









D4.1

Collective competences for sustainability

Funding scheme	EU-H2020-Grean Deal, H2020-LC-GD-2020-3		
Project	ECF4CLIM, European Competence Framework for a Low Carbon Economy and Sustainability through Education		
Project number	101036505		
Project Coordinator	CIEMAT, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas		
Start Date of the Project	01.10.2021	Duration of project	48 months
Contributing WP	WP4: TESTING THE ECF - BASELINE ASSESSMENT		
Tasks	Task 4.1: Collective competences for sustainability		
Dissemination Level	Public		
Due date	2023 January 31		
Submission date	2023 January 31		
Responsible partner	UAB		
Contributing organizations	UAB, JYU, CIEMAT, IST, USE, MedaResearch		
Authors:	Josep Espluga, Markku Lehtonen, Terhi Nokkala		
Version	1.0		
	The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036505		

WHO WE ARE

The ECF consortium consists of ten partners. The project is coordinated by Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas-CIEMAT.

Name	Country	Logo
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas – CIEMAT	ES	
Instituto Superior Técnico. University of Lisbon. IST	PT	
Universidad de Sevilla USE	ES	
University of Jyväskylä JYU	FI	
Universitat Autònoma de Barcelona UAB	ES	
Meda Research Ltd MedaResearch	RO	
Instituto de Soldadura e Qualidade ISQ	PT	
Trebag Szellemi Tulajdon Es Projektmenedzser Korlatolt Felelossegu Tarsasag TREBAG	HU	
Smartwatt Energy Sercuces SA Smartwatt	PT	
Que Technologies Kefalaiouchiki Etaireia QUE	GR	

ABOUT THE PROJECT

Through a multidisciplinary, transdisciplinary and participatory process, ECF4CLIM develops, tests and validates a European Competence Framework (ECF) for transformational change, which will empower the educational community to take action against climate change and towards sustainable development.

Applying a novel hybrid participatory approach, rooted in participatory action research and citizen science, ECF4CLIM co-designs the ECF in selected schools and universities, by: 1) elaborating an initial ECF, supported by crowdsourcing of ideas and analysis of existing ECFs; 2) establishing the baseline of individual and collective competences, as well as environmental performance indicators; 3) implementing practical, replicable and context adapted technical, behavioural, and organisational interventions that foster the acquisition of competences; 4) evaluating the ability of the interventions to strengthen sustainability competences and environmental performance; and 5) validating the ECF.

The proposed ECF is unique in that it encompasses the interacting STEM (Science, Technology, Engineering, and Mathematics)-related, digital and social competences, and systematically explores individual, organisational and institutional factors that enable or constrain the desired change. The novel hybrid participatory approach provides the broad educational community with an ECF adaptable to a range of settings; new ways of collaboration between public, private and third-sector bodies; and innovative organisational models of engagement and action for sustainability (Sustainability Competence Teams and Committees).

To encourage learning-by-doing, several novel tools will be co-designed with and made available to citizens, including a digital platform for crowdsourcing, IoT solutions for real-time monitoring of selected parameters, and a digital learning space. Participation of various SMEs in the consortium maximises the broad adoption and applicability of the ECF for the required transformational change towards sustainability.

LEGAL NOTICE

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the CINEA nor the European Commission is responsible for any use that may be made of the information contained therein.

All rights reserved; no part of this publication may be translated, reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of the publisher.

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. The quotation of those designations in whatever way does not imply the conclusion that the use of those designations is legal without the content of the owner of the trademark.

TABLE OF CONTENTS

1. Executive Summary	7
2. Objectives	14
3. Defining collective competences	14
4. Methodology	15
4.1. Sample of demonstration sites	15
4.2. Document analysis	18
5. Regulative competences.....	21
5.1. Universities.....	21
5.1.1. Responsibilities	21
5.1.2. Resources	22
5.1.3. Contents of sustainability competences.....	23
5.2. Schools of basic education and High schools.....	23
5.2.1. Responsibilities	23
5.2.2. Resources	27
5.2.3. Contents of sustainability competences.....	29
6. Normative competences	30
6.1. Universities.....	30
6.1.1. Responsibilities	30
6.1.2. Resources	31
6.1.3. Contents of sustainability competences.....	32
6.2. Schools of basic education	33
6.2.1. Responsibilities	33
6.2.2. Resources	34
6.2.3. Contents of sustainability competences.....	35
6.3. High schools.....	36
6.3.1. Responsibilities	36
6.3.2. Resources	37
6.3.3. Contents of sustainability competences.....	38
7. Cultural-Cognitive collective competences	39
7.1. Attitudes and general atmosphere	39

7.2.	Rules and norms.....	40
7.3.	Prioritisation.....	41
7.4.	Assumptions, taken-for-granted norms and beliefs, gaps.....	43
7.5.	Facilities, infrastructure, and collaboration.....	45
8.	Conclusions.....	48
9.	References.....	51
10.	Annex.....	52
10.1.	Schools of basic education and High schools.....	52
	Regulative competences: List of key laws and regulations affecting SD education.....	52
10.2.	Schools of basic education.....	54
	Normative competences: List of key plans and strategies affecting SD education in Schools of basic education and High schools.....	54
10.3.	High school.....	55
	Normative competences: List of key norms and plans affecting SD education.....	55
10.4.	Universities.....	56
	Regulative competences: List of key laws and regulations affecting SD education in the Universities of the sample.....	56
	Normative competences: list of key norms and plans affecting SD education.....	57

1. EXECUTIVE SUMMARY

This deliverable on task 4.1 establishes the baseline of the collective competences for sustainability in our schools and universities, twelve demonstration sites from Finland, Portugal, Romania and Spain. Collective competences can be defined as the set of enabling and constraining features that condition the capacity of a community or an organisation to function in a manner that fosters sustainable development and to prepare younger generations for behaviours that advance such an objective.

We have distinguished three types of collective competences:

- Regulative competences (external to the organisation in question): Deriving from written rules (laws, regulations) that stipulate on the ways in which sustainable development is to be considered and promoted – and by whom.
- Normative competences (internal to the organisation): Norms and values reflected and institutionalised in the organisation’s own strategies, programmes of action, plans, guidelines, result agreements concluded with authorities at different levels of governance, etc.
- Cultural-cognitive competences: related to the internalisation of the regulative and normative competences as taken-for-granted social norms of normal and acceptable behaviours; translation of regulative and normative competences into the organisation’s operating culture, daily routines, habits, and practices.

This assessment, conducted through documentary analysis and selected interviews and workshops with key actors, has allowed us to identify enabling and constraining institutional factors (e.g., local, regional, and national-level policies) that condition the implementation and success of the measures designed to foster sustainable development in our educational organisations.

The analysis was carried out at the twelve ECF4CLIM demonstration sites: a school of basic education, a high school, and a university in each of the four countries participating in the study (Finland, Portugal, Romania, and Spain).

The analysis shows that at all our demonstration sites there is a clear tension between the regulatory and normative competences on the one hand and the cultural-cognitive competences on the other. Such tension is to be expected, because one thing is what the educational establishment proposes and another what it achieves in practice. But the analysis conducted here also allowed us to better identify and specify the aspects in which “theory and practice” coincide and where they diverge.

