtioneuvosto.fi/handle/10024/164179>). Finnish National Agency for Education CPD funding (<https://www.oph.fi/fi/funding/opetustoimen-ja-varhaiskasvatuksen-henkilostokoulutus-2022>; <https://www.oph.fi/fi/funding/opetustoimen-henkilostokoulutus-2023>).

knowledge, skills, attitudes and values, innovative pedagogical methods, the use of digital tools and new technologies.

In Ireland, the professional development and assessment of educators is one of the priorities of the second national strategy on ESD to 2030, which recommends that summer courses for primary teachers include references to sustainable development and the organisation of specific courses with a focus on ESD ⁽¹⁴⁶⁾. ESD is also part of the professional learning experiences for secondary teachers of subjects such as science, home economics and civil, social and political education ⁽¹⁴⁷⁾.

CPD regulations or schemes for primary, lower and upper secondary teachers cover two or three of these dimensions of sustainability education in 11 countries. In Denmark, 'sustainability in pedagogical practice' and 'environment and innovation' are two of the academic diplomas available to teachers for their professional development. In Italy, the implementation of training courses to promote sustainability and global citizenship is one of the priorities of the teacher professional development plan ⁽¹⁴⁸⁾. In Latvia, ESD is among the general competences that teachers may choose to include in their professional development plans, including transversal skills, interdisciplinary approaches and innovative methodologies. In Slovenia, sustainable development and active citizenship, and innovative teaching and learning approaches, are two of the priorities of the national policy for teacher professional development, which provides the basis for funding CPD programmes. In Croatia, Lithuania, Portugal, Slovakia, Sweden, Liechtenstein and Türkiye, education authorities or national agencies in charge of teacher professional development provide training activities covering two or three of these dimensions of sustainability education.

Three other countries address just one of these dimensions of sustainability education. In Germany, the focus is on understanding key sustainability concepts, issues and values, while in Poland ⁽¹⁴⁹⁾ and Romania ⁽¹⁵⁰⁾ the provisions mainly refer to outdoor learning and learning by doing.

Finally, in Bulgaria, Hungary, Montenegro and Serbia, courses on sustainability education are among those accredited by education authorities. The accreditation procedure aims to ensure that CPD activities cover the knowledge and competences required for in-service teachers. Similarly, in Norway, to receive government funds, CPD activities must comply with the national guidelines for teacher education and the national curriculum for basic education, both of which cover sustainability (see Chapter 1 and Section 2.2).

2.4. Building school leadership for sustainability

School leaders are key change agents for embedding sustainability within schools, owing to their privileged decision-making position and capacity to influence school organisational conditions (Kadji-Beltran, Zachariou and Stevenson 2013; Cebrián et al., 2022). Empirical studies suggest that school leaders' knowledge, intrinsic motivation and commitment to sustainability, together with the active involvement of staff and community, play a key role in leading the inclusion of sustainability in school policy and practice (Mogren and Gericke, 2017, 2019; Gan, 2021).

Sustainability leadership consists of sharing actions, learning and responsibilities, and empowering individuals to become active agents of change towards sustainability (Hargreaves and Fink, 2006). It seeks transformation rather than adaptation, is future oriented and interdisciplinary and requires efficient and collaborative management and governance systems. Sustainability leaders need to translate a vision into a comprehensive transformative process, negotiate changes with different organisations and at the different institutional levels and engage and support school staff and the community (Scott et al., 2012).

Sustainability leadership is not limited to school heads. There is widespread agreement that distributed and transformative leadership is the most suitable approach to create sustainable schools and to engage the education community in sustainability (Algan and Ummanel, 2019; Tilbury and Galvin, 2022). Distributed leadership facilitates

⁽¹⁴⁶⁾ *ESD to 2030: Second national strategy on education for sustainable development* (<https://assets.gov.ie/228330/c69895a6-88f0-4132-b6d1-9085a9c31996.pdf>).

⁽¹⁴⁷⁾ <https://jct.ie/home/home>; www.pdst.ie/SC/Subjects; <https://oide.ie/>

⁽¹⁴⁸⁾ Ministerial note No 45528/22-12-2022 for CPD (<https://www.miur.gov.it/web/molise/-/formazione-docenti-in-servizio-anno-scolastico-2022-2023-nota-ministeriale-prot-n-45528-22-12-2022>). The July 2023 memorandum of understanding between the Italian government and the Italian Alliance for Sustainable Development also aims to promote training on sustainability for in-service teachers, including cross-curricular and interdisciplinary approaches and the development and use of innovative pedagogies and learning materials.

⁽¹⁴⁹⁾ In Poland, as part of the future labs, schools can buy equipment and teachers can receive training to study natural phenomena and processes.

⁽¹⁵⁰⁾ In Romania, one of the objectives of the 2023–2030 national strategy on education for the environment and climate change (<https://www.edu.ro/sites/default/files/SNEM.pdf>) is the training of educators, including a specific action regarding outdoor education.

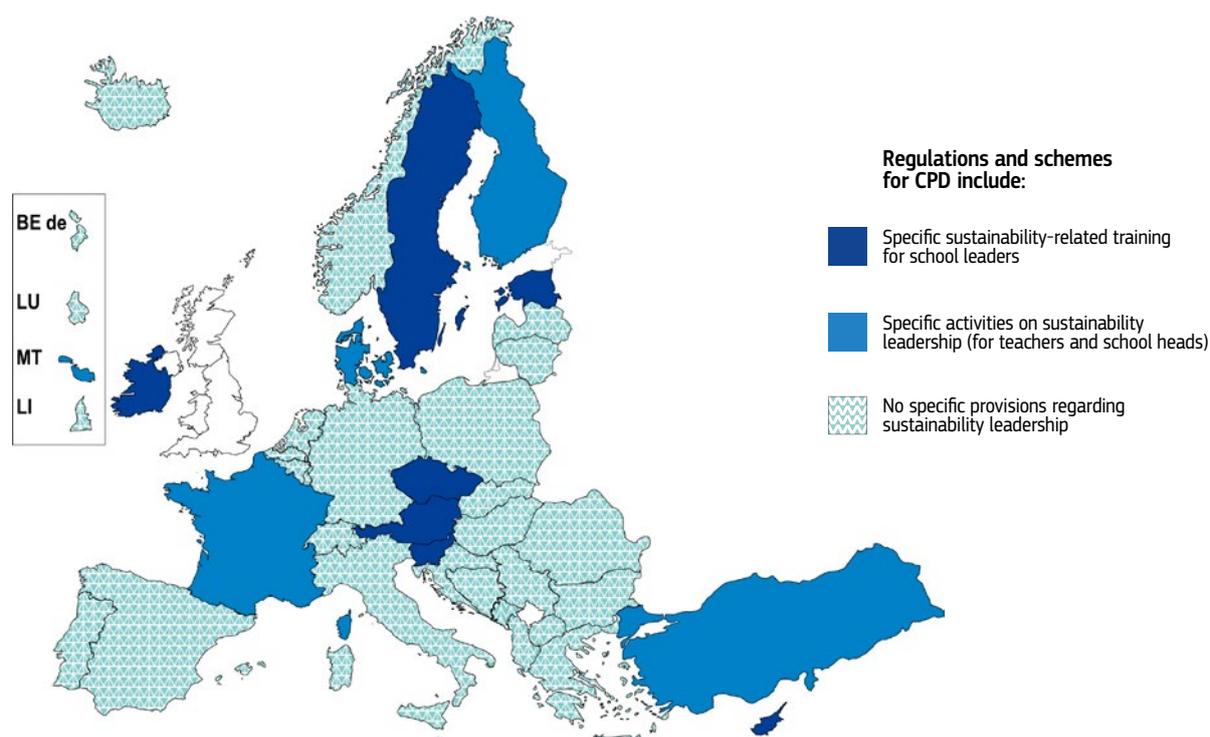
organisational change, as it means that school leaders devolve decision making and seek the cooperation of all staff and school members, which in turn leads to sustained organisational improvement (Harris, 2011; Spillane, 2012). Transformational or transformative leadership goes a step further in terms of critical thinking and questioning, as it focuses on changing existing assumptions, attitudes and behaviours associated with sustainability (Byung-Jik, Tae-Hyun and Se-Youn, 2018).

Most countries in this study report that regulations and schemes for CPD described in the previous section apply not only to teachers but also to school heads, who usually have access to the same training opportunities. In addition, education authorities may provide for specific CPD to build

the capacity of school leaders for sustainability. As the European Commission pointed out in the staff working document accompanying the 2022 Council recommendation, this type of CPD is not systematically available in all EU countries (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2020).

As shown in Figure 2.4, only a dozen education systems include sustainability leadership in regulations or schemes for CPD. Seven of these systems provide for specific training on sustainability for school heads, middle management positions or sustainability leaders, while another five provide for CPD activities with a focus on sustainability leadership, which are available also to teachers.

Figure 2.4: Inclusion of sustainability leadership in regulations and schemes for CPD (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice

Cyprus is the only country where all new head teachers must take a mandatory course on ESD, covering key concepts and issues, how to develop sustainable schools and overcome potential obstacles, and how to support teachers to embed ESD in their work. The training is supplemented by school visits. School heads can also seek help from coaches and advisors when developing the ESD school action plans and objectives.

Six other countries (Czechia, Estonia, Ireland, Austria, Slovenia and Sweden) report the provision of specific but non-mandatory CPD activities on sustainability for school leaders. In Czechia, in addition to the courses and seminars provided by the National Pedagogical Institute, specific training is available for school EVVO coordinators. The course covers sustainability concepts, issues and objectives; reliable sources of information and research; outdoor learning and learning by doing; interdisciplinary approaches and incorporation of environmental topics into science and humanities subjects; team motivation and interdisciplinary cooperation; development of partnerships; and promotion and dissemination of a school's activities. The training also aims to provide EVVO coordinators with the necessary competences to perform their duties, including the evaluation and analysis of EVVO at school, the elaboration and implementation of the school programme for EVVO, the engagement of teaching and operational staff, the design of proposals for a greener, more sustainable operation of the school and fundraising.

In Estonia, the environmental education and awareness action plan supports CPD activities in ESD and environmentally conscious management for school leaders, and initiatives to make schools active community leaders in environmental and sustainable development. In Ireland, transforming learning environments (including the development of leadership for ESD and whole-institution approaches) and building the capacity of educators (including the training of school leaders) are among the priorities of the second national strategy on ESD to 2030. The Austrian education authorities have developed a handbook for ecological school management, which aims to support Ökolog schools in the preparation of development and implementation plans, ecological school management and promoting teacher engagement⁽¹⁵¹⁾. The handbook covers sustainability leadership competences such as the capacity to recognise ecological, economic and

social impacts; analyse and understand systemic interrelationships between individuals, society and the environment; adopt and adapt points of view and perspectives; plan, execute and evaluate environmental actions in a participatory manner; approach the environment in an interdisciplinary and exploratory manner; participate in networks; and develop partnerships with other institutions at the local, regional and national levels.

In Slovenia, the national school for leadership organises ESD training for school leaders (including inclusive approaches to school development and distributive leadership), the network of learning schools provides training on holistic approaches and the education ministry organises several workshops in this field. 'Leading learning for sustainable development for school leaders' is a course for school heads and middle management positions funded by the Swedish national agency for education and provided by different Swedish universities.

A few other countries report CPD activities on sustainability leadership available to teachers and school heads. In Denmark, leadership and sustainability, and career guidance and sustainability, are among the diploma programmes for teachers' professional development. Sustainability leadership is included in the national teacher training plan in France⁽¹⁵²⁾, and in the courses offered by teacher education agencies in Malta and Türkiye. The Finnish National Agency for Education supports CPD programmes aiming to develop competences regarding the management of sustainability.

⁽¹⁵¹⁾ *Handbook for Ecological School Management: Environmental education for sustainable development* (https://oekolog.at/dokumente/100/bmbf_oekolog_handbuch17_web.pdf).

⁽¹⁵²⁾ From September 2023, CPD in awareness raising of sustainability leadership is being strengthened and generalised among managers in public administration, including some senior school heads.

2.5. Supporting teachers in delivering sustainability education

The 2022 Council recommendation identifies other additional measures that can help educators to deliver learning for sustainability at school, including the creation of roles such as sustainability coordinator and the provision of access to mentoring schemes and centres of expertise.

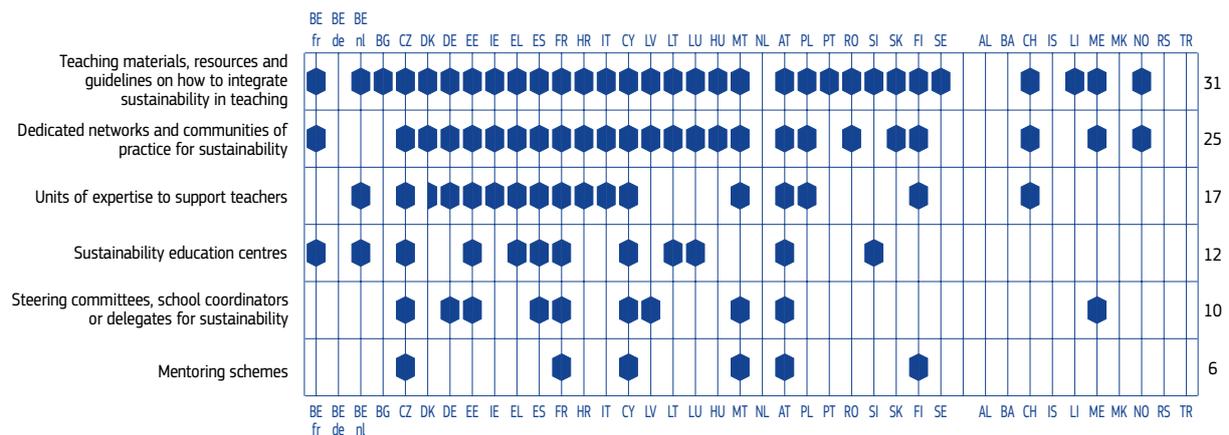
This section investigates the provision of the following support measures by education systems across Europe:

- development of teaching materials, resources and guidelines on how to integrate sustainability in teaching;
- creation of dedicated networks and communities of practice for sustainability;

- support from units of expertise;
- creation of sustainability education centres;
- appointment of steering committees, school coordinators or delegates for sustainability;
- access to mentoring schemes on sustainability.

As shown in Figure 2.5, around three quarters of the education systems examined support teachers with teaching materials, resources or guidelines, and often also with the creation of dedicated networks and communities of practice. Teachers receive support from units of expertise in less than half of the systems, and from sustainability education centres and school coordinators in less than a third. Only a few of them have special mentoring schemes.

Figure 2.5: Measures to support teachers delivering sustainability education (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Denmark: The category 'units of expertise' applies only to ISCED 34.

The most common support measure is the development of teaching materials, resources and guidelines to help teachers integrate sustainability into their teaching practice. This support measure is available in all but eight education systems (the German-speaking Community of Belgium, the Netherlands, Albania, Bosnia and Herzegovina, Iceland, North Macedonia, Serbia and Türkiye), where no support measures are reported.

The development of teaching materials, resources and guidelines is the only support measure in Bulgaria, Portugal, Sweden and Liechtenstein. In the Flemish Community of Belgium, the sustainability education hub (*Duurzaam educatiepunt*) offers teaching resources and practical tools to enhance learning for sustainable development and runs three sustainability education centres welcoming teachers and their students. In Slovenia, the guidelines for ESD cover teacher training, the development of teaching materials and resources and the promotion of research and cooperation with other stakeholders⁽¹⁵³⁾. According to the guidelines, schools should plan ESD in relevant school documents. The Centre for School and Outdoor Education (ČŠOD), which runs 26 facilities across the country, supports schools in implementing outdoor activities and provides training and induction in research work.

The other 24 countries that provide teaching materials, resources and guidelines also have dedicated networks and communities of practice, which is the second most common support measure. Hungary, Romania, Slovakia and Norway report only these two support measures while the other 20 education systems provide additional support to teachers by means of units of expertise, sustainability education centres, mentors, school coordinators or steering committees. The following analysis provides further details on these systems in ascending order of number of support measures available.

In addition to offering a wide range of teaching materials and resources and access to dedicated networks, Ireland, Croatia, Italy, Poland and Switzerland have units of expertise to support teachers in delivering learning for sustainability. Teachers in Denmark (only those in upper secondary schools) receive additional support from learning advisors, while those in Latvia are supported by municipal sustainability coordinators and those in Montenegro are supported by eco-schools

coordinators. In the French Community of Belgium, Lithuania and Luxembourg, teachers receive additional support from specialised education centres.