A) Regulative competences:

- **Regulative** competences in our schools of basic education and high schools:

At our schools of basic education, a series of general (education) laws establish the basic curriculum and its contents. In Finland and Portugal, municipalities and schools can introduce local adaptations. In Spain, the regions can define 40%-50% of the curriculum contents. In all the countries, teachers have significant freedom to decide whether and how to integrate sustainability in their teaching. They sometimes can follow the curriculum sustainability contents, or go beyond the minimum requirements. It seems that the teachers have greater freedom to define teaching contents in the area of sustainability than in other, curriculum-based teaching.

In all four countries, sustainability is to be integrated in the curriculum in a transversal way. However, especially in Portugal and Romania, specific mandatory or optional courses on sustainability (citizenship, environmental education) are provided. In addition, training actions are also provided for teachers on topics of sustainability, climate change, and the environment.

In Finland, schools are run by the municipality. The director of the school is a person hired by the municipality. Each municipality organises action plans for schools, including some related to sustainability. In Portugal, schools depend on the municipalities and the Ministry of Education – an arrangement which leaves for the school management little room to decide on organisational aspects. In Spain, the school council has the main responsibility for integrating innovative projects related to sustainability, with the support of the management team or the school principal.

In all four countries, our schools have subcontracted certain key services vital for sustainability (maintenance, food, waste collection, etc.). These services are financed by the central or regional government, and the service agreements with companies are negotiated and concluded by the municipalities. The municipality therefore play a key role in most cases, except in Spain, where the regional government is the key player. In Romania, also the country-level inspection services are important.

However, the coordination of schools with other actors in the community is scarce. The Finnish participants pointed out time limitations as a major obstacle to coordination. In Spain, although the law requires collaboration, in practice this is not something that occurs very often.

In most cases, no dedicated funding is available for the implementation of sustainability measures in our schools or for joining projects that promote these measures. Teachers participate in projects mainly on a voluntary basis. Training activities are available for teachers, but usually time constraints limit the attractiveness of such training. Sometimes municipalities (Finland, Portugal), regions (Spain), and the national ministry (Romania, Portugal) provide education resources on sustainability both to teachers and to students.

Regarding the content of the regulative competences, in Finland the social dimension of sustainability is emphasised, although also the other dimensions are considered. In Portugal and in Spain, the social and the environmental dimensions are given most attention, whereas in Romania, the curriculum prioritises the environmental dimension over the social and economic ones. The economic dimension figures the least prominently in all four countries.

- **Regulative** competences in our universities:

All four analysed universities have a high degree of autonomy to decide how to organise the studies and, therefore, whether and how to include sustainability teaching and activities. In consequence, at our universities, each teacher has the power to decide how, if at all, to address these topics. Both the leadership of the universities (rectorates and collective decision-making bodies) as well as the teaching units and professors can include sustainability issues in their teaching and in the day-to-day operation of their departments.

None of the analysed universities seems to have allocated dedicated resources for promoting sustainability. Each university can divert economic and human resources from existing other activities to sustainability issues or to innovation projects related with this topic.

At all four universities, there are criteria to introduce elements of sustainability in teaching and in the mission of the organisations, mainly from an environmental and technical perspective. Only in Finland is there a clear willingness to include the social, economic, and cultural dimensions of sustainability (through the concept of planetary wellbeing).

B) Normative competences

- **Normative** competences at our schools of basic education and high schools:

The internal organisation of responsibilities for sustainability differs considerably from one school to another. In some cases (such as in the Finnish school – Juhannuskylän koulu– where a teacher has been nominated as the “contact person of sustainable future”, and is a member of the school management team), the teachers are well organised to promote actions for sustainability. In others (such as Romania –Nicolae Balcescu school– and Spain –CEIP Mozart–) sustainability teaching is left for the initiative of each teacher. In Portugal and Spain, the analysed schools (Escola EB 123 da Bobadela and CEIP Mozart) belong to the Eco-schools’ international network, a voluntary programme, which guarantees that some teachers will dedicate efforts to sustainability. There was a general consensus among the participants of our sample schools that the commitment of the school leadership is vital for the success of sustainability efforts. Decisions concerning infrastructure and services, such as energy, water, waste, etc., usually depend on external actors such as companies providing these services, or the local municipality (in Spain, the regional authority).

In the four high schools analysed, teachers have considerable autonomy to decide on sustainability teaching. It is easier to introduce this topic in extracurricular activities than in the regular teaching. In the analysed high schools of Finland and Spain, every teacher is responsible for her/his own teaching and can decide teaching objectives and methods within the limits of the national curriculum. In Portugal, the educational programmes do not impose obligations upon the teachers; they only give general orientations and define the goals to be achieved in the subsequent years. In the Romanian high school (Iulia Zamfirescu), the autonomy of the teacher is greater in sustainability-related than in the regular courses.

Most schools have not allocated financial or human resources to carry out actions for sustainability. The Romanian basic and high school (Nicolae Balcescu and Iulia Zamfirescu) can introduce extra

courses on sustainability with funding from a state programme. However, for the majority of our schools' sustainability-related services depend on external entities (regional governments, municipalities, NGOs, subcontractors, etc.). In most of our case studies, sustainability activities imply an additional effort from teachers, who are usually not compensated for these extra activities. The only exception seems to be the Finnish case, where the schoolteachers participating in the 'Sustainable future team' have a number of hours per year to devote to sustainability activities.

In the schools of basic education of our case studies sample, the contents of the competences depend on whether there is any specific subject on sustainability. In the Finnish school (Juhannuskylän koulu) no such subject has been specified. In the Portuguese school, the compulsory subject "Citizenship and development" addresses sustainability issues. In the Romanian ones, an optional subject on "Ecological and environmental education" is provided, while in the Spanish one sustainability is a transversal topic cutting across the general curriculum. The same goes for the high schools, with the difference that in the Finnish case-study the official curriculum for the upper secondary school includes a variety of sustainability issues, and some additional local courses are available. In Portugal, "Citizenship and development" is taught also in the secondary schools. In Romania, the Iulia Zamfirescu school has a subject on "Ecological education", whereas in the Spanish IES Ítaca sustainability is a transversal topic in the curriculum (by law).

– **Normative** competences at our universities:

All four analysed universities have organisational structures and strategic plans devoted to sustainability. These plans are coordinated by an internal section or division of the university management, and mainly focus on the environmental performance in the operation of the buildings and of the campus, and on achieving cost savings (in energy and water consumption, waste management, etc.). The social dimension of sustainability generally receives less attention. Most people in charge of sustainability belong to the technical staff. Only in the Finnish case (University of Jyväskylä) is there a "Sustainable and responsible development team" formed by professors and experts from various faculties, to advise and inform the university sustainability policies and curriculum work.

All four analysed universities have delegated many of their services to external companies (maintenance, cleaning services, food services, waste collection, etc.), which reduces the margin of manoeuvre of the university to improve the environmental performance and sustainability in the campus. Renegotiation of the service agreements is usually only possible once the agreement expires.

In all our four universities, the teachers have lot of autonomy on whether, what and how to teach on sustainable development, provided that the approach complies with the educational objectives declared in the initial design of the course approved by the university and supervised by the quality agencies.

In all four universities the resources available to promote sustainability stem from regular budgets. Therefore, the universities are free to prioritise their various activities at will. Introducing new sustainability-related courses and activities faces the constraint of requiring a reallocation of

resources – in practice, reducing the resources from the existing and often well-established courses and activities. Institutional inertia therefore tends to keep sustainability as a lower-priority topic.

The importance given to sustainability varies across universities. Those in the case-studies of Finland and Portugal seem to give a higher priority for sustainability in all its dimensions, proposing ways to measure progress and acting in various dimensions (structural, organisational, curricular contents, etc.). The analysed universities in Romania (Pitesti) and Spain (UAB) appear to give lower priority to the subject as a whole, relying on voluntary action, although sustainability is paid at least lip service in the university plans.

C) Cultural-cognitive competences:

- **Cultural-cognitive** competences in our Schools of basic education and High schools:

In the **Schools of basic education** of our sample, students expressed some difficulties in understanding the concept of sustainability (EB 123 da Bobadela, in Portugal), yet they also pointed to the gap between words and action (EB 123 da Bobadela in Portugal, and CEIP Mozart in Spain). Such discrepancies included those between what is taught at school and the daily practices of families (Portuguese case-study) and the community at large (Romanian case study). Students regretted that the rules of good environmental behaviour are breached in the day-to-day life, both by students and by teachers: the lights are not turned off, the waste is not adequately sorted, etc. (Spanish case-study). The students also feel that people are often indifferent in relation to sustainability, but they also recognise some good practices for example by NGOs.

Although these basic and high schools have introduced elements of sustainability, they have done so in a very partial and piecemeal way. Only the natural science subjects treat sustainability in a more transversal way, whereas in the other subjects sustainability has almost no place whatsoever (Portuguese and Romanian case-studies). It is left to the teacher's initiative to incorporate optional courses on sustainable development, which nevertheless often remain as isolated one-off exercises without continuity (Romanian case-studies). Lack of the time hinders collaboration and coordination among teachers as well as teacher participation in voluntary sustainability activities (Spain).

Our students feel that they have learned many things about sustainability (especially concerning the environmental dimension, including energy saving, recycling, etc.), but they perceive that students in higher grades tend to adopt and imitate the unsustainable habits of adults (Romanian case-study). Our students find difficult encourage behaviour change at school, and stress the importance of constant good examples (Portuguese case study). However, although they want to be more sustainable, our students perceive that there are structural barriers that prevent them from doing so, such as long commuting distances, lack of resources, laws, etc. (Spanish case-study), not only at school level, but also at municipality level (Portugal). The links between school and the local society are key for improving sustainability. Lack of resources and infrastructures (green spaces, containers, public transport, bike lanes, buildings' quality, etc.) were widely mentioned as key obstacles to sustainability (except in our Finish case-study).

In the **High** schools of our sample, students lack understanding of sustainability, associating the concept mostly with environmental aspects (Portuguese and Romanian case studies), and showing little interest in the other dimensions. Our teachers instead have a broad vision (Portuguese case-study). Some high-school students find it embarrassing to talk about sustainability to peers (Finnish case-study), consider that they have limited possibilities to influence global sustainability through small individual actions (Portuguese and Finnish case-studies), and underline the difficulties to change daily behaviours (Romanian case-study). Many students argue that in society, bad examples abound, individualism predominates over collective values, and consumerism is deeply rooted in the people's minds (Romanian case-study). Our teachers feel also frustrated because other teachers, students and staff do not behave in an environmentally respectful manner (recycling, etc.). The lack of time to participate in extracurricular activities among students and lack of time for collaboration among teachers are further barriers to sustainability (Finnish case-study).

In all our four case-study countries, despite good intentions, lack of time and other resources discourages sustainability activities. It is perceived that sustainability may well be a priority in the school strategies and plans, but does not receive the same priority in actual resource allocation. Moreover, students in Romania (Iulia Zamfirescu high school) underlined the importance of maintaining the attractiveness (job opportunities, enjoyable living environment) of the local community, in order to ensure sustainability.

– **Cultural-cognitive** competences at our universities:

Sustainability remains a poorly-defined and vague concept, and students are not motivated to participate in sustainability activities that are not included in the course schedule (University of Jyväskylä case-study, in Finland). Students are interested in sustainability, but the faculty does not provide incentives to debate and action in this area (UAB Spanish case-study).

The university students of our sample considered that sustainability is usually approached in a narrow way, sometimes reduced to things like recycling (Finnish case-study). Students tend to consider sustainability as an important topic, which nevertheless is seldom integrated in university courses or subject syllabi, and on which they lack knowledge – including knowledge about what if anything the university is doing on the subject (Spanish case-study). Students highlighted the gaps between the university plans and the actual practices. The Romanian students (of the case-study of the University of Pitesti) found the legislative frameworks as too complex and in contradiction with real-life constraints faced by the citizens.

These university students blamed the hegemonic way of life and the economic growth philosophy promoted by advertising and the media as working against sustainability objectives, but believed that small actions by individuals (students) can make a difference and help move towards sustainability (Romanian case-study). Students in Finland expressed frustration at the fact that sustainability is not always a norm of action manifested in the daily practices at the university (Jyväskylä case-study). The university should lead by example, the students considered, but too many contradictions exist between what it proposes and what it practices. The resistance of the

universities to change actually sets a bad example and reduces the effectiveness of education for sustainability (Romanian case-study).

Out teachers considered that plenty of as such necessary rules and plans had been created during the past decades to foster sustainable development, but that it was hard to mobilise the students for more profound changes (Spanish case-study). Both the teachers and the students of the Spanish case thought that the university should motivate students to act for global environmental causes and better organisation, attention to collective action, and institutional change was needed. At the same time, both students and teachers think that the tendency of public information campaigns for sustainability to put the blame on individuals is counterproductive (Spanish case-study). Finally, the poor quality of the school and municipal infrastructure was mentioned by the university students and teachers as a major shortcoming and obstacle (e.g., building insulation, transport infrastructure) in all four university case-studies but in the Finnish case.

2. OBJECTIVES

This deliverable on task 4.1 establishes the baseline of the collective competences for sustainability in schools and universities. It will survey the current practices for sustainability, the status of the integration of sustainability concerns, the responsibilities at various levels of management, and the available resources for sustainability policies, such as financial and human skills. The task also explores the underlying “intervention theories”, that is, the implicit and explicit assumptions underpinning the existing sustainability policies and structures, notably the expected causal relationships between the policy context, policy interventions, competences and policy outcomes. This assessment, conducted through documentary analysis and selected interviews with key actors, will identify enabling and constraining institutional factors (e.g., local, regional, and national-level policies) that condition the implementation and success of the measures designed to foster sustainable development in educational organisations.

This task will support the development of organisational structures at schools and universities, which will mobilise students, teachers, administrative staff, public authorities, civil society organizations, businesses, stakeholders and other existing initiatives to promote action against climate change and in favour of sustainable development and environment protection.