Germany, Greece and Finland report four of these support measures. In Germany, the Ministry of Education and Research and the Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection provide teaching materials and learning resources, while the *Länder* have established coordination offices, support agencies, working groups, school contact points and specialised counsellors. In Greece, the skills labs offer educational materials and resources for teachers⁽¹⁵⁴⁾, while the environment and sustainability education centres (KEPEA) conduct research and analysis, develop materials, resources and guidelines, support schools in designing and implementing activities, and promote the development of partnerships and networks⁽¹⁵⁵⁾. The regional councils of quality education supervisors (PESEP) promote and support teacher education on sustainability, cooperation among organisations and institutional levels and the development of school plans for sustainability. In Finland, the education authorities have released a guide for the development of learning, school culture and everyday sustainable practices⁽¹⁵⁶⁾, and have created a network of schools running sustainability projects and offering support and coaching to participating teachers and school leaders⁽¹⁵⁷⁾.

Estonia, Spain and Malta report five of these support measures. In Estonia, the environmental education and awareness action plan recommends the development of teaching materials, cooperation between schools and sustainability education centres and the creation of dedicated networks of teachers for sustainability. Schools with the eco-school label have a school coordinator to support the programme activities. In Spain, the National Centre for Environmental Education (Ceneam) provides information and research on sustainability, learning materials, resources, seminars, study visits and communication campaigns. Red estatal de redes de escuelas sostenibles (ESenRED) is a national network of sustainable schools created by an initiative of the central and regional education authorities in cooperation with Ceneam that aims to facilitate exchanges, collaboration and dissemination of actions, resources and ideas; promote reflection, evaluation and innovation in teaching practice; and develop common projects

⁽¹⁵³⁾ https://www.gov.si/assets/ministrstva/MVI/SRI/nacionalne_smernice_VITR_2007.pdf

⁽¹⁵⁴⁾ <http://iep.edu.gr/el/psifako-apothetirio/skill-labs>

⁽¹⁵⁵⁾ Law 4823/2021, Arts 6 and 18, pp. 8935 and 8949–8950 (https://www.et.gr/api/DownloadFeksApi?fek_pdf=20210100136).

⁽¹⁵⁶⁾ <https://www.oph.fi/fi/kestava-tulevaisuus>

⁽¹⁵⁷⁾ <https://okm.fi/-/mittava-ilmasto-ja-kestavyyskasvatushanke-tukemaan-koulujen-ja-oppilaitosten-ilmastotyota>; <https://www.oph.fi/fi/kehittaminen/kestavyyskasvatuksen-kehittamishanke>

and initiatives to improve students' and teachers' competences ⁽¹⁵⁸⁾. In addition, many autonomous communities have established units of expertise to support teachers or regulated the appointment of school coordinators for sustainability. In Malta, the Directorate for Learning and Assessment Programmes offers a wide range of resources, provides coaching to teachers, supports schools in the development of teacher education plans and the implementation of the whole-school approach and organises meetings to share and exchange information and best practices. Eco-schools have a student committee coordinated by an educator.

Finally, Czechia, France, Cyprus and Austria report the most comprehensive approaches (covering all six support measures). In Czechia, teachers and school heads have access to teaching materials and resources provided by the National Pedagogical Institute ⁽¹⁵⁹⁾, the Ministry of the Environment during the European sustainable development week ⁽¹⁶⁰⁾ and the Ministry of Agriculture regarding forest life and protection ⁽¹⁶¹⁾. Malý rádce kvalitní ekologické výchovy (MRKEV), which brings together around 700 schools, is one of the many networks in the country ⁽¹⁶²⁾. Pavučina (network of environmental education centres) provides teacher training and promotes the introduction of quality standards and assessment tools and the sharing and dissemination of good practices ⁽¹⁶³⁾. School EVVO coordinators (Section 2.4) provide coaching and mentoring for teachers and school heads and are responsible for evaluating sustainability education in school and for the preparation and implementation of the annual school programme. The committee on ESD (with representatives from several ministries, non-governmental organisations (NGOs) and higher education institutions) provides guidance regarding the implementation of sustainability-related initiatives in school ⁽¹⁶⁴⁾. The eco-centres (financed by the Ministry of the Environment) aim to promote environmental education and public awareness by

providing training and resources and organising activities ⁽¹⁶⁵⁾. So-called houses of nature, sited in protected areas, provide educational programmes and learning materials for visitors and schools ⁽¹⁶⁶⁾.

In France, the Ministry of National Education ⁽¹⁶⁷⁾, Canopé ⁽¹⁶⁸⁾ and the *académies* ⁽¹⁶⁹⁾ provide a wide range of teaching resources and materials. Additional resources are offered by the Ministry of Ecological Transition and Territorial Cohesion, the major national scientific centres (the Centre national de la recherche scientifique (CNRS) ⁽¹⁷⁰⁾, the natural history museum ⁽¹⁷¹⁾, the Institut français de recherche pour l'exploitation de la mer (Ifremer) ⁽¹⁷²⁾, the science houses ⁽¹⁷³⁾, the French Office for Biodiversity ⁽¹⁷⁴⁾), and some associations and NGOs with which there are national or local agreements. At the central level, there is a senior official for ESD and a general inspector, each of whom has specific responsibilities. In each *académie*, there is an ESD head of mission (responsible for the CPD plan, promoting ESD, sharing skills and coordinating ESD representatives from *départements* and schools), an ESD steering committee and a committee for health, citizenship and environmental education. The ESD senior official and the general inspector hold several meetings a year with the heads of mission to exchange information and best practices. At the school level, there is an ESD coordinator providing support and guidance for teachers and school heads. Secondary schools also have a health, citizenship and environmental school committee, with student representation, which designs, implements and evaluates school actions in line with local and national priorities and actions as well as those of the *académies*. A national forum is organised every year to bring together ESD coordinators and representatives of all levels, other stakeholders and school partners.

Cypriot education authorities have developed multimodal tools around different sustainable development topics, using specific methodology, for

⁽¹⁵⁸⁾ <https://www.miteco.gob.es/es/ceneam/recursos/mini-portales-tematicos/esenred/que-es-esenred.html>

⁽¹⁵⁹⁾ National Pedagogical Institute: virtual school (Národní pedagogický institut České republiky – Virtuální škola) (<https://www.npi.cz/virtualniskola>); methodological portal RVP.CZ (Metodický portálu RVP.CZ) (<https://rvp.cz/>); catalogue EMA (<https://ema.rvp.cz/>).

⁽¹⁶⁰⁾ <https://www.tydenudrizitelnosti.cz/pro-skoly/>

⁽¹⁶¹⁾ <https://www.lesnipedagogika.cz/cz/lesni-pedagogika>

⁽¹⁶²⁾ <http://www.pavucina-sev.cz/rubrika/70-PROGRAMY-MRKEV/index.htm>

⁽¹⁶³⁾ <http://www.pavucina-sev.cz/>

⁽¹⁶⁴⁾ Committee on Education for Sustainable Development (Výbor pro vzdělávání k udržitelnému rozvoji) (<https://www.cr2030.cz/rvur/vybor-pro-vzdelavani-k-udrizitelnemu-rozvoji/>).

⁽¹⁶⁵⁾ <https://www.ekocentra.cz/>

⁽¹⁶⁶⁾ <https://www.dumprirody.cz/domy-prirody/> (CZ); <https://www.dumprirody.cz/en/> (EN).

⁽¹⁶⁷⁾ <https://eduscol.education.fr/1117/education-au-developpement-durable>

⁽¹⁶⁸⁾ <https://www.reseau-canope.fr/notice/education-au-developpement-durable.html>

⁽¹⁶⁹⁾ The *académies* are the territorial administrative divisions of the Ministry of National Education in France.

⁽¹⁷⁰⁾ <https://sagascience.com/>

⁽¹⁷¹⁾ <https://www.mnhn.fr/fr/decouvrir-les-ressources-pedagogiques>

⁽¹⁷²⁾ <https://www.ifremer.fr/fr/ressources>

⁽¹⁷³⁾ <https://maisons-pour-la-science.org/>

⁽¹⁷⁴⁾ <https://www.ofb.gouv.fr/ressources-pour-les-eleves-et-les-enseignants>

each grade and different learning levels⁽¹⁷⁵⁾. The recently produced 'smart' books for the SDGs are being distributed to all schools to inform, engage and motivate students. There is a network of eco-schools, a network of environmental education centres and a specific unit (in the ministry) to support the effective integration of environmental education and sustainable development at all education levels in a harmonised and holistic way. Some teachers receive dedicated training and act as coordinators in their schools and as contact points with the unit of expertise in the ministry. ESD school advisors can provide coaching to teachers, and there is a pilot project for senior teachers to mentor new teachers in delivering sustainability education.

In Austria, Ökolog has established regional networks in every province as well as coordinators at the participating schools and university colleges of teacher education, with the aim of fostering a sustainable school culture⁽¹⁷⁶⁾. School coordinators in the 700 Ökolog schools and 14 university colleges of teacher education have formed ESD teams to foster the implementation of ESD at their schools. They are supported by regional steering teams (consisting of teachers, members of educational boards, state governments, university colleges of teacher education and NGOs). Ökolog offers materials and tools for teaching, provides training and individual coaching in the field of ESD and organises events and seminars. The environmental education centre Styria offers a wide range of teaching materials, courses and training on ESD⁽¹⁷⁷⁾. The Environmental Education Forum, organised by the Ministry of Education, Science and Research and the Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, provides courses, lectures, materials for schools, podcasts and project funding. Three of the six Austrian education competence centres are also engaged in ESD.

2.6. Conclusion

Teachers have a key role in the development of sustainability competences among learners, but it is essential to provide them with targeted support, guidance and training. The large majority of European countries provide CPD activities on sustainability and other support measures for in-service teachers. However, only a minority set sustainability-related learning objectives or content requirements for teacher education programmes and degrees.

Only a dozen education systems have embedded sustainability-related competences in general or specific teacher competence frameworks (Figure 2.1), and less than half include sustainability-related learning objectives in regulations and guidelines setting the minimum standards or content for ITE programmes (Figure 2.2). These objectives tend to refer to the understanding of key sustainability concepts, values and issues and their incorporation in teaching from an interdisciplinary perspective – stimulating critical thinking, visioning, problem-solving and understanding of and respect for others' values. Learning objectives relating to political agency, individual and collective responsibility, systems thinking and, especially, the development of partnerships for sustainability are covered less often.

In contrast, regulations or schemes for CPD include sustainability education in all but seven systems (Figure 2.3). Here the challenge lies in creating incentives to ensure teachers' participation in activities that are usually voluntary. In the case of the professional development of in-service teachers, the understanding of key concepts, issues and values receives the greatest attention, followed by innovative and engaging methodologies and cross-curricular and interdisciplinary teaching approaches. The focus is less often placed on building teachers' capacity to create partnerships to connect learners with the natural world and the local and global communities. Although these CPD provisions usually apply to school heads too, a dozen education systems provide for specific professional development in sustainability for school leaders or for specific activities with a focus on sustainability leadership (Figure 2.4).

The large majority of education systems provide teaching materials, resources or guidelines on how to integrate sustainability in teaching, and they often also support the creation of dedicated networks or communities of practice where teachers and school heads can exchange information, share best practices and build partnerships (Figure 2.5). Teachers can receive support from units of expertise in almost half of the systems, and from sustainability education centres in a dozen of them. Support from school coordinators or mentors is organised in only a few countries.

⁽¹⁷⁵⁾ <https://peeaad.schools.ac.cy/index.php/el>

⁽¹⁷⁶⁾ Ökolog (<https://oekolog.at/>).

⁽¹⁷⁷⁾ <https://www.ubz-stmk.at/>

Chapter 3: Whole-school approaches to sustainability, support for schools and monitoring

Learning for sustainability is a holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment. As such, it calls for the use of whole-school approaches and requires wide-ranging changes. These changes concern the school culture and ethos, facilities and operations, physical spaces, infrastructures, organisational structures, governance, resource management and usage (e.g. energy, recycling, water and paper consumption), pedagogical approaches, curriculum delivery, stakeholders' collaboration and partnerships with the local community (Evans, Whitehouse and Gooch, 2012; Watson et al., 2013; Jucker and Mathar, 2015). A whole-school approach to sustainability creates spaces for learning and practising sustainability across the school environment and spaces where the curriculum is connected to the school sustainability practices in all its areas of activity (UNESCO, 2017; Tilbury and Galvin, 2022).

While there has been progress in integrating learning for sustainability in schools during the past decades, it appears that whole-school approaches that embed sustainability in school activities are not widespread everywhere (UNESCO, 2020). The Council recommendation on learning for the green transition and sustainable development from June 2022 notes that 'whole-institution approaches to sustainability incorporating all areas of activity are not always sufficiently present' ⁽¹⁷⁸⁾. It also recommends that EU Member States 'encourage and facilitate effective whole-institution approaches to sustainability which encompass teaching and learning, vision, planning and governance; active learner and staff participation; involvement of families; management of buildings and resource; partnerships with local and wider communities, and research and innovation' ⁽¹⁷⁹⁾. According to the European Commission (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021), comprehensive

policies are lacking regarding whole-institution approaches for sustainability in schools. This leads to a situation where the integration of sustainability may depend on the availability of resources and on the personal interest or intrinsic motivation of teachers and school principals. Experts note that challenges in the adoption of whole-school approaches to sustainability are related to insufficient coverage of the topic in ITE, low levels of knowledge and motivation among teachers, lack of resources and/or expertise at schools and low levels of staff collaboration and teamwork due to different perceptions and levels of understanding of sustainability (Mogren and Gericke, 2019; Tilbury and Galvin, 2022).

Ideally, schools should be offering learning environments and experiences that facilitate the development of sustainability competences, while developing missions and educational plans that pursue social justice, sustainability and equity goals (Wiek, Withycombe and Redman, 2011; Brundiers et al., 2021). Existing research into transformative learning for sustainability asks for the creation of open and transdisciplinary learning environments and the development of hybrid and active pedagogies that engage multiple stakeholders and voices in communicative and critical reflection processes (Bürgener and Barth, 2018; Lotz-Sisitka et al., 2015; Mulà, Cebrián and Junyent, 2022; Wals, Mochizuki and Leicht, 2017).

Schools participating in sustainable schools' programmes, such as the Eco (or Green) Schools ⁽¹⁸⁰⁾ or the UNESCO Schools Network programme ⁽¹⁸¹⁾, develop similar actions, such as energy and waste management programmes, problem-solving, environmental actions and awareness campaigns (Green and Somerville, 2015). These school initiatives have stimulated change processes, the adoption of strategic planning and vision towards sustainability, the improvement of environmental management and

⁽¹⁷⁸⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽¹⁷⁹⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽¹⁸⁰⁾ <https://www.ecoschools.global/>

⁽¹⁸¹⁾ <https://www.unesco.org/en/aspnet>

the integration of sustainability-related pedagogies in the curriculum. However, a paradigm shift or holistic transformation has yet to take place (Symons, 2008; Jucker and Mathar, 2015). Although sustainability school programmes appear to have a largely positive impact on schools' environmental management and performance (Gough, Lee and Tsang, 2020), the evidence regarding pedagogical outcomes is limited, yielding mixed results.

A study by Mogren, Gericke and Scherp (2019) on the differences between sustainability-active schools and reference schools in Sweden found that sustainability schools have higher-quality school improvement processes and more coherent organisation in general, with a greater potential to encourage practical implementation of sustainability-related teaching and pedagogical approaches. Laurie et al. (2016) studied sustainability schools in 14 countries, including Belgium, Germany, Estonia, the Netherlands, Finland and Sweden. They reported that students from these schools demonstrate more than learning of knowledge; they develop critical thinking and research skills, and a deeper understanding of sustainability as a whole. Boeve-de Pauw and Van Petegem (2018) focused on the effectiveness of the Eco-Schools project in Flanders (Belgium) and found that Eco-Schools had a positive educational impact on students' cognitive environmental outcomes (i.e. in terms of theoretical knowledge), but less of an impact on applied knowledge (i.e. in relation to behavioural outcomes). Similarly, a study carried out in Slovenia found significant differences between Eco-School students and other school students in their environmental knowledge, but not in their behaviour or attitudes towards the environment (Krnj and Naglič, 2009). However, the assessment of a pilot project implementing the Eco-Schools programme in kindergartens in Czechia showed that the implementation led to increased pro-environmental attitudes among children (Cincera et al., 2017). Previous studies found that Eco-Schools had a limited effect on students' environmental knowledge, attitudes or behaviour (Spinola, 2015; Olsson, Gericke and Chang Rundgren, 2016), but more recently another study has shown that the Eco-Schools programme has a significant influence on all three aspects (Gan et al., 2019).

Olsson, Gericke and Boeve-de Pauw (2022) explored the implementation of sustainability-related pedagogies and found that these have a positive effect on students' action competence for sustainability. Thus, it is important to focus on the didactics of learning for sustainability, ensuring the pedagogical use of green elements, outdoor learning, hands-on, experiential, place-based and learner-centred approaches and integrated

and cross-curricular approaches that promote the acquisition of cognitive, socio-emotional and behavioural learning outcomes (UNESCO, 2017; Tilbury and Galvin, 2022).