3. DEFINING COLLECTIVE COMPETENCES

A competence can in general terms be conceptualised as “[a]n innate quality of an organism or system and (possibly) qualifications” (Vare et al. 2022). Collective competences for sustainability, can in turn be defined as the set of enabling and constraining features that condition the capacity of a community or an organisation to function in a manner that fosters sustainable development, and to prepare younger generations for behaviours advancing such an objective. Drawing on the concepts and theories of sociological institutionalism (Scott 2013), we draw on the basic distinction between (calculating) logic of consequences and the (cultural) logic of appropriateness, to classify these competences under three general categories:

1. Regulative competences (external to the organisation in question)
 - Follows the logic of consequences
 - Derives from written rules (laws, regulations) that stipulate on the ways in which sustainable development is to be considered and promoted – and by whom.
2. Normative competences (internal to the organisation)
 - Follows the logic of appropriateness

- Norms and values reflected and institutionalised in the organisation's own strategies, programmes of action, plans, guidelines, result agreements concluded with authorities at different levels of governance, etc.
3. Cultural-cognitive competences
- Follows the logic of appropriateness
 - internalisation of the regulative and normative competences as taken-for-granted social norms of normal and acceptable behaviours; translation of regulative and normative competences into the organisation's operating culture, daily routines, habits, and practices
 - stresses the fact that internal interpretive processes are shaped by external cultural frameworks
 - shaped also by the involved professional and broader cultures at various levels

4. METHODOLOGY

The results have been obtained by analysing the documentation of the demonstration sites (12 educational centres in 4 countries), as well as by conducting interviews and working groups with students, teachers and staff from said centres.

4.1. Sample of demonstration sites

The twelve analysed educational centres are the following:

Schools of basic education:

- **Finland: Juhannuskylän koulu** (Juhannuskylä school) is a public primary and lower secondary school (= "basic school"), from grade 0 (for pupils 5-6 years of age) to grade 9 (14-15 years). In 2021-2022, the school had 831 pupils (vipunen.fi), of which 2/3 in lower secondary school (grades 7-9), and about 90 teachers, of which about 1/6 are class teachers teaching multiple subjects for grades 1-6. Juhannuskylän koulu operates is located in Tampere, the country's third-largest city by population, and operates under the municipality administration, as most public schools in Finland. In socio-economic terms, the school admission area is of average Finnish level.
- **Portugal: Escola EB 123 da Bobadela** is a public elementary school (ISCED 1 and 2) operating under the municipality of Loures, in the district of Lisbon. The school is located in the parish "União das Freguesias de Santa Iria de Azóia, São João da Talha e Bobadela". The school has community of 910 people includes 792 pupils, 81 teachers, 7 administrative staff, and 30 auxiliary staff. The vast majority of children who attend school are from the neighbourhoods of the parish of Bobadela.

- **Romania: School Nicolae Balcescu** is a public primary school located in Dragasani town, Olt County. It has more than 500 students (6-15 years old) and over 30 teachers. Dragasani is a little town of about 18000 inhabitants in the south of the country. The main economic sectors and job providers are wine growing, small companies producing components for the automotive sector, and services. The town has suffered from a socioeconomic decline for the last three decades.
- **Spain: The CEIP Mozart** public primary school is located in Alcalá de Henares district, in the Autonomous Community (AC) of Madrid. Created in 2008, it is the youngest district in the city both when it comes to its housing stock and its demography. It is the only district in the Madrid AC that has gained population in the past two years. It is the district with the highest percentage of child population in Spain/Madrid CA. The school has 670 students distributed among 10 infant classes (1st, 2nd and 3rd grades) and 18 primary school classes (from 1st to 6th grade).

High schools:

- **Finland: Sammon keskuslukio** (Sampo upper secondary school) is a public upper secondary school operated by the Tampere municipality. In 2021-2022 the school had all in all 912 pupils (vipunen.fi) and about 50 teachers. Most of the pupils are within the 15-20-year age group. Students come mostly from Tampere, but also from the surrounding areas. The Finnish central government provides subsidies for both public and private upper general schools.
- **Portugal: The “Escola E.B.2,3 de Camarate”** is a public school (ISCED 1 and 2) operating under the municipality of Loures, in the district of Lisbon. In 2021-2022, the school community consisted of 877 people, including 741 pupils, 102 teachers, 9 administrative staff, and 25 auxiliary staff. The area of 11.57 km² and 34 943 inhabitants has a high unemployment rate is around 18%, and hosts social housing neighbourhoods with a number of persisting social problems.
- **Romania: “Iulia Zamfirescu”** is a public high school located in Mioveni town, Arges county. It has more than 1300 students (6-19 years old) and more than 60 teachers. The area for collecting students is mainly Mioveni town and its neighborhoods. Mioveni is a small town (approximately 35000 inhabitants) but very dynamic, and in a development boom. The local economy is dominated by industry (automotive and nuclear fuel). This demonstration site was selected having the characteristics of a modern high school in Romania, having a recently built infrastructure (2006), and with students predominantly originating from the local area.
- **Spain: The IES Ítaca** Secondary Education School is located close to Seville city, in the region of Andalusia, in a village called Tomares (25,370 inhabitants). In 2022-23, there are 621 students, of which 477 in compulsory secondary education and 144 in high school, and

53 teachers. The school is managed by the regional government, given that in Andalusia, only the primary and infant schools are municipally managed. The students come from families of medium or high socioeconomic status, with parents with permanent jobs and a high educational level.

Universities:

- **Finland: University of Jyväskylä** is a public multidisciplinary research university in Jyväskylä, the country's 7th-largest city in the central Finland. The university aspires to be a global leader in the study of learning, wellbeing and basic natural phenomena, with sustainability as among the core values. The university is ranked among the top three percent in the world. The 14 000 students come from all parts of Finland, with 3,9 % of students from abroad. 15 % of all applicants are admitted to JYU. Half of the 2 600 employees have permanent posts. Two-thirds of the employees consist of researchers and teachers, with 13 % of foreign nationality.
- **Portugal: The Instituto Superior Técnico (IST)**, a faculty of the University of Lisbon, is the largest Portuguese public school of Engineering, Architecture, Science, and Technology and is considered one of the most reputed engineering institutions in Europe. The university campus in Alameda was built in 1937 and was the first autonomous campus in the entire Portuguese university system. Today, IST has three campi, which are located in Alameda, Tagus Park and Bobadela, and has 11,000 students and 900 professors/researchers from various nationalities.
- **Romania: University of Pitesti** is a young university in Romania. It was founded in 1962, with a boom development after 1990. There are more than 9000 students, covering the 3 university cycles: bachelor's, master's and doctorate. The included faculties are: Sciences, Informatics, Physical Education and Sports; Mechanics and Technology; Theology, Letters, History and Arts; Electronics, Communications and Computers, Economics and Law; Education Sciences, Social Sciences and Psychology. The students are mainly 19–24-year-old, the area of collection is regional (dominantly Arges, Olt, Teleorman, and Valcea county). There are also students from abroad, but their number is low, regularly less than 50. Pitesti is a medium size town in Romania (around 180 000 inhabitants) with a good economic development (dominated by automotive industry, petrochemistry, services and commerce). University of Pitesti has been recognized as a good provider of human resources for the regional labor market.
- **Spain: The Universitat Autònoma de Barcelona (UAB)** is a public university that runs 105 different undergraduate courses, covering a wide range of fields including humanities and arts, social sciences, health sciences, experimental sciences and technological sciences. In addition, UAB offers a total of 67 doctoral programs, and 265 postgraduate programs, including Erasmus Mundus master's degrees. UAB has more than 40.000 students and 3.760 teachers and researchers. The UAB is located in the metropolitan area of the city of Barcelona, in a high industrialized county (Vallès Occidental). Around 4 million people lives

in the metropolitan area of Barcelona. The UAB is the second largest university in the area, after the University of Barcelona (UB).