In a similar vein, Papadopoulou, Kazana and Armakolas (2020) argue that using a school garden for education purposes provides multiple benefits, such as better emotional, social and physical health, and acts a pathway to experiential learning and sustainability in practice. Outdoor education and outdoor learning (especially fieldwork, field trips and nature studies) offer valuable learning opportunities to students, allowing them to experience natural environments, learn interdisciplinary aspects of the world outside the school and gain a deeper understanding of sustainability (Jeronen, Palmberg and Yli-Panula, 2017).

The existing research literature also underlines the importance of linking learning to the local community, which has the benefits of instilling in learners a sense of belonging to the environment, fostering partnerships and engaging learners and citizens in climate change and sustainability action (Symons, 2008; Green and Somerville, 2015). It is important to engage students in community learning and sustainability action, in the form of service-learning programmes, education-community projects and collaborations with active stakeholders, as these activities provide different perspectives and knowledge from inside and outside academia (UNESCO, 2017; Anderson and Jacobson, 2018; Östman, Van Poeck and Öhman, 2019; Taylor et al., 2019). Collaborations with community actors can ensure that educators and leaders have the motivation, qualifications, financial resources and support they need to integrate sustainability into school education (Mogren, Gericke and Scherp, 2019; European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). In this sense, conceiving the school as a living laboratory and connecting students' experiences to sustainability concerns and decision-making processes within the education context is critical to make sustainable lifestyles, behaviours and choices part of transformative learning (Jucker and Mathar, 2015; Tilbury and Galvin, 2022).

The support of families, but also of the community or municipalities in general, is fundamental to the engagement of students and the whole educational institution in sustainability (Evans, Whitehouse and Gooch, 2012; Duarte, Escario and Sanagustín, 2017). In fact, there is a positive correlation between the environmental behaviour of parents and that of their children (OECD, 2022). Assuming that behaviour reflects values, parents can pass their values on to their children by exhibiting

sustainability-friendly behaviour. Children, in turn, can pass on to their parents the values and behaviour they have internalised at school. The potential of students and young people to act as change agents within their societies is reflected in the emergence of youth social movements in sustainability and climate change, such as Fridays for Future (Biasutti, 2015; Deisenrieder et al., 2020).

While many of the actions needed to develop whole-school approaches to sustainability are necessarily designed and implemented by schools themselves, reflecting their autonomy, this chapter is concerned with top-level actions that aim to create supportive and effective learning environments that enable the school as a whole to be active in the area of sustainability. These top-level actions include guidance for sustainability strategies at the school level, promotion of cooperation with non-school actors, and investment in relevant school infrastructure and school projects. More specifically, the chapter is structured as follows. Section 3.1 presents data on guidance and support for whole-school approaches to sustainability. Section 3.2 looks at the availability of national or regional sustainability school labels and other non-financial measures for the promotion of learning for sustainability. Section 3.3 examines what kind of small-scale school infrastructure and school projects that are relevant to learning for sustainability top-level authorities invest in. Section 3.4 asks if top-level authorities support school projects that engage with non-school actors, such as NGOs or parents. Finally, Section 3.5 explores whether the ways in which schools embed sustainability in their activities is being monitored.

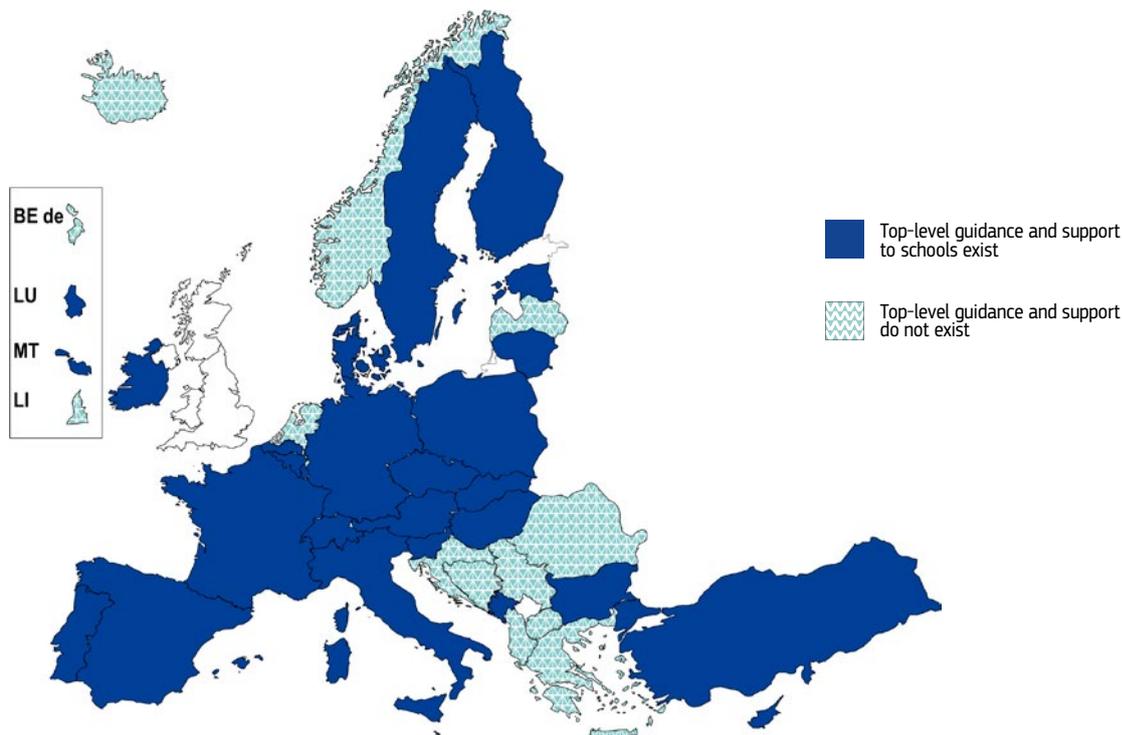
3.1. Guidance and support for whole-school approaches to sustainability

Top-level authorities have an important role to play in enabling schools to develop learning for sustainability. A recent report has found that most EU Member States have put in place system-level strategies or action plans related to sustainability, which is a sign of the increasing importance of this domain (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). Beyond the key areas of teaching and learning, schools also need to be supported with guidance and resources in their efforts to ‘act and live sustainability on a daily basis’ (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2022). The following analysis is focused on the existence of specific top-level guidance and support for developing whole-school approaches to sustainability.

It has been noted that, although there are examples of learning for sustainability being embedded through whole-school approaches, these remain rare (UNESCO, 2014; Gough, Lee and Tsang, 2020; European Commission, Directorate-General for Education, Youth, Sport and Culture, 2021). Thus, there is still a need to question and reframe the role of schools and other educational institutions and current pedagogical and institutional approaches (Sterling et al., 2017; Wals, 2020). Recent analyses have identified key factors that contribute to the success of a whole-school approach to sustainability, such as a whole-school plan, a future-oriented perspective, students getting hands-on experience and embracing complexity, a wide thematic focus that includes not only environmental but also societal and economic issues and an emphasis on distributed leadership (Tilbury and Galvin, 2022, pp. 13–14). Similarly, Verhelst et al. (2020) set out eight key characteristics for an effective school organisation: sustainable leadership, school resources, pluralistic communication, supportive relations, collective efficacy, adaptability, democratic decision-making and shared vision.

Figure 3.1 shows that the top-level authorities in two thirds of education systems provide guidance and/or tools to support schools in developing whole-school approaches to sustainability.

Figure 3.1: Guidance and support to schools in developing whole-school approaches to sustainability (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Cyprus: Top-level guidance and support applies only to ISCED 1.

Education ministries and other government bodies publish guidelines, organise webinars, create websites that collect pedagogical resources, compile best practices and publish handbooks and teacher manuals. In many cases, the impetus for top-level guidance and support is linked to the UN's 2030 Agenda for Sustainable Development⁽¹⁸²⁾ and other international initiatives, such as the Eco-Schools programme⁽¹⁸³⁾. In addition, Erasmus+ projects also provide specific advice and guidelines⁽¹⁸⁴⁾. In the majority of education systems, top-level guidance refers directly to sustainability; however, in some education systems, such guidance may be included in actions aimed at promoting science, technology, engineering and mathematics or citizenship education.

Figure 3.2 presents information about specific areas that receive the most guidance and/or support for whole-school approaches to sustainability. It shows that support for designing, monitoring and evaluating sustainability strategies at the school level (self-

evaluation tools, support for label schemes such as Eco-Schools, etc.) and embedding sustainability in existing processes and measures, such as school development plans, are the most common types of support. Support for developing effective school leadership for whole-school approaches to sustainability is less common⁽¹⁸⁵⁾, as is support for the last category 'other areas related to whole-school approaches to sustainability', which includes actions such as setting up partnerships between a ministry of education and research organisations, expert public bodies, key NGOs or other ministries that are active in the field of sustainability and climate change.

Figure 3.2 shows that, overall, the majority of education systems provide top-level guidance and/or support in at least two of the specific areas examined, but only the Flemish Community of Belgium, Czechia, France, Malta, Austria and Sweden provide guidance and support in all four areas.

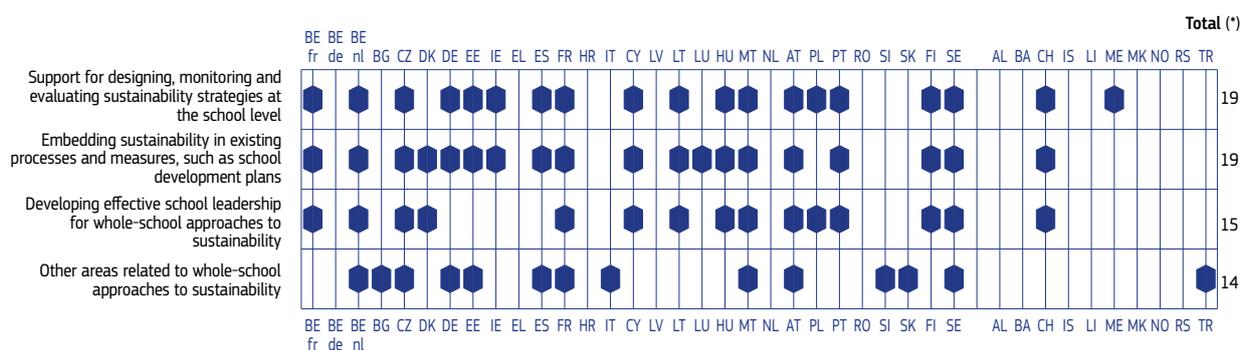
⁽¹⁸²⁾ <https://sdgs.un.org/2030agenda>

⁽¹⁸³⁾ <https://www.ecoschools.global/>

⁽¹⁸⁴⁾ For instance, in Lithuania the programme 'sustainable school' developed by the Capital Children and Youth Centre and the methodology 'education for sustainable development' developed by the Erasmus+ KA2 strategic partnerships project 'jump into sustainable lifestyles' are all contributing to developing whole-school approaches to sustainability.

⁽¹⁸⁵⁾ For more information on top-level policies for enhancing school leadership for sustainability, see Section 2.4.

Figure 3.2: Guidance and support for specific areas related to whole-school approaches to sustainability (ISCED 1, 24 and 34), 2022/2023



(*) Number of countries/regions where the criteria are met.

Source: Eurydice.

Country-specific note

Denmark: Top-level guidance and support related to the category 'embedding sustainability in existing processes and measures, such as school development plans' applies only to ISCED level 34.

Some examples of top-level guidance and/or support for whole-school approaches to sustainability, which can serve as illustrations of different approaches, are given below.

In Germany, top-level support for the development of whole-school approaches to sustainability has a long history, notably with the 2007 recommendation of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* and the German Commission for UNESCO on ESD at school⁽¹⁸⁶⁾. More recently, the 2021 decree on ESD for Lower Saxony, for instance, notes that ESD should be seen as a 'task of the entire school community in the sense of a "Whole School Approach". The document also emphasises that 'the Whole School Approach is a pedagogical approach that unites all aspects of school life: the management, the pedagogical concept, the curriculum, the learning media, the activities of the school and all its premises. Sustainability is therefore not only addressed in lessons or promoted selectively with activities, but the school is rethought as a whole ... It is about doing what one says and resolving the discrepancy between the values represented and the values lived.'⁽¹⁸⁷⁾

In France, circular letters from the Ministry of Education and Youth address the need for reinforcement of ESD, with the main objectives including encouraging youth engagement, reinforcing partnerships and the use of the labelling scheme '*École ou Établissement en Démarche globale de Développement Durable*' (E3D) to reward schools that practise sustainable development⁽¹⁸⁸⁾, and to make compulsory the election of eco-delegates in secondary education⁽¹⁸⁹⁾.

In Ireland, schools should adopt a Sustainability Policy Statement. The Education Department in collaboration with key stakeholders, has published a sustainability toolkit for schools to support them in adopting Sustainability Policy Statements, including a self-assessment tool, sustainability guidelines and a template policy statement. The toolkit has been available to schools since the start of the 2023/2024 school year⁽¹⁹⁰⁾.

⁽¹⁸⁶⁾ https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2007/2007_06_15_Bildung_f_nachh_Entwicklung.pdf

⁽¹⁸⁷⁾ <https://bildungsportal-niedersachsen.de/bne/schulentwicklung-1/whole-school-approach>, pp. 5–6.

⁽¹⁸⁸⁾ <https://eduscol.education.fr/1118/la-labellisation-e3d>

⁽¹⁸⁹⁾ Circulaire du 27 août 2019 (<https://www.education.gouv.fr/bo/19/Hebdo31/MENE1924799C.htm>); Circulaire du 24 septembre 2020 (<https://www.education.gouv.fr/bo/20/Hebdo36/MENE2025449C.htm>).

⁽¹⁹⁰⁾ [National strategy on education for sustainable development in Ireland.](#)

In Cyprus, the Cyprus Pedagogical Institute has published a number of documents to guide primary schools in implementing Sustainable Environmental Education Policy (SEEP), which emphasise the following.

- The SEEP is developed and implemented by the whole school.
- It responds to the needs and particularities of the school and the school's immediate environment.
- It requires cooperation with the community and the formation of collaboration networks with organisations and institutions.
- It enables changes in the school and the community through actions and interventions determined through its planning.
- It integrates self-evaluative processes by means of indicators ⁽¹⁹¹⁾.

Furthermore, a specific teachers' guide provides advice on the development of an ESD school plan in accordance with a school's particular circumstances and needs; the setting of targets concerning the students, the educators, the schools and the communities; and the explanation of the ESD curriculum's structure and how it can be applied through the SEEP ⁽¹⁹²⁾.

In Austria, a number of government-funded networks, programmes and labels support a whole-school approach to ESD. In addition, the Ministry of Education, Science and Research has published a *Handbook for Ecological School Management*, which focuses on tools that teachers can use to systematically review and develop their ecological initiatives at school ⁽¹⁹³⁾.

In Switzerland, the national competence centre 'éducation21' provides guidance and tools for the whole-school approach, including definitions, processes and existing networks ⁽¹⁹⁴⁾. In addition, a dedicated project called Bildungslandschaften (education landscapes) developed a toolbox for the implementation of the whole-school approach ⁽¹⁹⁵⁾.

3.2. Sustainability school labels and other incentives for sustainability education

Initiatives such as certificates, awards or labels that recognise schools that promote sustainability education have multiple benefits. Recognition instils pride among a school's staff and students, and such schools set an example for others. More generally, this type of initiative increases the visibility of sustainability education. Consequently, such measures indirectly support the goals of learning for sustainability and therefore are examined here.

Sustainable school programmes exist in many countries. For example, the Green schools or Eco-Schools programme of the Foundation for Environmental Education has been implemented in 77 countries (Gough, Lee and Tsang, 2020). Decentralisation, individual school or NGO initiatives and a varying degree of national involvement in the international sustainability programmes make it difficult to draw clear lines and delineate top-level support exactly. We know that international labelling programmes, such as the Eco-Schools programme and the UNESCO Schools Network, are common in Europe ⁽¹⁹⁶⁾, but we have no overall picture of national programmes. To cover this gap, the present report focuses on the national (or regional) top-level sustainability programmes in Europe.

Figure 3.3 shows which education systems in Europe recognise schools' efforts in the area of sustainability by conferring certificates, labels or awards. According to our data, 17 education systems have such a scheme. If we leave aside the five education systems that do not have top-level measures because of school or local authority autonomy, then we can say that at least half of the education systems examined here have their own system of environmental school labels, certificates or awards.

⁽¹⁹¹⁾ Cyprus Pedagogical Institute (CPI) (2014a), 'Ιδέες και προτάσεις για καθορισμό και διερεύνηση ζητημάτων της Αειφόρου Περιβαλλοντικής εκπαιδευτικής πολιτικής της σχολικής μονάδας' [Ideas and proposals for integrating the school unit sustainable environmental education agenda]. CPI (2014b), 'Ιδέες και παραδείγματα για παρεμβάσεις και αλλαγές στη σχολική μονάδα στη βάση της Εκπαίδευσης για την Αειφόρο Ανάπτυξη' [Ideas and examples for changes and interventions in your school and community on the basis of ESD].