4.2. Document analysis

At this first stage, which consists of document analysis, we focused only on the regulative and normative competences. Analysing cultural-cognitive competences is vital for ECF4CLIM but cannot be done in a meaningful manner only by studying documents. For the identification and analysis of cultural-cognitive competences we will draw on observations and other material from the sustainability competence teams (SCT) and committees (SCC).

The first step in the analysis is to see whether the competence is there in the first place, that is, whether the external regulations allow or oblige the organisation to promote sustainability. As for the regulative competences, the national regulatory framework may have a constraining role for example by obliging the schools to include sustainability in their curriculum. Likewise, the national/regional/municipal regulations may have an enabling function by allowing the schools to select their own energy provider. In a similar manner, for the analysis of the normative competences, the first step is to check whether the organisation has set up its own strategies, policies, plans, and programmes for sustainability.

It is worth underlining that the very same collective competence may in some countries be defined in national, regional, or municipal legislation but may in another country be left to the discretion of the schools/universities. In the former case, the competence would be defined as regulative, while in the latter, it would fall within the category of normative competences. Such distinctions and differences across countries/organisations are as such vital and useful information for ECF4CLIM.

The reports from the demonstration sites were structured under the following sections:

- 1) Identifying the SD-related documents

Which are the legislative/regulatory acts that constrain or enable the activities of schools and universities in the area of sustainability? Which strategies, plans, and programmes relating to sustainability has the school/university established for itself?

Beyond the mere identification of legislative/regulative acts and the organisation's strategies, the next step is to analyse the ways in which these are operationalised, in terms of organisational capacities and arrangements. To identify and analyse these, we suggest applying the concepts of "plan, do, check, and revise". In essence, the partners should therefore examine what the legislation and regulation external to the school/university and the school/university-specific policies, strategies, and programmes say on who should plan, implement, evaluate, and continuously refine the schools/university's activities related to sustainable development, and how.

- 2) The key elements of competences: Plan, do, check, revise

Which are the specifications in legislation, regulation, and the organisation's internal strategy documents relating to the following four categories of action?

- Plan: roadmaps, strategies, action plans, foresight activities, scenario planning exercises...
- Do: rights, duties, and responsibilities to act (incl. the requisite resources to do so)
- Check: ex post and on-going evaluations designed to monitor, follow-up and evaluate the outcomes/consequences of actions taken
- Revise: mechanisms established to ensure continuous learning and periodic revision of plans, implementation, and evaluation of SD-related activities.

3) Responsibilities, leadership, resources

In carrying out the analysis, it is worth paying attention to questions of ownership, leadership, and cooperation, and resource allocation. First, for a given SD-related aspect, the partners should examine what the analysed documents say about:

- who is/are empowered to act,
- who carries the lead responsibility,
- cooperation and coordination between the involved actors, and
- who decides?

Second, in addition to the allocation of duties and responsibilities, the analysis should seek to identify whether resources have been allocated for the achievement of any given competence. Even if duties, responsibilities, leadership, and collaboration arrangements are clearly defined, this is unlikely to lead to action and desired outcomes unless the actors possess the requisite financial, human, and cognitive resources. The partners should seek to identify whether the legislative, regulatory or strategy documents specify the financial, human, and knowledge resources needed for the execution of specific SD-related tasks.

4) The contents of sustainability competences

The third layer of analysis focuses on the contents of sustainability competences, that is, what, if anything, the analysed documents say about the substance of sustainable development. The aim here is not to conduct an in-depth analysis of what the documents say about sustainability, but instead to focus on two key distinctions.

First, a distinction will here be made between competences relating to teaching objectives and methods on the one hand and to the technical and organisational aspects on the other. For example,

laws, regulations and strategies may or may not specify 1) what types of SD-related skills and knowledge students should acquire through teaching (e.g., climate & biodiversity knowledge, collaboration skills, awareness of and sensitivity towards intra- and intergenerational equity); and 2) who has the right and responsibility to act, how, and with what resources to improve the “SD performance” of the organisation (school/university) in question. The latter could include specifications concerning water and energy supply, energy efficiency of buildings, or the organisation and management of sustainability work (mandatory SD committees, representation of various groups in this work, etc.).

The second key distinction concerns the dimensions and temporality of sustainable development. To what extent do the documents specify and characterise SD as composed of interacting dimensions (environmental, social, economic) as opposed to focusing on only one (often, the environmental dimension)? Are intergenerational aspects addressed explicitly (equity not only between social classes and groups but also between the present and future generations)?

5. REGULATIVE COMPETENCES

The comparative analysis of the various reports from each country and demonstration site has allowed us to obtain the following results.

5.1. Universities

5.1.1. Responsibilities

The universities have significant autonomy in all four countries. In **Finland**, the government Decree on Universities defines for each university those disciplines in which the university must have degree programmes. The periodical bilateral fixed-term agreements with the Ministry of Education and Culture establish the general teaching objectives, quantitative and qualitative targets, as well as the measures for their monitoring and evaluation for each university. Within this framework, the university has full freedom to decide on its teaching methods, technical and organisational aspects, and teacher responsibilities. Teachers have autonomy, within the limits established by the university curriculum.

In **Portugal**, the legal regime for higher education vests the public universities with statutory, pedagogical, administrative, financial, and patrimonial autonomy from the State. The way in which sustainability is addressed is defined in the university's curriculum and sustainability policy, within which the teachers are free to choose whether and how to introduce sustainability teaching.

In **Spain**, the key legislation governing university activities vests the universities with the responsibility to undertake measures in favour of “sustainable development” as “an essential component of social progress”. The laws make general references to sustainable development, yet the activities of CRUE – an organism mediating between the government and the universities – have more direct relationship with sustainability. Since 2022, CRUE has had a working group on environmental quality and sustainable development. It has promoted the integration of sustainability considerations in all university degrees, as well as the integration of sustainability within the university performance evaluation and quality control systems, including through indicators measuring environmental sustainability. In 2019, CRUE established a commission for the coordination of joint actions to ensure compliance with the UN Sustainable Development Goals (SDGs) and promote awareness within the university community.

The university rectorate is responsible for ensuring the achievement of these objectives, the design of strategies and allocation of resources. At the UAB, the CRUE guidelines have led to the establishment of units such as the environmental office, the Mobility Board, and the Energy Unit. However, these units deal only with issues relating to university infrastructure and management, but say nothing about the curricula, courses, or teaching methods. The teachers have broad autonomy in deciding on whether and how to introduce sustainability-related aspects in their

teaching and degree programmes, albeit within the university's general policies, and subject to approval and supervision by the quality control agency (AQU, in Catalonia).

In **Romania**, the key responsibilities in the area of education for sustainability rest with the Ministry of Education (ME), School Inspectorates, and all educational units (school and universities). The Sustainable Development Department (Ministry) monitors and reports on the progress and ensures the respect for Romania's international commitments. The ME defines the required competences in the curricula.

The Romanian universities enjoy full freedom to manage their budgets, as well as to design and implement their teaching programmes and courses, within the bounds of the national objectives established in government documents. This autonomy allows the universities to best respond to the evolving needs of especially the local society, economy, and the job market. The national and local authorities stimulate multistakeholder partnerships for climate protection, sometimes including collaboration between the municipality and the local university. Within both public and private universities, teachers are free to design and implement teaching, within the limits established by the objectives established in the university's educational programme. Monitoring of progress takes place at faculty level, by working groups or committees nominated by the Dean, with the recommendations included in the faculty's annual performance report and often in the university's annual report. The design and implementation of improvements in the courses is done by the teachers, under the supervision of the respective working group or committee.

5.1.2. Resources

The **Finnish** legislation does not specify the resources that need to be made available for university's sustainability-related activities, but the targets specified in the agreement between the university and the education ministry guide the allocation of government resources to the university. Neither does the legislation specify the needed human or knowledge resources concerning sustainability. The same goes for **Spain and Portugal**: the university has the right and responsibility to decide on the allocation of resources for sustainability-related activities. At the UAB, most of the sustainability-related human and organisational resources rest in the hands of the units in charge of the on-campus environmental aspects (Environment Office, Mobility Board, Energy Unit).

In **Romania**, the public universities receive funding from the national budget via Ministry of Education, on a per-capita basis, depending on the number of students. In addition, universities are entitled to charge fees from students. The decisions on if and how to allocate resources to sustainability-related activities are in the hands of the university senate. The private universities operate in a similar manner, except that they do not receive funding from the government. The main responsibility for teacher training in sustainability, including the identification of funding, rests with the teachers themselves.

5.1.3. Contents of sustainability competences

The **Finnish** Universities Act and Government Decree on Universities do not explicitly mention sustainability. The agreement between the university and the education ministry states that JYU is a reformer of a sustainable society, and one of the six strategic development targets is called “responsible and impactful university”. Indicators are used to assess the integration of sustainability concerns in the curriculum of all faculties, the number of sustainability-related courses, and the number of publications from JYU’s cross-faculty initiative of sustainability experts, “JYU.Wisdom”. Aspects relating to social, cultural, and economic sustainability are indirectly included in other development targets, such as the one defined as “University promoting holistic well-being”.

In a similar manner, the **Portuguese** legal regime for higher education does not explicitly mention sustainability. However, in the definition of responsibilities and mission, the social and economic component of sustainability is present. Some national plans, programmes, and roadmaps such as those relating to climate change, energy, and carbon neutrality incorporate sustainability aspects (with an emphasis on the environmental dimension). These programmes have a bearing on the activities of the higher education institutions.

In **Spain**, the above-mentioned key laws and guidelines address sustainability in a very broad manner, leaving room for a range of options, including that of not doing anything on sustainability. The regulations use the term “sustainable development” – in line with the original Brundtland definition but possibly revealing a reformist growth-oriented interpretation of sustainability. At our demonstration site, the faculty of political sciences and sociology, the faculty itself defines the teaching contents through a participatory process. The last revision dates to 2009, when one compulsory and one optional environmental-related courses were integrated in the sociology degree and one optional course in the political science degree. The rest of the studies do not include environment- or sustainability-related courses.

In **Romania**, university autonomy is seen as a key factor in allowing the university to respond to the needs and demands of the local community, economy, and job market. The education ministry establishes only the general framework for university education, with the Romanian Agency for Quality in Higher Education (ARACIS) exercising a control and supervisory function. At the University of Pitesti, there is a course entitled “sustainable development”, whereas many degree programmes integrate sustainability issues in a transversal manner.

5.2. Schools of basic education and High schools

5.2.1. Responsibilities

Teaching objectives and methods

In **Finland**, four national acts and decrees provide the basic regulatory framework for Schools of basic education: the Basic Education Act, Basic Education Decree, Government Decrees on the national goals of education and hourly distribution of lessons in basic education (422/2012 and

378/2014), and the Government Decree amending the Basic Education Decree. The National Core Curriculum for General Basic Education describes the contents of education in greater detail and is binding to all schools and teachers. For the secondary schools, the Act on General Upper Secondary Education and the Government Decree on General Upper Secondary Education outline the general requirements, which are further specified in the National Core Curriculum for General Upper Secondary Education 2019. Municipalities, schools, and possible other education providers can make minor adjustments to integrate local viewpoints or areas of emphasis to the national curriculum. The rest of the plans and strategies have the status of guidelines for municipalities, which can freely decide on their implementation. Tampere has integrated many of the international and national sustainability policies in its own plans and strategies.

In **Portugal**, many national regulations provide a common set of guidelines for the schools and involved education-sector actors. These include notably the Profile of Students Leaving Compulsory Schooling, which specifies the competences that pupils should possess at the end of their schooling. These include the objective that the pupils should acquire a comprehensive vision and adopt behaviours that contribute to solving global environmental and sustainability challenges. The national education strategy for citizenship requires the schools to provide a mandatory course about citizenship and development, which addresses sustainability competences. Moreover, the schools should provide environmental education for sustainability in a transversal manner, across the school disciplines. Like in Finland, schools can introduce some local adaptations to the national curriculum. The other international and national plans and strategies serve as non-mandatory guidelines for the municipalities.

In **Spain**, education-sector governance consists of a hierarchy, whereby the central government, after consultations with the autonomous communities, establishes the curriculum defining the minimum requirements for the objectives, competences, content, and evaluation criteria. Following these requirements, the educational administrations of the Autonomous Communities define the curriculum for their own jurisdiction. In primary education, the minimum, mandatory teaching content specified in the curriculum makes up 60% of all school hours in those autonomous communities that have Spanish as the only official language, and 50% for those that have a two or more official languages. Finally, the schools are responsible for the actual implementation, and have some freedom to complement/adjust the curriculum, where appropriate. The recent revised Education Act 3/2020 (LOMLOE) includes for the first-time specific references to Education for Sustainable Development, the UN 2030 Agenda, and pursuing the target 4.7 (relating to SD education) of the UN Sustainable Development Goals. The Action Plan for Environmental Education for Sustainability (2021-2025) emphasises the need to integrate sustainability into the curriculum and teacher training, to enable the integration of sustainability in a cross-cutting manner in all school activities. The new legislation for secondary schools explicitly evokes a number of competences relevant to sustainability, such as linguistic, STEM, digital, learning, social, citizenship, entrepreneurial, and cultural awareness competences. Also the regional-level legislation, e.g. in Andalusia from 2007, refers to a limited number of sustainability-related competences. The education reform is to be implemented in a stepwise manner, in 2022-2024, yet the process has

faced delays, as some regions are late in elaborating the curricula and adapting their textbooks to align with the new regulations.