⁽¹⁹²⁾ CPI (2012), 'Οδηγός Εφαρμογής Προγράμματος Σπουδών Περιβαλλοντικής Εκπαίδευσης/Εκπαίδευσης για την Αειφόρο Ανάπτυξη για τους Εκπαιδευτικούς της Δημοτικής Εκπαίδευσης' [Guide for primary teachers for implementing the curriculum for environmental education / education for sustainable development], Nicosia: MoEC/CPI/CDU (<http://enimerosi.moec.gov.cy/ypp14505>).

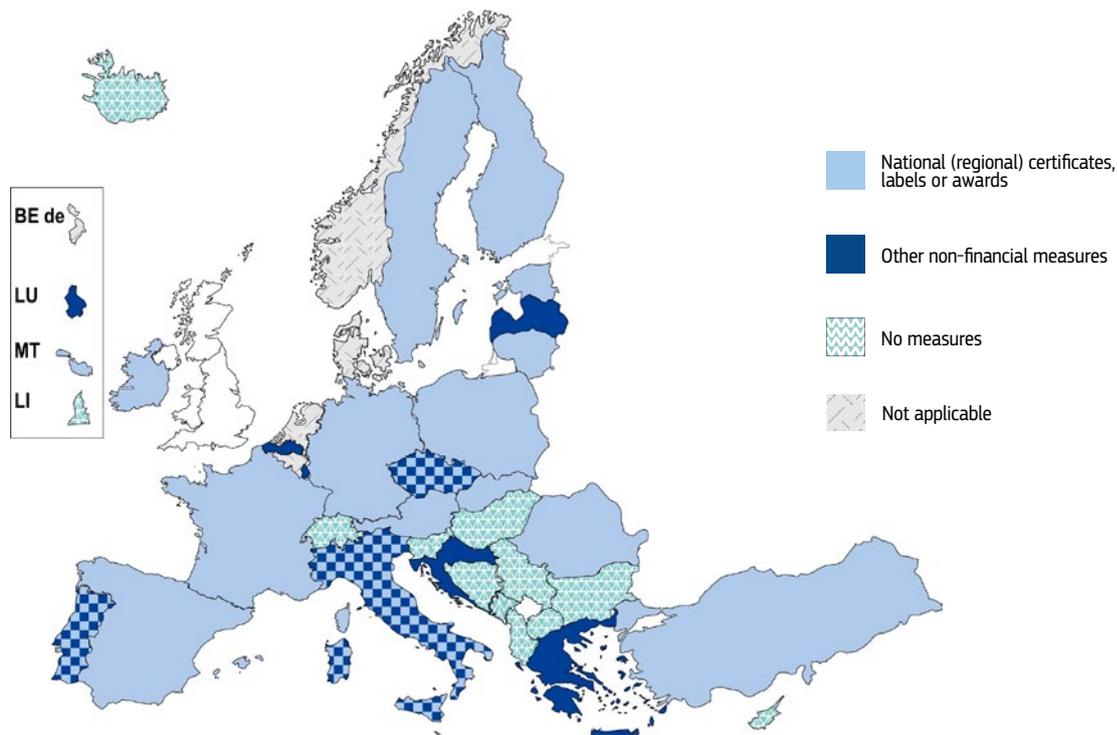
⁽¹⁹³⁾ Ministry of Education (2017), *Handbook for Ecological School Management: Environmental education for sustainable development* (https://oekolog.at/dokumente/100/bmbf_oekolog_handbuch17_web.pdf).

⁽¹⁹⁴⁾ <https://www.education21.ch/de/gesamtschulischer-ansatz>

⁽¹⁹⁵⁾ <https://www.education21.ch/de/bildungslandschaften21/toolbox>; https://www.education21.ch/sites/default/files/uploads/Bildungslandschaften21/pdf/200429_Toolbox%20BL21_Master_D_end.pdf

⁽¹⁹⁶⁾ A list of the Eco-Schools programme national offices can be found online (<https://www.ecoschools.global/national-offices>); a list of the UNESCO Schools Network national coordination offices can also be found online (<https://www.unesco.org/sites/default/files/medias/fichiers/2023/07/ASPNet-national-coordinators.pdf>).

Figure 3.3: Non-financial measures supporting learning for sustainability (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific notes

Belgium (BE fr and BE de): School autonomy.

Denmark: School autonomy for ISCED 1 and 24. In ISCED 34, schools can apply for a special certificate.

Luxembourg: In ISCED 34, schools can also receive an award related to sustainability.

Netherlands and Norway: School autonomy.

Several education systems offer more than one label or certificate, be it national or international. Czech schools can participate in a number of national-level school labels or certificates schemes. The certificates and labels are granted by various NGOs, with top-level support. The 'Forest class' scheme is offered by the NGO Tereza with the financial support of the Ministry of the Environment. The 'global action school' label is awarded by the NGO Člověk v tísni and other NGOs within the international programme with the financial support of the Czech Development Agency, under the auspices of the Ministry of Foreign Affairs, the Ministry of Education, Youth and Sports, the UN and the EU. Finally, the 'certification of

environmental education providers' is run by the NGO Pavučina with the financial support of the Ministry of the Environment⁽¹⁹⁷⁾.

In Spain, various sustainability school certificate schemes are run by different autonomous communities. In Castilla y León, schools can earn the 'sustainable school seal'. Madrid awards a 'sustainable school diploma', the Illes Balears an 'eco-environmental school seal' and Aragón a 'sustainable development objectives school seal'. In País Vasco, schools can receive a 'sustainable school certificate' and in Andalucía schools can participate in the international Eco-Schools programme and earn the 'green flag'⁽¹⁹⁸⁾.

⁽¹⁹⁷⁾ Eco-school (<https://ekoskola.cz/>), forest class (<https://www.lesveskole.cz/certifikat-lesni-trida/>), global action school (<https://www.svetovaskola.cz/>), certification of environmental education providers (<https://www.certifikace-sev.cz/>), sustainable development school (<https://kev.ecn.cz/sur.php>).

⁽¹⁹⁸⁾ Sustainable school seal of the Autonomous Community of Castilla y León (<https://bocyl.jcyl.es/boletines/2018/10/17/pdf/BOCYL-D-17102018-1.pdf>). Sustainable school diploma of the Autonomous Community of Madrid (<https://dgbilinguismoycalidad.educa.madrid.org/SGAmb/index.php/entrada/esostenibles>). Eco-environmental school seal of the Autonomous Community of Illes Balears (<https://www.caib.es/govern/sac/fitxa.do?codi=2715919&coduo=1725&lang=es>). Sustainable development objectives school seal of the Autonomous Community of Aragón (<https://realidadods.catedu.es/certificacion-de-centros/>). Sustainable school certificate of the Autonomous Community of País Vasco (<https://www.euskadi.eus/sostenibilidad-e-intervencion-educativa-certificado-honorifico-de-escuela-sostenible/web01-a3hihea/es/>). Eco-Schools programme and earning the 'green flag' in the Autonomous Community of Andalucía (<https://www.juntadeandalucia.es/educacion/portals/web/aldea/proyectos/ecoescuela/bandera-verde>).

Luxembourg, in addition to participating in the UNESCO Schools Network, runs a 'sustainable entrepreneurial schools' project for secondary schools involved in the 'sustainable entrepreneurial competence' programme and their business partners. It brings together documentation on schools' projects and progress in the field of sustainable entrepreneurship, and it provides the opportunity to promote sustainable entrepreneurship competences through activities such as workshops, conferences, competitions and visits ⁽¹⁹⁹⁾.

In Malta, schools that are members of the international Eco-Schools network can earn the 'green flag' award. Malta also has its own national award scheme, the One Earth initiative, which offers gold, silver and bronze awards and is also very popular. It is coordinated by BirdLife Malta, the oldest environmental NGO in Malta, which receives funding from top-level authorities. One Earth is the flagship environmental education programme for Maltese schools. It has been in operation since 1994 and is run in collaboration with the education directorate. Spanning all school education levels, One Earth connects classroom learning with outdoor education through nature. Activities are cross-curricular and designed in such a way that both students and teachers enjoy and learn from them ⁽²⁰⁰⁾.

Austria offers more than one school label related to sustainability, as well as participating in UNESCO's Schools Network the eco-schools programme and Climate Alliance's international programme. Ökolog is a programme and network supported by the Austrian Federal Ministry of Education, Science and Research. Over 700 Ökolog schools, and all 14 university colleges of teacher education, focus on environmental, social and ecological aspects. A key objective is to integrate a variety of sustainability topics, differing in terms of content and methods, into education and to build a sustainable school culture (e.g. saving water and energy, consuming organic and regionally produced food) ⁽²⁰¹⁾. In addition to the Ökolog schools, Austria has also 178 'nature park schools' (primary schools, compulsory secondary schools, agricultural vocational and educational training schools and general special needs schools) and 485 'climate schools'. The 'climate schools' programme is run by the Climate and Energy Fund, and all climate and energy model

regions and their schools can participate. The aim of the 'climate schools' programme is to carry out projects with schoolchildren that raise awareness of the challenges posed by climate change. It aims to sensitise pupils, teachers and directors to the challenges of climate change and, in particular, to promote long-term awareness of the sustainable discussion of climate and energy issues through the implementation of so-called climate school projects ⁽²⁰²⁾.

The Polish Ministry of Education and Science, together with the Ministry of Climate and Environment, organises competitions for schools on climate change, environmental protection and sustainable development. The winners of these competitions are rewarded not only with prizes, but also with a school label. For example, the 'positive climate school' competition for secondary school students, organised by the National Fund for Environmental Protection and Water Management in cooperation with the Ministry of Climate and Environment, awards the school with the title of 'school with climate' ⁽²⁰³⁾.

In Portugal, the Ministry of Education is championing the 'Gandhi Award for citizenship education'. This award puts sustainability education in the spotlight with a particular focus on animal well-being, on the oceans and on community engagement ⁽²⁰⁴⁾.

Sweden participates in both the Eco-Schools programme and the UNESCO Schools Network, but also has its own national label. The Swedish National Agency for Education decides which schools can receive the 'school for sustainable development' award. This award is given to schools that work successfully with sustainable development and promote the goals of the 2030 Agenda ⁽²⁰⁵⁾. The awarded school receives a diploma and the right to use the label. The award is valid for 3 years but this period can be extended ⁽²⁰⁶⁾.

Eight education systems support learning for sustainability through 'other top-level non-financial measures'. The following examples illustrate the range of support that is available.

Schools in the Flemish Community of Belgium can participate in the 'MOS sustainable schools, smart schools' network. Any Flemish school can join this

⁽¹⁹⁹⁾ <https://www.script.lu/fr/activites/initiatives/sustainable-entrepreneurial-schools>

⁽²⁰⁰⁾ One Earth (<https://birdlifemalta.org/environmental-education/schools/dinja-wahda/>).

⁽²⁰¹⁾ Ökolog programme (<https://oekolog.at/f%C3%BCr-den-unterricht/>).

⁽²⁰²⁾ Nature park schools (<https://www.naturparke.at/schulen-kindergaerten/uebersicht>) and climate schools (<https://www.klimafonds.gv.at/klimaschulen/>).

⁽²⁰³⁾ Positive climate school competition (<https://www.gov.pl/web/klimat/rozstrzygniecie-ii-edycji-konkursu-szkola-z-klimatem>).

⁽²⁰⁴⁾ Gandhi Award (<https://premiogandhi.dge.mec.pt/>).

⁽²⁰⁵⁾ <https://sdgs.un.org/2030agenda>

⁽²⁰⁶⁾ Skolverkets föreskrifter om utmärkelsen Skola för hållbar utveckling (SKOLFS 2009:19) (<https://skolfs-service.skolverket.se/api/v1/download/grundforfattning/2009:19> and <https://www.skolverket.se/skolutveckling/inspiration-och-stod-i-arbetet/stod-i-arbetet/utmarselsen-skola-for-hallbar-utveckling>).

network following an online registration and after having received special coaching to implement sustainability education. The programme focuses on the following principles: student participation, teamwork, sustainability as a learning process and networking with the local community, local authorities, parents or NGOs ⁽²⁰⁷⁾.

Czechia organises nationwide promotion campaigns or events in which schools can participate. These include, to name just a few, ‘European sustainable development week’ (involving various events and a website offering tips to schools on how to organise their own sustainable development week), the ‘environmental education fair’ (regional school conferences) and ‘forest week’ (school-focused events and a website with educational tools, field trip tips and contacts). It is worth highlighting that the Ministry of Education, Youth and Sports, in cooperation with the Ministry of the Environment, also organises student competitions relevant to sustainability education. This includes the ‘ecological Olympiad’ (an interdisciplinary competition for upper secondary students), the ‘gold leaf’ competition (natural and environmental science competition for primary and lower secondary students) and a comic book contest related thematically to the UN SDGs ⁽²⁰⁸⁾.

Greece has a different way of providing non-financial support to learning for sustainability. Educational Radio-Television and Digital Media, which is a unit of the Ministry of Education, Religious Affairs and Sports, organises yearly contests for audiovisual student creations (maximum duration of 10 minutes) on various topics including sustainability topics. These creations are saved in a digital repository and a selected few are projected on the educational TV morning show programmes of the Hellenic Parliament television channel ⁽²⁰⁹⁾.

Since 2015, the Portuguese Directorate-General for Education – Ministry of Education and the Portuguese Committee for the United Nations Children’s Fund (UNICEF) have formed a partnership to support the ‘world’s largest lesson’ – a UN initiative related to the SDGs ⁽²¹⁰⁾. Through the ‘world’s largest lesson’, educational resources, such as videos, comics and lesson plans, are made available to teachers and their students ⁽²¹¹⁾.

3.3. Support for infrastructure and school projects

This section explores whether or not top-level authorities invest in infrastructure and in school projects that are relevant to learning for sustainability. It is important to emphasise the term ‘relevant’, because there exists school infrastructure that can be labelled as sustainable or contributing to sustainability but which is not fit, or used, for pedagogical purposes. For example, replacing conventional light bulbs in schools with energy-efficient light bulbs is good for the environment and a step towards sustainability, but on its own is not relevant to learning for sustainability. Likewise, investing in passive school buildings or installing solar panels on rooftops contributes little to learning for sustainability if these projects are not designed or used for pedagogical purposes as well.

Smaller-scale school infrastructure, such as school gardens and recycling bins, while not necessarily designed originally for pedagogical purposes, can be used for learning for sustainability without the need for major or costly adjustments. Therefore, and in line with the 2022 Council recommendation on learning for the green transition and sustainable development ⁽²¹²⁾, the present study focuses on investments in small-scale school infrastructure that has a high probability of being used for learning for sustainability. This includes investments in bicycle facilities (e.g. bike sheds that can be used by the students), recycling facilities (e.g. waste-sorting bins) and other small-scale facilities.

As noted in the introduction to this chapter, the research literature has highlighted the importance of active pedagogies and transformative learning for effective learning for sustainability. Similarly, the Council recommendation (p. 6) proposes that national authorities should ‘facilitate learning methods and approaches that are collaborative, experiential, practically oriented [...]. This includes giving learners hands-on opportunities to observe and care for nature, and to reduce, repair, reuse and recycle, thereby helping them to understand the importance of sustainable lifestyles and the

⁽²⁰⁷⁾ <https://mosvlaanderen.be/doe-mee>

⁽²⁰⁸⁾ European sustainable development week (<https://www.tydenudrzelnosti.cz/pro-skoly/>), environmental education fair (<https://aktivita.pavucina-sev.cz/aktivita/veletrh-ekologicke-vychovy/>), forest week (<https://www.lesnipedagogika.cz/cz/pro-skoly/tyden-lesu/>), global education week (<https://globalnirozvojovevzdelavani.cz/tyden-grv/>), ecological Olympiad (<https://www.ekolympiada.cz/>), gold leaf (<https://www.zlatylist.cz/>), comic book contest (<https://adra.cz/jak-pomahame/vzdelavani-vzdelavani-v-cesku/nase-aktivita/komiksova-soutez/>).

⁽²⁰⁹⁾ Educational TV initiatives (www.edutv.gr, www.i-create.gr, <https://edutv.minedu.gov.gr/index.php/programa>).

⁽²¹⁰⁾ <https://www.unicef.pt/maior-licao-mundo/>

⁽²¹¹⁾ <https://worldslargestlesson.globalgoals.org/>

⁽²¹²⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C243/01 (OJ C 243, 27.6.2022, p. 1), asks the EU Member States to ‘invest, where appropriate, in and provide training on green and sustainable equipment, resources and infrastructure (buildings, grounds and technology) for learning, socialising and recreation to ensure healthy, safe, inclusive, creative and resilient learning environments’.

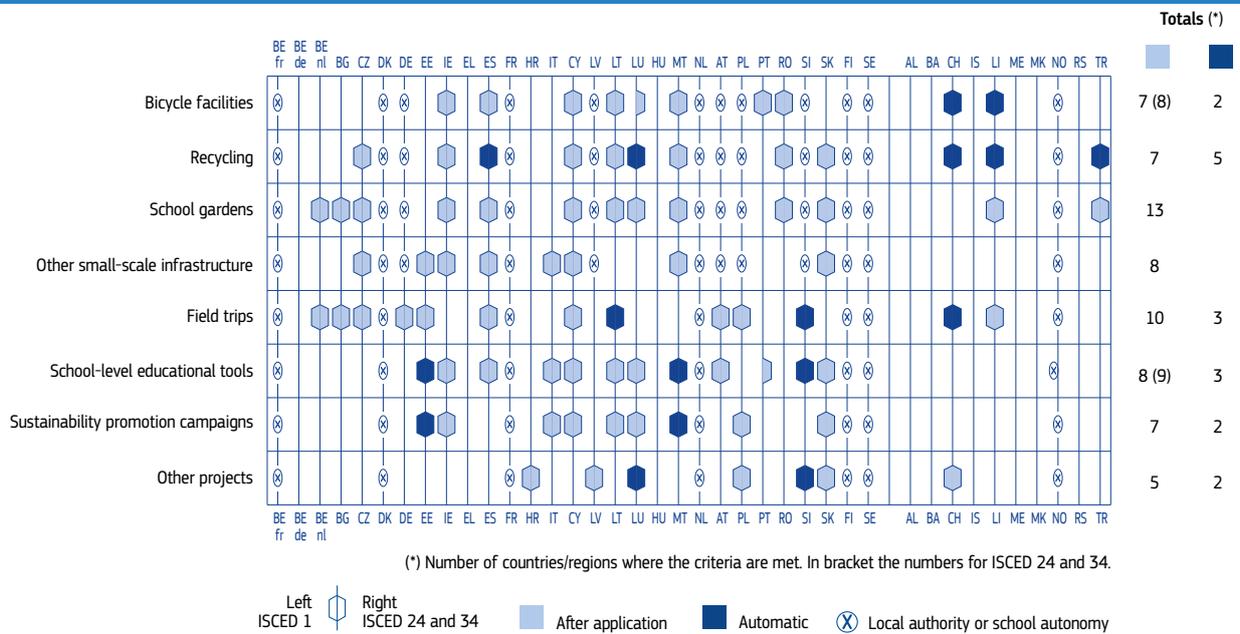
circular economy’⁽²¹³⁾. For these reasons Eurydice has collected data on top-level financial support for field trips (e.g. to environmental centres, natural science museums or natural resorts), but also for school-level educational tools (e.g. student projects, audiovisual material or handbooks) and for any sustainability promotion campaigns.

A distinction is made between financial support that is granted automatically and support that is provided only on application. In principle, automatic financial support is universal (i.e. extended to all eligible schools) and, because there is no need to process applications, awarded more quickly. Other parameters, such as funding scope or amount, are,

of course, crucial, but they are not covered in this report. Consequently, the fact that an education system offers some financial support to schools for learning for sustainability does not necessarily mean that the level of funding is adequate.

Another aspect that should be taken into account when interpreting the data is that in several European countries school spending falls under the jurisdiction of local or school authorities. Since Eurydice reports examine only national or regional policies and initiatives, it is possible that financial support for sustainability education exists, but is provided by municipal or local authorities.

Figure 3.4: Financial support for small-scale school infrastructure and school projects related to learning for sustainability (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Denmark: Local authority / school autonomy applies only to ISCED 1 and 24. At ISCED 34, there are no top-level support measures.

⁽²¹³⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development. 2022/C243/01 (OJ C 243, 27.6.2022, p. 1).

As Figure 3.4 demonstrates, in 12 education systems (nearly one third of the total number) it is up to local or school authorities to decide whether or not to invest in infrastructure that is relevant to sustainability education. With regard to field trips, pedagogical material, sustainability promotion campaigns or similar. School or local autonomy applies to only seven education systems.

Regardless of whether it is granted automatically or following a school's application, financial support, either for small-scale infrastructure or for other school projects related to sustainability, is not widespread. Only a minority of European countries offer either kind of support, and there is hardly any variation between education levels. Thus, in primary education, top-level financial support for bicycle facilities is available in only nine countries, for recycling infrastructure in 12 countries and for school gardens in 13 countries; other types of small-scale infrastructure are supported in eight countries. These numbers are the same for lower and upper secondary education, except for support for bicycle infrastructure (10 countries in ISCED 24 and 34).

Financial support is slightly more frequent for non-infrastructure projects, but we must bear in mind that it applies to less than half of the education systems examined here. To be more precise, in primary education, top-level financial support for student field trips is available in 13 education systems, for school-level educational tools in 11 systems, for sustainability campaigns in or by schools in nine systems and for other types of school projects in seven systems. Like investment in school infrastructure, the difference between education levels in financial support for non-infrastructure projects is negligible, being limited to the fact that one country (Portugal) provides top-level funding for educational tools related to sustainability at secondary but not to all grades in the primary level.

Automatic allocation of funding for sustainability education projects is not common. Only Slovenia and Switzerland support learning for sustainability in this way. In most of the other European countries, schools must apply for financial support, although some (namely, Estonia, Spain, Lithuania, Luxembourg, Malta, Liechtenstein and Türkiye) use

both approaches. Automatic financial support is relatively more common for investment in recycling infrastructure. Out of 12 countries offering top-level financial support for recycling infrastructure in schools, five so automatically (Figure 3.4). In the case of cycling-related facilities, only 2 out of the 10 countries provide automatic support, while support for the building or maintenance of school gardens is provided only following a school application.

The following examples illustrate existing investments in school infrastructure that are relevant to learning for sustainability.

In Bulgaria, there is an action plan running up to 2024 that envisages, among other things, the creation of 'green outdoor classrooms', road safety training grounds and summer and winter camps ⁽²¹⁴⁾.

Schools in Czechia are required by law to sort their waste. Financial support for this is provided by national and regional authorities. A 2022–2029 project of the Ministry of the Environment aims to reduce waste generation in schools. To this end, funding is made available for the installation of compost bins or waste compactors in schools. This is an example of small-scale school infrastructure that can potentially be used in learning for sustainability, although it is also possible that it may simply remain a waste reduction infrastructure and little else. In contrast, the development of 'natural gardens' – a project in which schools can apply to participate, funded by the State Environment Fund and running until 2025 – is intended to foster education for sustainability ⁽²¹⁵⁾.

The Estonian Ministry of Climate runs a project that aims to increase students' awareness of green technology. Through funding from the emissions trading system, schools can apply for environmental monitoring equipment, greenhouses, solar panels and laboratories ⁽²¹⁶⁾.

In Spain, in the Autonomous Community of Aragón, schools can apply for the greening of schoolyards. A similar programme on the greening of schoolyards and the adaptation of school playgrounds to climate change consequences exists in the Autonomous Community of Castilla y León ⁽²¹⁷⁾.

⁽²¹⁴⁾ Action plan until 2024 for the strategic framework for the development of education, training and learning in the Republic of Bulgaria (2021–2030), operational objective 6.6 'modernisation of the educational infrastructure towards sustainable development', p. 27 (<https://www.strategy.bg/FileHandler.ashx?fileId=32255>).

⁽²¹⁵⁾ Prevention of waste generation (<https://opzp.cz/dotace/24-vyzva/>). Natural gardens (<https://www.narodniprogramzp.cz/habidka-dotaci/detail-vyzvy/?id=109>).

⁽²¹⁶⁾ Projects to increase students' awareness of green technologies (<https://www.kik.ee/et/toetatavad-tegevused/opilaste-rohetehnoloogia-teadlikkuse-suurendamine>).

⁽²¹⁷⁾ Programme for the renaturation and adaptation to climate change of school playgrounds (Autonomous community of Castilla y León) (<https://www.educa.jcyl.es/es/programas/programa-renaturalizacion-adaptacion-cambio-climatico-patio>). Programme for the renaturation of schoolyards (Autonomous community of Aragón) (<https://www.aragon.es/-/patios-por-el-clima>).

In Cyprus, the Ministry of Education, Sport and Youth joined forces with the NGO Akti ⁽²¹⁸⁾ and mobilised students, parents, businesses and the local community to recycle used cooking oil, to finance sustainability school projects. Tiganokinissi or, In English, ‘frying pan movement’ enables primary and secondary schools, but also businesses in the food industry, to participate in this recycling scheme. Any profits go back to schools, which, in turn, can finance different sustainability projects in accordance with their needs ⁽²¹⁹⁾.

In Portugal, the Ministry of Education has been promoting learning to cycle and the use of bicycles in general. This nationwide project provides secondary schools with bicycles and cycling equipment (replacement wheels and helmets), in addition to a support manual for teachers and qualified bike technicians. In 2022/2023, bikes were distributed to 606 secondary schools ⁽²²⁰⁾.

In the case of the Flemish Community of Belgium, bus trip expenses for the purposes of education for sustainability are reimbursed in full ⁽²²¹⁾.

In Germany, in *Land* Hessen, 10 environmental education centres, as extracurricular education partners, receive annual funding from the *Land* to cooperate with environmental schools. This cooperation can take the form of regional networking meetings, expert advice and educational offers, such as learning workshops, field trips. ⁽²²²⁾.

Estonia’s environmental education and awareness plan includes the financing and organising of sustainability promotion campaigns and the development of educational material. Regarding the latter, a number of NGOs are strategic partners of the Ministry of Education and Research and are entrusted, and annually funded, by the plan to develop new material. For example, the NGO Back to School received financial support to design a series of e-lessons and assignments on green competences ⁽²²³⁾.

In France, the Ministry of Education and Youth and the Ministry of Ecological Transition, with its

various offices, are involved in the development of pedagogical material on sustainability. For instance, the Agency of Environmental Transition (Agence de la transition écologique) produces educational resources related to the topics of climate, energy and waste management. Similarly, the French Office of Biodiversity (Office français de la biodiversité) develops material on biodiversity while managing a network of natural sites for environmental education. Finally, the water agencies (*agences de l’eau*) prepare educational material on the water supply and run classes on various topics related to water (*classes d’eau*) ⁽²²⁴⁾.

Each year, top-level authorities in Cyprus financially support campaigns in schools on specific environmental and sustainable issues. The campaigns are announced via a circular letter to schools, and the schools can apply for funding if they want to participate. The funding covers training course expenses, equipment for the implementation of the campaign (e.g. equipment for creating an animated film), technical support and guidance for implementing the action and awareness festivals. A campaign implemented recently was ‘The climate calls SOS’. The aim of the campaign was to highlight the urgency of climate change, through creative and exploratory actions (animated films), and to raise citizens’ awareness of climate change ⁽²²⁵⁾.

Luxembourg supports several initiatives that promote sustainability in schools. The project ‘1001 Tonnen’, for instance, offers secondary schools the chance to collaborate for 12 weeks with a photographer to create a photo reportage portfolio on waste in nature ⁽²²⁶⁾. The ‘upbooking’ initiative invites secondary school students to put their old schoolbooks back into circulation by giving them to other students, who will use them in the coming school year, thereby helping to reduce the large volumes of paper, plastic and ink needed to produce school textbooks. The ‘upbooking’ campaign is being promoted using a variety of media in Luxembourgish and in French: posters, bookmarks, stickers, leaflets, a video clip, the www.upbooking.

⁽²¹⁸⁾ <http://www.akti.org.cy/>

⁽²¹⁹⁾ ‘Tiganokinisi’ project (<http://www.tiganokinisi.eu/>).

⁽²²⁰⁾ For grades 5 and 6 of primary education and for secondary education: Manual of support to teachers and qualified bike technicians (<https://desportoescolar.dge.medu.pt/sites/default/files/RepositorioDocumentos/2022/manual-de-apoio-ao-professor.pdf>). Social news: <https://desportoescolar.dge.medu.pt/artigo/escolas-do-barreiro-recebem-kits-de-bicicletas>). Example of the implementation of the project in a school cluster (<https://www.aeprosa.pt/de-sobre-rodas>).

⁽²²¹⁾ <https://www.mosvlaanderen.be/themas/mobiliteit/mos-pas-voor-bus-en-tram>

⁽²²²⁾ https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2017/2017_03_17-Bericht-BNE-2017.pdf

⁽²²³⁾ Environmental education and awareness action plan for 2023–2025 (<https://etunnid.tagasikooli.ee/jarelvaatamiseks/>).

⁽²²⁴⁾ Agence de la transition écologique (ADEME) (<https://agirpourlatransition.ademe.fr/acteurs-education/enseigner-animer>). Office français de la biodiversité (OFB) (<https://www.ofb.gouv.fr/ressources-pour-les-eleves-et-les-enseignants>). Les agences de l’eau (<https://www.lesagencesdeleau.fr/comprendre-apprendre-agir-pour-leau/surveillance-de-la-qualite-des-eaux>).

⁽²²⁵⁾ <https://enimerosi.moec.gov.cy/archeia/1/ypp8909a>

⁽²²⁶⁾ <https://1001tonnen.script.lu/>

lu website, radio spots and banner ads on websites. Secondary schools were invited to organise an event at their school during the last week of school before the summer holidays to encourage and facilitate the passing on of textbooks among students. Furthermore, Luxembourg supports an awareness campaign around the recycling of smartphones. Schools can hand out special bags to collect old smartphones to facilitate recycling ⁽²²⁷⁾.

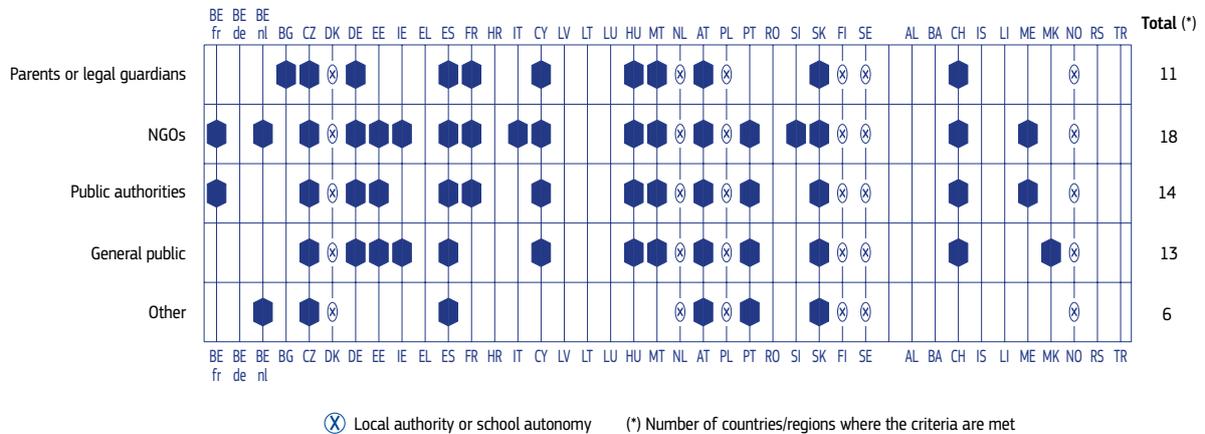
In Slovenia, the Centre for School and Outdoor Education ⁽²²⁸⁾ operates under the auspices of the Ministry of Education, which provides its funding and its premises. The centre's is responsible for supporting schools to implement outdoor education programmes. Its main aims are to promote a healthy lifestyle and responsible attitude towards the natural environment, to promote respect and cooperation and to embrace diversity and mutual tolerance. The organisation runs programmes in its own premises and in other premises across Slovenia. The centre (1) carries out educational

activities associated with living in nature that are part of the basic school programme and programmes of upper secondary education; (2) provides residence and meals, learning and sports tools and facilities; and (3) runs projects that include young people, such as camps, summer schools, youth research groups, seminars, lectures and excursions ⁽²²⁹⁾.

3.4. Community engagement

As noted at the beginning of the chapter, the research literature highlights the significance of linkages between schools and the wider community. As Figure 3.5 shows, such linkages are found in less than half of education systems. More precisely, 18 education systems acknowledge some form of support for school projects reaching out to non-school actors, but 16 do not; in the case of the other five education systems, the relevant competences reside with regional, local or school authorities.

Figure 3.5: Non-school actors with whom sustainability education school projects engage (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific note

Denmark: Local authority / school autonomy applies only at ISCED 1 and ISCED 24. At ISCED 34, top-level authorities support school projects that encompass engagement with NGOs, public authorities and the general public.