In **Romania**, the Ministry of Education defines the general framework (objectives, methods, quality standards, etc.) of the educational system, including the aspects relating to sustainability, while its county-level school inspectorates monitor progress and define measures for improvement in sustainability education. The Sustainable Development Department monitors and reports on progress and acts as an interface towards international engagements. Sustainability aspects are generally addressed in a transversal manner across the school disciplines. The schools have considerable freedom to determine the contents and instruments of sustainability education but can for this purpose rely on limited assistance from the school inspectorates in determining the appropriate methodologies and supervision. The teachers have significant freedom to suggest and design courses related to sustainability, through consultation with the students, parents, and the local community, and with the approval by the school management council and the county-level school inspectorate. The school inspectorates can evaluate a sustainability-related course, as they do for other courses, yet given that the inspectorates are organised by discipline, no inspector is responsible for interdisciplinary courses, and supervision and evaluation in this area is not common. Courses can be evaluated and corrections suggested also at the school level, but this practice is limited by the fact that sustainability-related courses are generally designed for only one school year or a single semester. The government initiative “Education on Climate Change and the Environment” (ECCE) proposes the elaboration of a guide for teachers in support of their activities devoted to sustainability. ECCE also suggests the establishment of a network of trainers in each county, including invited external experts, as well as the nomination, at each school, of a teacher responsible for sustainability and community relationships.

Organisation and lead responsibilities

In **Finland**, the municipality (in exceptional cases, another education-provider) is responsible for organising primary and lower secondary education according to the national regulations. All municipalities have a dedicated education-sector administration. The Education and Culture Committee of the Tampere City Council provides political steering for primary schools whereas secondary schooling is governed by the Growth, Innovation and Competitiveness Services and Vitality and Competence Committee. The city educational administration, divided into primary and secondary school services units, oversees the practical school activities. Each school has a principal who is an employee of the city administration. Some of the plans and strategies of the City of Tampere specify goals and guidelines for sustainability. These include the service plan and annual plan of the Education and Culture Committee, the template for the annual plan for the schools and the plan for sustainable future in education.

The situation in **Portugal** is similar to that in Finland: the school staff have little control over the technical and organisational aspects, given that the key decisions are made by the local and national authorities (municipalities and the Ministry of Education). The definition of the curriculum, end-of-

the cycle evaluation, recruitment of teachers, and the generation of income remain as prerogatives of the central government. The school director has in public schools mainly a role of a manager.

In **Spain**, the Pedagogical Coordination Commission, the Faculty of Teachers, and the School Council hold the main responsibilities for integrating sustainability in primary school teaching. The design of the school curriculum is supervised by the head of studies and the director, under the supervision of the Educational Inspection Service. The Director has prerogatives over both the pedagogical and organisational aspects, and may include innovative projects in the school activities. The Annual General Program (which includes the pedagogical proposal for sustainability teaching) is approved after consultation with the Pedagogical Coordination Commission, the Faculty of Teachers, and the School Council. The legislation and regulation do not include stipulate on the organisation and responsibilities in the area of sustainability education.

Technical aspects

Tampere, like many other municipalities in **Finland**, has outsourced support services such as maintenance, food services, waste collection and recycling at primary and lower-secondary schools. As in many other Finnish municipalities, in Tampere, schools rely on municipally owned and managed district heating systems, over which they have virtually no control. The City of Tampere is bound by its agreements with the service enterprises, and renegotiation of the terms and conditions during the agreement period is difficult. The city also has also procurement agreements. It is difficult for schools to find the place and time for discussions on such agreements, for example to introduce sustainability criteria. The floor-level workers, for example those at the school canteen, maintenance, and cleaning service, have very limited leeway to influence the practices.

The situation in Loures, as in many municipalities in **Portugal**, is again very similar to that of Tampere. Outsourcing of services limits the possibilities of the school staff to influence sustainability-related activities. The municipality depends on central government funding for purchases of some equipment, which makes it difficult to introduce for example green procurement practices. Some competences, such as renovation, equipment, conservation, and maintenance of the school buildings, are delegated to the municipalities, yet the financing of these actions lies with the central administration. Since the service and purchasing agreements are negotiated between the municipality and the providers, it is difficult for the school to influence the procurement practices.

In **Spain**, while the regional-level administration holds the main responsibility for education, the municipalities have the competence and financing responsibility for the supply of water, electricity, cleaning services, and heating in both basic and secondary education. Funding for telephone and internet services comes from the regional administration, while the supply of natural gas for the school kitchen/canteen is managed by the school. For the school canteen and purchase of textbooks, the school can select the suppliers mentioned in the framework agreement established by the regional authority, which finances the purchase of these services. However, the Action Plan for Environmental Education for Sustainability (2021-25) mentions the governance and financing of

sustainability measures as a shared responsibility by national, regional, and local administrations, and welcomes public-private partnerships.

In **Romania**, schools are municipal structures, whose energy and water supply are managed at the level of local council and mayor, in consultation with the school principal. The administration of school buildings and financing of the services is the responsibility of the municipality. The principal can make proposals but needs the approvals from municipal authorities.

Cooperation and coordination between education-sector actors

In **Finland**, schools very seldom have specified a time and place for regular cooperation between different local actors. Some attempts have been undertaken, for example in eco-schools, but this is difficult, because of the different and tight work schedules, and strict employment contracts, which leave little time outside teaching and lessons (Mykrä 2021).

- In **Spain**, teaching contents are defined in a top-down manner: the state consults with the autonomous communities, which then elaborate the community-wide curriculum, the basis upon which the educational establishments specify their own educational programmes for the school year. LOMLOE (Article 110) indirectly refers to elements of sustainability by entrusting the schools with the task of coordinating and fostering collaboration with the administrations and stakeholders in their immediate environment, in view of social and community transformation.

Autonomy and responsibilities of the teacher

In **Finland** and **Portugal**, teachers are free to decide whether and how to integrate sustainability in their teaching. They can follow the curriculum, which has a lot of sustainability contents, or go beyond the minimum requirements. No regular inspections of teachers' work is undertaken in Finland. In **Spain**, the teacher is free to choose the teaching methods and approaches within the bounds of the curricula and financing by Autonomous Community, under the responsibility of the school's Pedagogical Coordinating Commission, guided by the school's annual general programming, and under the supervision of the Educational Inspection Service. In **Romania**, the teacher has great autonomy in designing the form and contents of her sustainability teaching, provided that the teaching respects the legislative frameworks, internal norms, and established practices. This freedom is greater in the area of sustainability than in mandatory courses specified in the curriculum.

5.2.2. Resources

The **Finnish** national laws and regulations do not specify the resources that need to be made available for planning, implementing, evaluating, and revising the school's sustainability-related activities. The City of Tampere has said that every unit of the administration should nominate a civil servant in charge of sustainability, whereas the city office of basic education services has stated that all schools should have a contact person and a team dedicated to action for "sustainable future".

No financial resources have been allocated for this purpose, but teachers are expected to contribute to these duties as part of their general educational tasks. Schools can reward financially persons in charge of sustainability, but this is not common practice. Lots of training possibilities for teachers exist, but time constraints are a major limitation.

The city of Tampere has a Nature School, which offers for schools (including the Juhannuskylä school) practical group-based teaching on topics such as forest education, water analysis, or sustainable lifestyles. The Nature school also organises short training courses for teachers. Furthermore, among its “curriculum agents” that can provide help for schools and teachers, the city has one agent specialised in media issues and eco-social competences. The city’s Art Arc cultural education programme, open to all schools, has contents related to environmental sustainability. For those schools wishing to participate in the Eco-Schools programme, the city provides an incentive by returning the participation fee once the school reaches a certain level of sustainability certificate granted within the programme.