⁽²²⁷⁾ <https://upbooking.lu/fr.php>

⁽²²⁸⁾ <https://www.csod.si/>

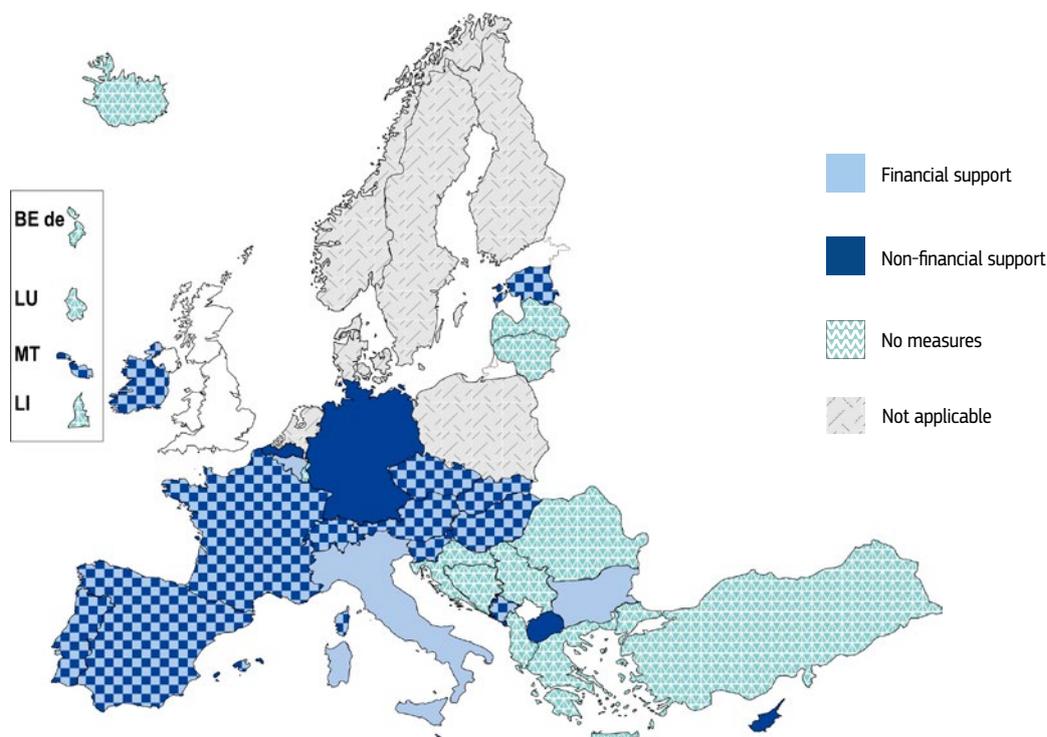
⁽²²⁹⁾ https://www.gov.si/assets/ministrstva/MIZS/Dokumenti/Osnovna-sola/Ucni-nacrti/Drugi-konceptualni-dokumenti/Sola_v_naravi.pdf

Top-level support for sustainability school projects with an external dimension, where it exists, is more likely to involve cooperation or synergies with NGOs and public authorities rather than engagement with the broader public or with parents. Thus, 18 education systems support projects that engage with NGOs, while 14 support projects that engage with public authorities, 13 support those that engage with the public and only 11 support projects that engage with parents (legal guardians). The last point is noteworthy, because, as already mentioned, there is a positive correlation between parents' and students' environmental attitudes and behaviour. In other words, sustainability-related projects that engage (also) with students' parents provide an opportunity to reshape parents' views, but in Europe top-level support for such projects remains limited.

Figure 3.5 also shows that different countries have different preferences regarding the types of partners targeted by public engagement. Some make no distinction (Czechia, Germany, Spain, Cyprus, Hungary, Malta, Austria, Slovakia and Switzerland), while others concentrate on specific partners.

Thus, the French Community of Belgium supports only school projects that engage with NGOs and public authorities. The Flemish Community of Belgium also supports projects that engage with NGOs and with other entities such as professionals of sustainability education. Ireland supports school projects that engage with NGOs and the general public only. Italy supports only engagement with NGOs, Montenegro only engagement with NGOs and public authorities and North Macedonia only engagement with the broader public. In Portugal, the objective of the 'blue school' educational programme of the Ministry of the Economy and Maritime Affairs is to promote ocean literacy in the school community and create more responsible and participatory generations that contribute to the sustainability of the ocean. The programme distinguishes and guides schools that work on issues related to the sea, creating a community that brings together schools, the maritime sector, industry, municipalities, NGOs, universities and others with an active role in ocean literacy⁽²³⁰⁾.

Figure 3.6: Type of support for sustainability school projects with a public engagement dimension (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific notes

Denmark: Local authority / school autonomy applies only at ISCED 1 and ISCED 24. Non-financial support is provided at the ISCED 34 level.

Poland and Sweden: School autonomy.

Finland and Norway: Local authority / school autonomy.

⁽²³⁰⁾ Blue school (<https://escolaazul.pt/en>).

Figure 3.6 gives an overview of the types of support that top-level education authorities provide to schools for their sustainability projects with a public engagement dimension. The figure demonstrates that 13 education systems provide both financial and non-financial forms of support, four only non-financial support and three only financial support. Thirteen education systems do not offer any kind of support for school projects with a public engagement dimension.

Financial support is often provided indirectly by funding other organisations, especially NGOs, which in turn cooperate with schools for the provision of sustainability education. Non-financial support, on the other hand, usually takes the form of the provision of guidelines. The following are a few examples.

In Czechia the Ministry of the Environment provides funds to the NGO Pavučina, which is tasked with supporting the linking of individual environmental education actors, such as the public administration, schools and environmental providers⁽²³¹⁾. Furthermore, the Czech Development Agency funds the 'global education and public raising awareness' programme, which also covers (1) joint activities between schools, regions, municipalities, small and medium-sized enterprises, NGOs, the media and the public; (2) cooperation between experts and institutions; and (3) other networking activities and opportunities⁽²³²⁾. As far as non-financial support is concerned, the Czech authorities have issued detailed guidelines on how to implement sustainability education in schools. Among the proposed activities, the guidelines recommend that schools establish cooperation with municipalities, parents, local associations and even companies⁽²³³⁾.

In Estonia, the 2023–2025 environmental education and awareness action plan provides both financial and non-financial support for

environmental projects, materials, and partnerships and networks, including support for the network of environmental education centres. Schools can apply to the Environmental Board (a public authority under the supervision of the Ministry of Climate) for support for their environmental projects⁽²³⁴⁾.

In France, support for public engagement projects on sustainability education can also be indirect, but still meaningful. Top-level authorities finance the cost of additional teaching hours that can be allocated to sustainability school projects⁽²³⁵⁾.

In 2021, the Italian Ministry of Education, University and Research allocated EUR 5 million to establish a list of NGOs with which to initiate forms of co-designing initiatives with schools. Among the five project areas for which NGOs were invited to apply for funding was sustainability and ecological transition. Through a different funding scheme, in 2021 and in 2022, the Ministry of Education, University and Research issued calls for proposals for the selection of educational institutions, including networks of heads of schools, for the implementation of project initiatives related to 'supporting the path of ecological transition of schools', with the participation of NGOs⁽²³⁶⁾.

In Austria, the Ministry of Education, Science and Research offers financial support for ESD projects in schools. One criterion is the opening up of the school. This could take the form of cooperation with other classes and schools, or with the local community, the economy or other non-school partners. Teachers who are members of the Ökolog regional teams can dedicate 2 hours of time that would normally be spent teaching for their work on Ökolog/ESD activities. Furthermore, a list of quality criteria for Ökolog schools has been established; it includes the establishment of relations between schools and the local community and the development of networks and partnerships⁽²³⁷⁾.

⁽²³¹⁾ Ministry of Environment – call for the programme for the support of NGO projects (including Pavučina) (https://www.mzp.cz/cz/program_podpora_projektu_nno).

⁽²³²⁾ Czech Development Agency – call for Global Education and Raising Public Awareness (<http://www.czechaid.cz/dotace/dotacni-vyzva-pro-predkladani-zadosti-o-dotaci-na-realizaci-novych-projektu-v-ramci-dotacniho-programu-globalni-rozvojove-vzdelavani-a-osveta-verejnosti-pro-rok-2023/>).

⁽²³³⁾ Methodological instruction of the Ministry of Education, Youth and Sports to ensure environmental education and the right to public awareness (Metodický pokyn MŠMT k zajištění environmentálního vzdělávání, výchovy a osvěty č. J. 16745/2008 – 22) (<https://clanky.rvp.cz/clanek/czvoe/2759/metodicky-pokyn-msmt-k-zajisteni-environmentalniho-vzdelavani-vychovy-a-osvety.html>).

⁽²³⁴⁾ The Environmental Education and Awareness Action Plan for 2023–2025, pp. 11–12: (<https://kliimaministerium.ee/rohereform-kliima/keskkonnateadlikkus/keskkonnahariduse-ja-teadlikkuse-tegevuskava-2023-2025>), Environmental board (<https://keskkonnaamet.ee/keskkonnateadlikkus-avalikustamised/keskkonnateadlikkus/oppeprogramm-ja-materjalid>), Environmental education portal (<https://www.keskkonnaharidus.ee/en>).

⁽²³⁵⁾ [Les missions complémentaires du Pacte enseignant | Ministère de l'Éducation nationale et de la Jeunesse. Revalorisation des rémunérations et amélioration des perspectives de carrière des équipes éducatives | Ministère de l'Éducation nationale et de la Jeunesse.](https://www.education.gouv.fr/les-missions-complementaires-du-pacte-enseignant)

⁽²³⁶⁾ Departmental Decree No 66 of 26 July 2021 (<https://www.mieur.gov.it/web/guest/-/decreto-dipartimentale-n-66-del-27-luglio-2021>). Notice ex L. 440 October 2021 for supporting the ecological transition of schools (<https://www.mieur.gov.it/documents/20182/5385739/Supporto+transizione+ecologica.pdf/857ad01d-ced4-9df2-81ec-1c28df31268f?version=1.0&t=1634886612433>). Notice ex L. 440 December 2022 (<https://www.mieur.gov.it/web/guest/-/decreto-dipartimentale-n-131-del-20-dicembre-2022>).

⁽²³⁷⁾ Ökolog annual reports (<https://oekolog.at/jahresberichte/handlungsbereiche/zusammenarbeit-mit-dem-schulumfeld>). Breiting et al. (2005), Quality Criteria for ESD-Schools <https://www.ensi.org/global/downloads/Publications/208/QC-GB.pdf> <https://www.ensi.org/global/downloads/Publications/208/QC-GB.pdf> <https://www.ensi.org/global/downloads/Publications/208/QC-GB.pdf> <https://www.ensi.org/global/downloads/Publications/208/QC-GB.pdf>.

The Swiss ‘education landscapes’ (Bildungslandschaften) programme is a general programme aiming to connect people and to give all children and young people a fair chance at a comprehensive education and to promote competences with which they can help shape a sustainable society. *Bildungslandschaften* that are oriented towards ESD intend to educate children and young people to become active and solution-oriented people who participate in shaping our future in a sustainable way ⁽²³⁸⁾.

3.5. Monitoring how schools embed learning for sustainability in their activities

As part of the efforts to support and enhance learning for sustainability at school, monitoring and evaluation of its implementation need to become part of the general monitoring and evaluation processes of education systems. The 2022 Council recommendation on learning for the green transition and sustainable development recommends that education and training institutions ‘focus part of their internal and external review and quality assurance mechanisms on sustainability’ ⁽²³⁹⁾.

This section focuses on whether specific criteria related to learning for sustainability exist in external and/or internal school evaluations. External school evaluations are conducted by evaluators who report to a local, regional or top-level education authority and who are not directly involved in the activities of the school being evaluated. Internal school evaluations are undertaken by individuals who are directly involved with the school (such as a school head or the teaching and administrative staff and students). External and internal evaluations may cover a broad range of school activities, including teaching and learning and/or aspects of the management of the school. External and internal school evaluations exist in the majority of European education systems.

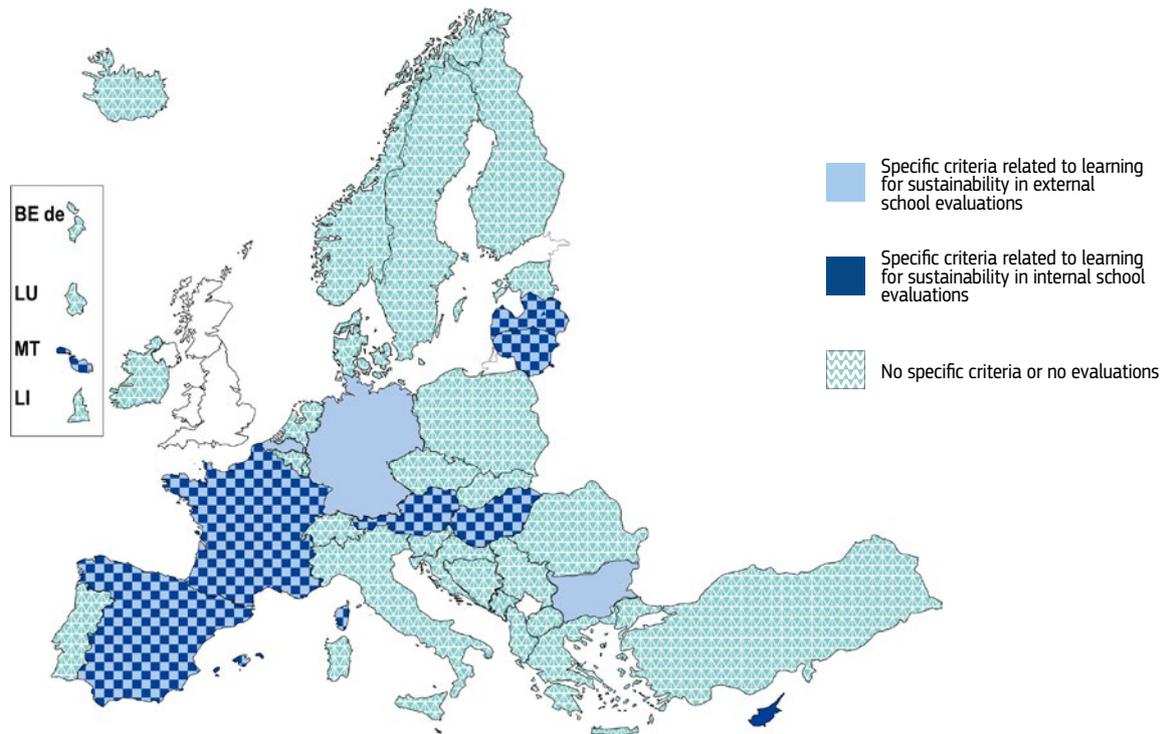
Figure 3.7 shows that specific criteria related to learning for sustainability in external and/or internal school evaluations have been set up in less than a third of all education systems. In the remaining systems, either such criteria do not exist or, less often, external or internal school evaluations do not take place at all ⁽²⁴⁰⁾. The figure presents data on the existence of specific criteria for all schools and does not focus on evaluation initiatives that apply only to schools that participate in labelling schemes.

⁽²³⁸⁾ For details of the financial support for educational landscapes, see <https://www.education21.ch/de/bildungslandschaften21/finanzhilfen-bildungslandschaften>. On the conditions, see https://www.education21.ch/sites/default/files/uploads/Bildungslandschaften21/pdf/230101_Merkblatt_zum_Fonds_fuer_Prozessbegleitung_BL21.pdf. For details of the financial support for sustainability education projects, see <https://www.education21.ch/de/finanzhilfen/bildung-fuer-nachhaltige-entwicklung>.

⁽²³⁹⁾ Council recommendation of 16 June 2022 on learning for the green transition and sustainable development, 2022/C 243/01 (OJ C 243, 27.6.2022, p. 1).

⁽²⁴⁰⁾ Neither external nor internal school evaluations exist in Türkiye. External school evaluations do not exist in Cyprus, Luxembourg and Norway.

Figure 3.7: Specific criteria related to learning for sustainability in external and/or internal school evaluations (ISCED 1, 24 and 34), 2022/2023



Source: Eurydice.

Country-specific notes

Türkiye: No external or internal school evaluations exist.

Cyprus, Luxembourg and Norway: No external school evaluations exist.

Cyprus: Specific criteria in internal school evaluations exist only in ISCED 1. No internal school evaluations take place in ISCED 24 and 34.

In several education systems (those of Spain, France, Latvia, Lithuania, Hungary, Malta and Austria) specific criteria related to learning for sustainability exist for both external and internal school evaluations. In some of these systems (Latvia and Malta), identical evaluation criteria apply to both types of evaluation.

In Latvia internal (self-evaluation) and external (school accreditation) quality assessments use the same set of criteria. Two major categories assess the educational curriculum, process and results:

- the 'relevance' category, and its criterion, 'competences and achievement', evaluates such aspects of sustainability as the possibility of students to gain civic participation experience during the daily learning process, out-of-school activities and students' council or any other kind of student representation;

- the 'quality education' category, and its criterion, 'implementation of education programmes', evaluates such aspects of sustainability as outcomes of the education programmes in accordance with the state compulsory/general education standard, the state general secondary education standard and the state professional education standards.

The school environment is evaluated based on the category 'engaging environment', and it contains three criteria to evaluate sustainability issues.

- 'Infrastructure and resources' evaluates the openness and readiness of educational institutions to use digital solutions for effective school functioning (e.g. electronic correspondence, storage of documents and materials); it also evaluates the effective use of accessible resources and equipment, with an emphasis on necessity, to promote resource accessibility

but also the sustainable and effective use of resources. In addition, the multifunctionality of an educational institution's premises and grounds, that is, their capacity for adaptation to serve a variety of needs, is assessed.

- 'Accessibility' evaluates the physical accessibility of an educational institution and the availability of hobby education programmes (e.g. in the area of the school's specialisation such as environmental education).
- 'Safety and well-being' evaluates the physical and emotional safety of students and personnel, including mental health, socio-emotional learning, and respectful and non-violent communication ⁽²⁴¹⁾.

In Malta, criteria are specific to sustainability both as a cross-curricular theme and as topic covered in specific subjects. Following the directions for Internal and External Reviews, school inspectors review the curricular provision that a school offers to its students. Among other things, it is ensured that there is provision for ESD.

In other education systems, the criteria used in external and internal evaluations may not be aligned or may apply to only some schools. For instance, in France, examples of possible, but not compulsory, external evaluation criteria relate to the E3D labelling scheme, the appointment of student eco-delegates and partnership projects ⁽²⁴²⁾.

In Austria, the official quality framework for external school evaluation defined by the 'quality management system for schools' includes a model development plan on climate neutrality ⁽²⁴³⁾. The *Handbook for Ecological School Management* ⁽²⁴⁴⁾ recommends the use of a wide range of internal quality criteria, which are divided into three main categories:

- quality of teaching and learning processes,
- school policy and organisation,
- the school's external relations ⁽²⁴⁵⁾.

In Hungary, annual reports on schools' achievement of the pedagogical programme include the implementation of sustainability objectives. The reports are published on the school's website.

In Cyprus, primary schools produce a progress report on SEEP. This report aims to help the school to appreciate and determine the degree to which the planning of SEEP was achieved and to help determine the SEEP objectives for the next school year. This report is based on the internal evaluation that each class submits at the end of school year and covers:

- the extent to which the learning objectives, as formulated in the educational policy, have been achieved,
- the school subjects that addressed sustainability,
- the activities organised,
- the pedagogic approaches and teaching techniques applied,
- the types of collaboration carried out involving the local community, local populations, governmental services and NGOs,
- the utilisation of the external environments,
- the participation of students ⁽²⁴⁶⁾.

Where no specific criteria for evaluating learning for sustainability exist, this could be because the legislation does not define specific criteria for external evaluations and/or because this task is delegated to regional or local authorities. For instance, in Poland, the regional education authorities establish external pedagogical supervision plans that include topics for annual inspections, depending on the specific local contexts. Thus, even though sustainability education is not systematically included in external school evaluations, it can be addressed in inspections conducted in a given school year if it is included in the Education Minister's annual policy document and plans adopted by the regional education authorities.

⁽²⁴¹⁾ Regulation of the Cabinet of Ministers No 618 of 6 October 2020, procedure for the accreditation of educational institutions, examination centres, other institutions stated in the Law of Education and Education Programmes and educational institution's principals' professional evaluation (<https://likumi.lv/ta/id/317820-izglitiba-iestazu-eksaminacijas-centru-citu-izglitiba-likuma-noteiktu-instituciju-un-izglitiba-programmu-akreditacijas>); internal regulations of the state education quality service No 1D-03e/1 of 13 January 2022, guidelines on the quality assurance of the general and professional education and accordingly its annexes which contain the framework and quality level descriptions (<https://www.ikvd.gov.lv/akreditacija>).

⁽²⁴²⁾ Cadre d'évaluation des écoles (ISCED 1), p. 5 (<https://www.education.gouv.fr/media/118201/download>); boîte à outils pour les écoles (ISCED 1), pp. 4, 12, 25, 42 and 51 (<https://www.education.gouv.fr/media/113489/download>); cadre d'évaluation des établissements du second degré (ISCED 24 and 34), p. 4 (<https://www.education.gouv.fr/media/72584/download>); boîte à outils pour les EPLE (ISCED 24 and 34), pp. 13, 36 and 40 (<https://www.education.gouv.fr/media/73172/download>).

⁽²⁴³⁾ Quality management system for schools (https://www.qms.at/images/BMBWFIII5_SEP_Ausfuellhilfe_Bsp-Klimaneutralitaet.pdf; accessed 13 April 2023).

⁽²⁴⁴⁾ Ministry of Education (2017), *Handbook for Ecological School Management: Environmental education for sustainable development* (https://oekolog.at/dokumente/100/bmbf_oekolog_handbuch17_web.pdf).

⁽²⁴⁵⁾ Breiting et al. (2005), *Quality Criteria for ESD Schools* (<https://www.ensi.org/global/downloads/Publications/208/QC-GB.pdf>).

⁽²⁴⁶⁾ CPI (2012), 'Οδηγός Εφαρμογής Προγράμματος Σπουδών Περιβαλλοντικής Εκπαίδευσης/Εκπαίδευσης για την Αειφόρο Ανάπτυξη για τους Εκπαιδευτικούς της Δημοτικής Εκπαίδευσης' (Guide for primary teachers for implementing the curriculum for environmental education / education for sustainable development), Nicosia: MoEC/CPI/CDU, pp. 17–123.

In other cases, although no specific criteria for learning for sustainability have been set, the national inspectorate may undertake an occasional thematic review. For instance, the Czech school inspectorate published thematic reports on Education in Global and Development Topics ⁽²⁴⁷⁾ and on Environmental education ⁽²⁴⁸⁾ in 2016 and 2019 respectively. Similarly, in 2022, the Swedish school inspectorate undertook a thematic qualitative review of the work of schools in learning for sustainable development ⁽²⁴⁹⁾.

Internal school evaluations are also often subject to a high degree of local and/or school autonomy. Schools set their goals, tasks and improvement plans and may be responsible for defining all evaluation criteria or may be able to add new ones to a predetermined list.

For instance, in Poland, school heads together with other management staff conduct mandatory internal inspections and use the findings to improve a school's performance. School heads are free to determine the topics, number and dates of internal inspections. Thus, sustainability topics can be addressed in inspections conducted in a given school year if it is considered relevant to a given school and/or if this is in line with the Minister's annual policy document. In Luxembourg, even though key evaluation areas are set by law, schools are free to add to these areas.

Finally, in other cases, such as in Liechtenstein, although no specific criteria exist, sustainability, being a cross-curricular competence that needs to be taught, is also discussed during the evaluation interviews. In Portugal, eco-friendly practices within school facilities, such as energy-efficient lighting and waste reduction, should be considered in evaluations, when relevant.

3.6. Conclusion

This chapter explores system-level efforts to establish supportive learning environments where the school as a whole is active on sustainability. It also examines original data on the financial and non-financial support to promote sustainability in schools and to develop partnerships with local and wider communities.

In the majority of European education systems, top-level authorities provide guidance and/or tools

to support schools in developing whole-school approaches to sustainability (Figure 3.1). Education ministries and other government bodies publish guidelines, organise webinars, create websites that collect pedagogical resources, compile best practices and publish handbooks and teacher manuals. Top-level support for designing, monitoring and evaluating sustainability strategies at the school level (self-evaluation tools, support for label schemes, etc.) and embedding sustainability in existing processes and measures, such as school development plans, are the most common areas of intervention (Figure 3.2).

A common form of promoting learning for sustainability is through the establishment of different types of sustainability schools. Most European countries already participate in programmes such as the Eco (Green) Schools and/or the UNESCO Schools Network. However, as these are international programmes, they have not been examined in any detail here. Instead, the focus has been on national sustainability school labels, certificates or awards. The Eurydice analysis reveals that such national schemes exist in 17 education systems, that is, in nearly half of them (Figure 3.3).

Investment in small-scale infrastructure that is relevant to learning for sustainability is still not widespread in Europe. Such investment, where available (Figure 3.4), is usually intended to fund the creation or maintenance of school gardens (13 education systems) or recycling infrastructure (12 education systems). Funding for bicycle infrastructure is slightly more common in secondary than in primary education (available in 10 and nine education systems, respectively). Our study also found that, in about one third of the education systems, decisions on investing in small-scale infrastructure that is useful to learning for sustainability are a matter for schools or local authorities. In other words, such investments may exist but, since they are not decided at the top level, we are not able to provide a full picture. Top-level support for non-infrastructure projects is comparatively more common, but only slightly. Specifically, there is support for field trips in 13 education systems, for school-level educational tools in 12 and for sustainability campaigns in nine.

As far as forging links between school and non-school actors is concerned, the data show that 18 out of 39 European education systems examined

⁽²⁴⁷⁾ Thematic report of the Czech School Inspectorate, Education in global and development topics in basic and secondary schools (Tematická zpráva ČŠI – Vzdělávání v globálních a rozvojových tématech v základních a středních školách) (<https://www.csicr.cz/cz/Dokumenty/Tematicke-zpravy/Tematicka-zprava-%E2%80%93-Vzdelavani-v-globalnich-a-rozvo>).

⁽²⁴⁸⁾ Thematic report of the Czech School Inspectorate – Environmental education in basic schools in the 2019/2020 school year (Tematická zpráva ČŠI – Environmentální výchova na základních školách ve školním roce 2019/2020) (<https://www.csicr.cz/cz/Aktuality/Tematicka-zprava-Environmentalni-vychova-na-zaklad>).

⁽²⁴⁹⁾ Schools Work with Learning for Sustainable Development (<https://www.skolinspektionen.se/globalassets/02-beslut-rapporter-stat/granskningsrapporter/tkg/2023/lhu/rapport-tkg-skolors-arbete-med-larande-for-hallbar-utveckling.pdf>).

here provide some support for school projects that have a public engagement dimension (Figure 3.5). Most commonly, this concerns relations with NGOs and, to a lesser extent, with public authorities or parents. Top-level authorities, the ministries of education and the ministries of the environment (or equivalent environmental authorities) fund environmental or environmental education NGOs, which, in turn, cooperate closely with schools. In short, top-level authorities support NGOs, which then support or facilitate the learning for sustainability in schools.

In terms of efforts to monitor how schools embed sustainability in their activities, less than a third of all education systems have established specific criteria related to learning for sustainability in either external or internal school evaluations (10 and eight education systems, respectively). In Spain, France, Latvia, Lithuania, Hungary, Malta and Austria, such criteria exist for both types of school evaluations (Figure 3.7).

Overall, our research findings show that there is some financial and non-financial support in place for learning for sustainability, but for the time being this type of support remains limited.

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Glossary

Competence: in the Council recommendation on key competences for lifelong learning ⁽²⁵⁰⁾, 'competences are defined as a combination of knowledge, skills and attitudes, where:

- knowledge is composed of the facts and figures, concepts, ideas and theories which are already established and support the understanding of a certain area or subject;
- skills are defined as the ability and capacity to carry out processes and use the existing knowledge to achieve results;
- attitudes describe the disposition and mind-sets to act or react to ideas, persons or situations'.

Continuing professional development (CPD): in-service training that allows teachers to broaden, develop and update their knowledge, skills and attitudes. It may be formal or non-formal and include both subject-based and pedagogical training. Different formats are offered, such as courses, seminars, workshops, degree programmes, peer or self-observation and/or reflection, support from teacher networks, observation visits. In certain cases, CPD activities may lead to supplementary qualifications.

Cross-curricular theme: a theme or topic (i.e. sustainability, sustainable development or a similar concept) that is explicitly defined as an overarching or cross-cutting teaching principle. It may also be defined as a key competence, an aim, a pillar, etc. Under this approach, rather than (or in addition to) being explicitly mentioned as part of particular subjects, educational content and objectives are understood to be transversal and therefore taught across all subjects and curriculum activities. Cross-curricular themes are often defined in the general part of curricula. However, they may also be established in other top-level steering documents.

Curriculum: an official steering document issued by top-level authorities containing programmes of study or any of the following: learning content, learning objectives, attainment targets, guidelines on pupil assessment or syllabuses. Specific legal decrees in some education systems may also be taken into account. More than one type of steering document may be in force at any one time in an education system and these may

impose on schools different levels of obligation to comply. They may, for example, contain advice, recommendations or regulations. Whatever the level of obligation, they all establish the basic framework in which schools develop their own teaching to meet their pupils' needs.

Engagement: any outreach activities that aim at promoting interaction and communication. Such activities may range from one-off outreach actions to fully fledged, permanent or institutionalised cooperation. In the context of this report, engagement refers to school projects that link the school or members of the school community (school head, teachers, students) to one or more of the following: parents, NGOs, public authorities or the broader public.

External school evaluation: is conducted by evaluators who report to a local, regional or top-level education authority and who are not directly involved in the activities of the school being evaluated. Such an evaluation covers a broad range of school activities, including teaching and learning and/or all aspects of the management of the school.

Initial teacher education (ITE): pre-service training that aims to provide prospective teachers with core professional competences and to develop the attitudes needed for their future role and responsibilities. ITE programmes cover general academic subjects and professional training (pedagogy, teaching methods and duties). The latter may also include the possibility of a first teaching experience through in-school placements. ITE is usually provided by a university or teaching/educating facility.

Interdisciplinarity: research or teaching involving two or more different subjects or areas of knowledge (disciplines) in a way that crosses subject boundaries in order to create new knowledge in achieving a common goal (OECD Global Science Forum, 2020).

Internal school evaluation: refers to an evaluation undertaken by persons or groups of persons who are directly involved with the school (such as the school head or their teaching and administrative staff and students). Teaching and/or management tasks may be evaluated.

⁽²⁵⁰⁾ Council recommendation of 22 May 2018 on key competences for lifelong learning, 2018/C 189/01.

International Standard Classification of Education (ISCED):

the ISCED was developed to facilitate the comparison of education statistics and indicators across countries on the basis of uniform and internationally agreed definitions. The coverage of ISCED extends to all organised and sustained learning opportunities for children, young people and adults, including those with special educational needs, irrespective of the institutions or organisations providing them or the form in which they are delivered. Text and definitions have been adopted from UNESCO UIS (2012).

ISCED 1: primary education

Programmes at ISCED level 1, or primary education, provide learning and educational activities typically designed to give students fundamental skills in reading, writing and mathematics (i.e. literacy and numeracy). This level establishes a sound foundation for learning and a solid understanding of core areas of knowledge, and fosters personal development, thus preparing students for lower secondary education. It focuses on learning at a basic level of complexity with little, if any, specialisation.

Age is typically the only entry requirement at this level. The customary or legal age of entry is usually not below 5 years or above 7 years. This level typically lasts 6 years, although its duration can range between 4 and 7 years.

ISCED 2: lower secondary education

Programmes at ISCED level 2, or lower secondary education, typically build on the fundamental teaching and learning processes that begin at ISCED level 1. Usually, the aim at this education level is to lay the foundations for lifelong learning and personal development, preparing students for further educational opportunities. Programmes at this level are usually organised around a more subject-oriented curriculum, introducing theoretical concepts across a broad range of subjects.

This level typically begins around the age of 10 or 13 years and usually ends at age 14 or 16, often coinciding with the end of compulsory education.

ISCED level 24 denotes general lower secondary education.

ISCED 3: upper secondary education

Programmes at ISCED level 3, or upper secondary education, are typically designed to complete secondary education in preparation for tertiary or higher education or to provide skills relevant to employment, or both. Programmes at this level offer students more subject-based, specialist and in-depth programmes than in lower secondary education (ISCED level 2). They are more differentiated, with a wider range of options and streams available.

This level generally begins at the end of compulsory education. The entry age is typically 14 or 16 years. There are usually entry requirements (e.g. the completion of compulsory education). The duration of ISCED level 3 varies from 2 to 5 years.

ISCED level 34 denotes general upper secondary education.

For more information on the ISCED classification, see the ISCED 2011 classification (<https://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>).

Learning objectives: statements of what a learner is expected to know, understand and be able to do on completion of a level or learning module. Learning objectives define the competences to be developed in terms of what the learner needs to achieve.

Learning for sustainability: aims at improving students' knowledge and understanding of sustainability concepts and problems, and instilling in students, teachers and schools the values and motivations to act for sustainability now and in the future – in one's own life, in their communities and as global citizens.

Local authority / school autonomy: means that the local and/or school authorities have been explicitly delegated the competences to regulate the areas concerned within the limits set by top-level regulations and guidelines.

School development plan: a strategic plan for improvement. It should bring together, in a clear and simple way, the school priorities, the main measures it will take to raise standards, the resources dedicated to these, and the key outcomes and targets it intends to achieve.

Small-scale infrastructure: mobile or immobile, temporary or permanent school infrastructure that is relatively small in terms of size and relatively easy to install. Consequently, the building of a new passive or low-energy school or school wing is not considered here as small-scale infrastructure. In contrast, building bike sheds, a garden or a lab can be considered as small-scale infrastructure.

Steering documents: different kinds of official documents containing regulations, guidelines and/or recommendations for education institutions.

Sustainability: in this report, sustainability means prioritising the needs of all life forms and of the planet by ensuring that human activity does not exceed planetary boundaries. It considers environmental, economic, social and political systems as interconnected systems, and involves transformation of values and attitudes for a more sustainable future.

Teacher competences framework (or professional standards): a collection of statements about what a teacher as a professional should know, understand and be able to do. It may inform the content of ITE programmes and decisions on CPD. The level of detail in the descriptions of knowledge, skills and attitudes varies across education systems.

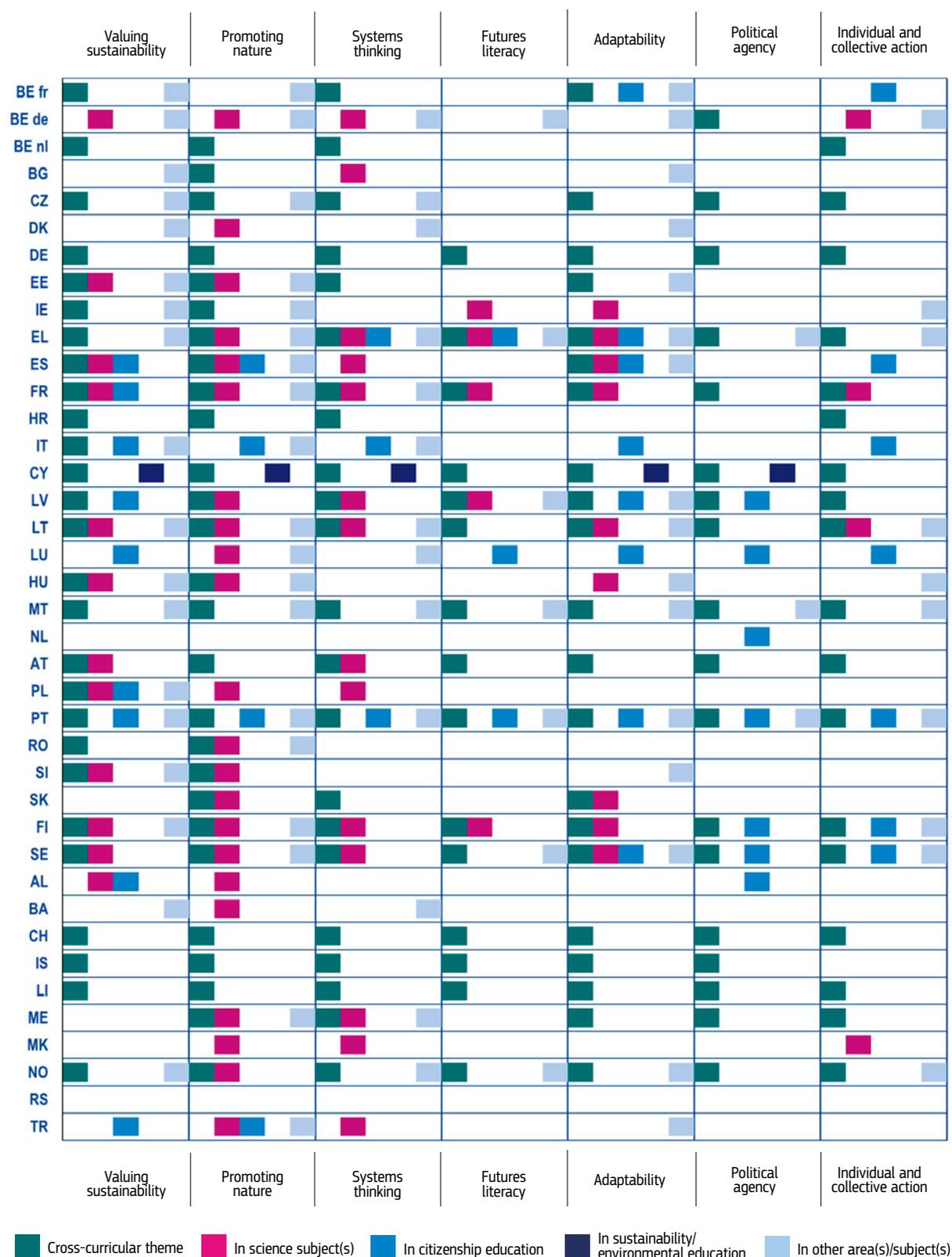
Top-level (or top-level authorities): the highest level of authority with responsibility for education in a given country, usually located at national (state) level. However, in Belgium, Germany and Spain, the *Communautés*, *Länder* and *Comunidades Autónomas*, respectively, are either wholly responsible or share responsibility with the state level for all or most areas relating to education. Therefore, these administrations are considered as the top-level authority for the areas where they hold the responsibility, while for those areas for which they share the responsibility with the national (state) level, both are considered to be top-level authorities.

Transdisciplinarity: research or teaching that integrates both academic knowledge (disciplines or subject areas) and non-academic knowledge and experiences to achieve a common goal involving the creation of new knowledge (OECD Global Science Forum, 2020). Transdisciplinarity ‘concerns that which is at once between the disciplines, across the different disciplines, and beyond all disciplines’ (Nicolescu, 2014, emphasis original).

Whole-school approaches to sustainability: refers to efforts to embed sustainability into all aspects of the learning environment, such as teaching and learning, school governance, facilities management and partnerships with local and wider communities. It aims to practise as well as teach sustainability.

Annex

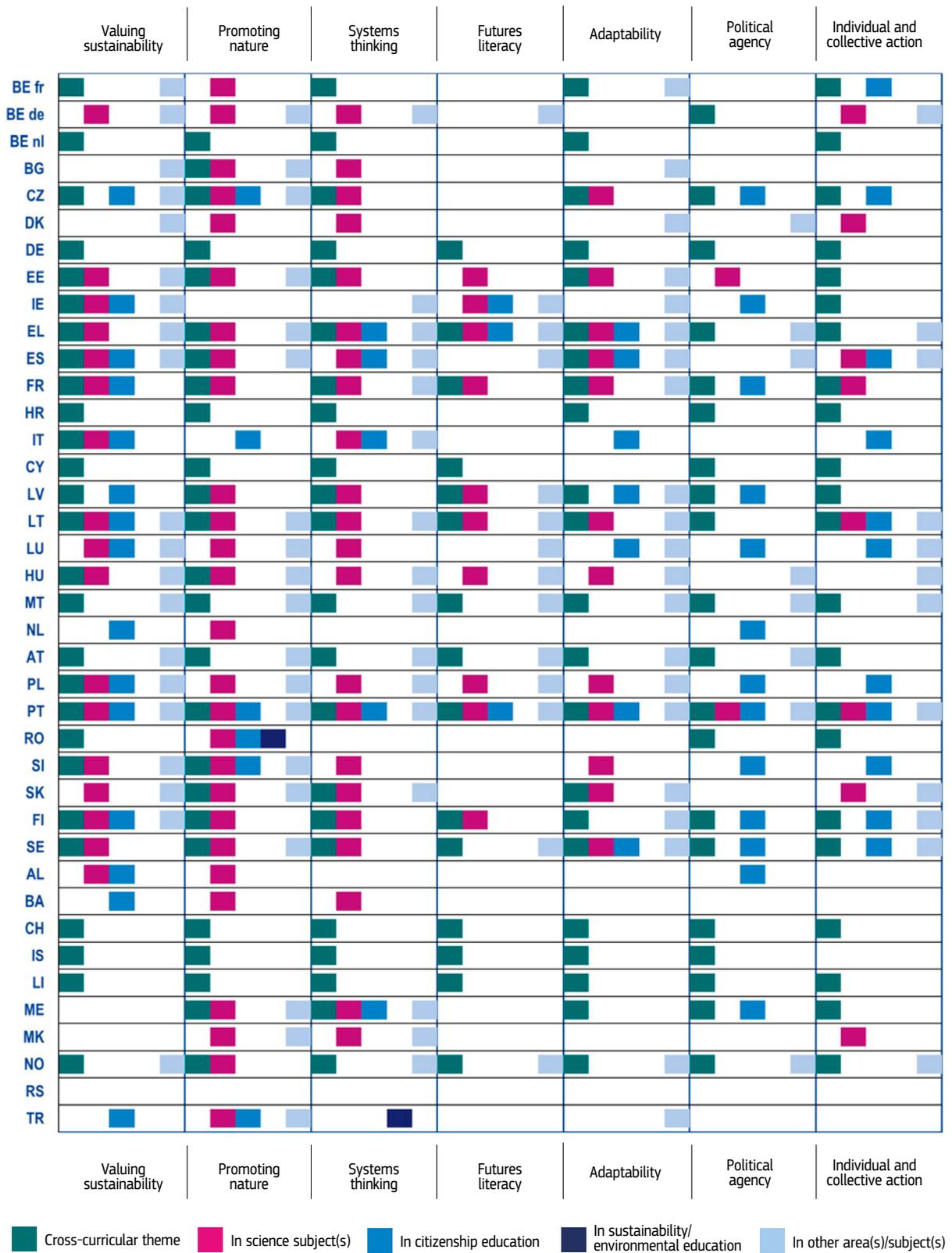
Figure A1: Sustainability competences in the top-level curricula, ISCED 1, 2022/2023



Source: Eurydice.

For explanatory and country-specific notes, see after Figure A3.

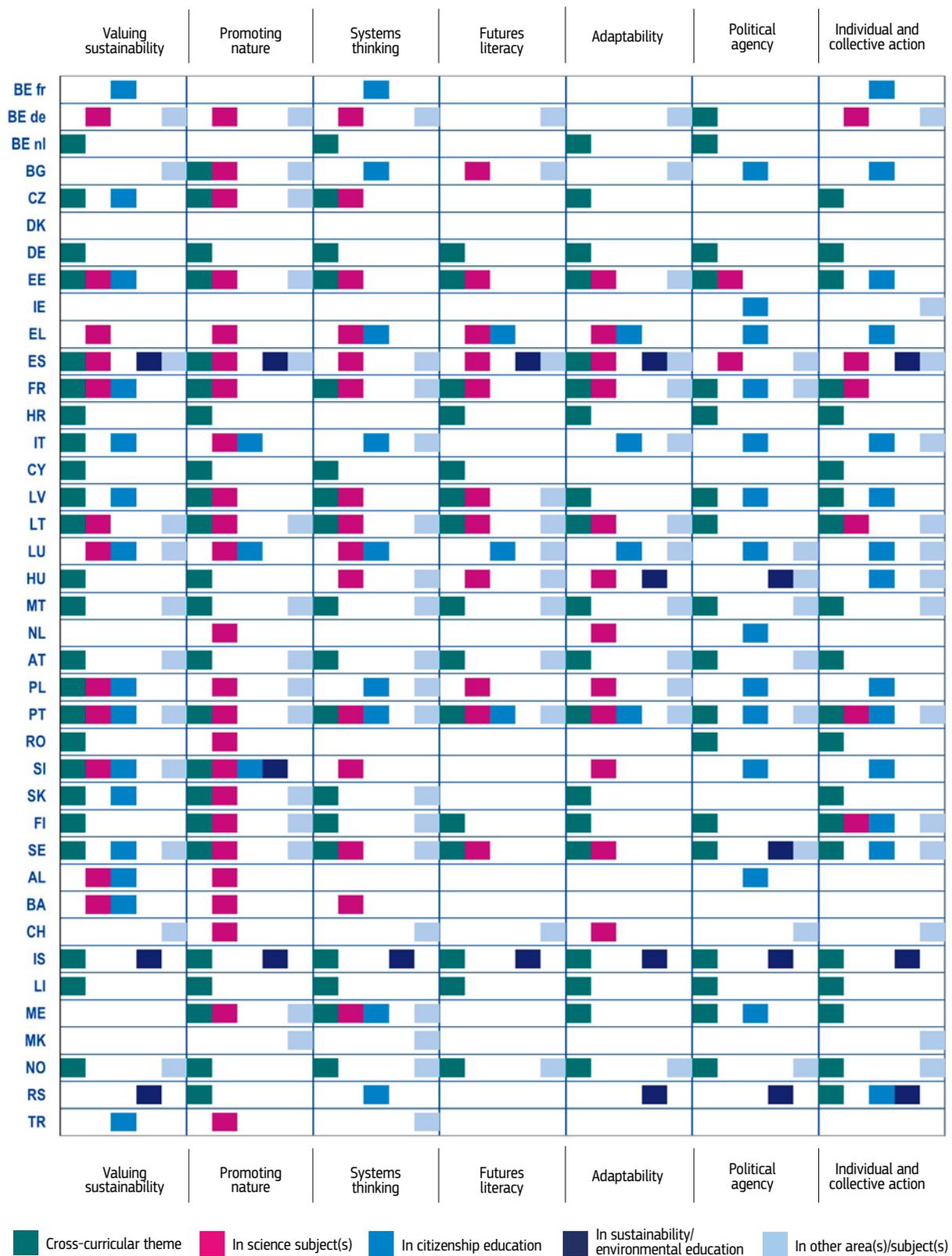
Figure A2: Sustainability competences in the top-level curricula, ISCED 24, 2022/2023



Source: Eurydice.

For explanatory and country-specific notes, see after Figure A3.

Figure A3: Sustainability competences in the top-level curricula, ISCED 34, 2022/2023



Source: Eurydice.

Explanatory notes for Figures A1, A2 and A3

'Science subjects' include natural science subjects as defined by top-level education authorities. The term 'citizenship education subjects' refers to subjects / curriculum areas linked to citizenship education, which might be found under different names in curricula. The category 'other subjects' most often covers geography, social studies (including economy), history and technology, but can also cover projects, arts, foreign languages, literature, physical education or other subjects. Subjects can be compulsory or optional.

Education systems indicating only or primarily cross-curricular competences usually do so because their cross-curricular reference document is relatively detailed, covering the subcompetences included in the analysis. These documents may indicate how the mentioned subcompetences should or could be integrated in specific subjects (e.g. in Germany, Croatia, Switzerland and Liechtenstein), or they may leave it for the lower-level education authorities or schools themselves to apply them (e.g. in Belgium – Flemish Community and Iceland). The specific subjects are not indicated in these cases, as the information is based on the general framework, and not on the subject-specific curriculum.

Country-specific notes for Figures A1, A2 and A3

Belgium (BE nl): The information is based on the attainment targets adopted in July 2023, which have been implemented from 2023/2024.

Denmark: ISCED 3: school autonomy (Figure A3).

Germany: The figures cover information from the recommendation of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (KMK) and the German Commission for UNESCO of 15 June 2007 on 'Education for sustainable development in schools'.

Austria: The figures cover information from both the 2014 decree for 'Environmental education for sustainable development' and the curriculum adopted in 2023, which has been implemented from 2023/2024.

Romania: The cross-curricular components refer to the 'green week' project and the incremental curriculum reform that started from 2023/2024.

Switzerland: Information for ISCED 1 and 24 is based on *Lehrplan 21*, the curriculum for German-speaking cantons. The curricula of French-speaking and Italian-speaking Switzerland also have a cross-curricular approach. Information for ISCED 34 is based on the curriculum of the Bern Canton due to the autonomy of cantons at this education level.

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Learning for sustainability in Europe: Building competences and supporting teachers and schools

Eurydice report

Education has an important role to play in advancing the green transition and building a sustainable future for Europe's societies and economies. This Eurydice report examines how European countries integrate learning for sustainability in teaching and school life in 39 education systems.

The report investigates which sustainability-related competences are included in the school curricula, and whether this is done following a cross-curricular approach or integrated into specific subjects. It examines how European countries prepare and support teachers in their endeavour to build and develop these competences in their students. It analyses the support offered to schools to implement whole-school approaches and to promote learning for sustainability.

Overall, most European countries integrate sustainability-related competences in the school curricula, provide dedicated training, teaching resources, learning materials and guidelines to help teachers to deliver sustainability education, and support schools in various ways. However, progress can still be made in embedding sustainability competences more extensively and in greater detail across the whole curriculum; in reinforcing targeted support, guidance and training opportunities for teachers and school leaders; or in providing more financial and non-financial support for specific school activities.

The Eurydice Network's task is to understand and explain how Europe's different education systems are organised and how they work. The network provides descriptions of national education systems, comparative studies devoted to specific topics, indicators and statistics. All Eurydice publications are available free of charge on the Eurydice website or in print upon request. Through its work, Eurydice aims to promote understanding, cooperation, trust and mobility at European and international levels. The network consists of national units located in European countries and is coordinated by the European Education and Culture Executive Agency (EACEA).

For more information about Eurydice, see:
<https://eacea.ec.europa.eu/national-policies/eurydice/>



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