In **Portugal**, the national laws and regulations do not specify the resources that need to be made available for planning, implementing, evaluating, and revising the school’s sustainability-related activities. No dedicated funding exists for the implementation of sustainability measures in schools or for joining projects that promote these measures. Teachers participate in projects on a voluntary basis during their non-teaching hours. Several cognitive resources available, through environmental projects and initiatives offered by the municipalities and the Ministry of Education. These enable the training of the school staff, but like in Finland, time constraints limit the attractiveness of such training.

In **Spain**, financial resources for the elaboration of courses come from the state and the autonomous community in question. However, there is no dedicated funding for sustainability-related teaching. A school can freely decide to allocate a share of its budget to teaching and other activities related to sustainability. Similarly, the human resources available are those allocated according to the number of classes provided by the school. The regional government of the Autonomous Community of Madrid provides educational material through the Centre for Environmental Resources, which also works with private entities and NGOs. Also the government provides educational material on sustainability and the environment.

Also in **Romania**, education for sustainability is financed via the general education budget, and no dedicated funding is provided. However, the ECCE initiative identified significant resource needs for teacher training and the provision of adequate infrastructure (such as laboratories and education materials). Training needs arise especially from the interdisciplinary nature of sustainability and the need for constant updating of knowledge. Furthermore, the ECCE identifies as viable financing sources the existing funds in the national and European programmes. These include the Recovery and Resilience Plan (RRP) to fund the green schools, the Environment Fund (EF) to finance educational programmes, the Operational Programme Education and Occupations (OPEO) for teacher training, and international projects and partnerships the exchange of knowledge and expertise.

5.2.3. Contents of sustainability competences

The **Finnish** Acts pertaining to primary and secondary education do not mention sustainability, neither does the Decree on primary education. By contrast, the government decrees on the national goals of education and distribution of lesson hours in basic education as well as the decree on secondary education evoke sustainable development, including both environmental (e.g., respecting nature and knowledge about natural history), and other dimensions of sustainability. The education ministry's sustainable development policy defines the promotion of social sustainability as the key responsibility within its remit. The National Core Curriculum for General Basic Education mentions the environmental, social, cultural, and economic dimensions of sustainability, with a special emphasis on the social dimension. The plans and strategies of the City of Tampere include numerous statements urging all actors in the municipality to work towards sustainability goals such as minimising CO₂ emissions and loss of biodiversity, as well as promoting sustainable mobility and lifestyles.

In **Portugal**, the National Strategy for Education for Citizenship (ENEC) stipulates that the citizenship education provided at the primary school level must address sustainability in all its dimensions but prioritises the social dimension. National programmes, such as the National Program for Climate Change, the National Plan for Energy and Climate 2030, and the Carbon Neutrality Roadmap 2050, incorporate various sustainability aspects, with an emphasis on the environmental dimension.

In **Spain**, the regulatory framework governing primary education addresses mostly the environmental and social dimensions of sustainable development, without evoking the economic dimension. The key competences for the pupils at the end of their primary education career defined in the Royal Decree 157/2022 focuses on eco-social sustainability. It includes numerous references to aspects such as awareness about the environmental degradation, its underlying causes and possible solutions; systems vision, at both local and global level; responsible consumption and its individual and public-good dimensions; critical, emphatic, generous, and proactive spirit; understanding of the complex causes of inequality and exclusion; cooperation skills and interest in different cultures; feeling part of a local and international community; as well as ethical consciousness, responsibility, and sustainable coexistence with nature. Among the 12 sustainability competences specified in GreenComp, the Royal Decree 157/2022 prioritises those relating to “embodying sustainability values” and “embracing complexity in sustainability”.

In **Romania**, the curricula of primary and secondary education have a transversal approach to sustainable development. The primary and lower-secondary level curricula are focused on the environmental dimension, with less emphasis on the social and economic dimensions. By contrast, at the secondary level, no disciplines dedicated to environmental issues are included, presumably because the pupils are expected to have developed sufficient environmental awareness at the earlier stages of their school career. Sustainability aspects are present in subjects in the national-level curriculum related to environmental education; geography; civic education; counselling, personal development, and social education; mathematics and sciences; environmental protection; technology; practice skills; civic culture; and health.

6. NORMATIVE COMPETENCES

6.1. Universities

6.1.1. Responsibilities

In this section, we highlight aspects related to the organisational structures, the implication of outsourcing of a number of environment-related services, and the curricula.

First, the universities have introduced several organisational measures and strategic plans to promote sustainability.

In **Finland**, JYU has a “Sustainable and responsible University” development group, which presents needs and suggests actions to be considered in the development and strategy work for Division of Policy & Planning. The members of the team consist of experts from various units of the university. In the Division of Policy & Planning, one specialist has been nominated as a responsible for sustainability, and tasked with introducing issues related to responsibility and sustainability also into the curriculum work.

In **Portugal**, the 2015 Strategic Plan is designed to improve the sustainability and environmental performance at the IST campus (by ensuring the efficient use of resources, especially water and energy), and to thereby generate cost savings. It has the ambition to integrate the perspective of environmental, social, and economic sustainability in all aspects of the institutional mission of IST, in line with the 17 Sustainable Development Goals of the United Nations 2030 Agenda. The plan seeks to stimulate the development and sharing of good practices within the university community and the establishment of new projects for the sustainability of the campus.

In **Romania**, a “Statement of the Rector Regarding the Quality Policy” is a part of the Strategic Plan of the university of Pitesti. The plan is coordinated by a vice-Rector in charge of the quality of education. The Rectorate and the Administration Council collaborate with the municipality in order to identify and implement the best ways to improve the performance in the operation of the buildings (from the point of view of energy, water, waste, etc.). The activities are implemented by the General Administrative Directorate.

In **Spain**, the UAB has a “Sustainable and healthy campus Plan” managed jointly by various administrative units (the Environment Office, the Mobility Office, the Energy Unit, Health care Service, Occupational risk prevention service, etc.), under the coordination of the University Social Responsibility unit. Periodically the degree of fulfilment of the objectives is evaluated. The Plan focuses on the sustainable management of the campus, but does not intend to influence the curriculum content and teaching methodologies. The plan is therefore ambitious and useful in promoting environmental performance objectives (energy and water consumption, waste management, agroforestry, mobility, etc.) and some health objectives (promotion of physical activity, attention to emotional wellbeing, etc.), but aspects related to the promotion of sustainable

values, solidarity, responsible consumption, participation, green consumption, etc., receive little attention.

Second, the universities have delegated several of their services to external service providers, which limits the freedom of the choice that the university and its staff have in certain sustainability-related areas. The outsourced services include notably maintenance, cleaning services, food services, waste collection and recycling. The universities make agreements with specialised companies or independent ventures, and it is therefore difficult for them to renegotiate the terms and conditions for example to enhance sustainability before the agreement period has come to an end.

In **Finland**, the JYU is a co-owner of these companies, but these agreements tend to be established for a long period of time, and introducing changes is therefore possible only seldom, at the expiration of the agreement. In **Spain**, the UAB has great difficulties to improve waste management, which is the responsibility of the city council, and not of the university itself.

Third, teachers in all four universities have considerable freedom to introduce sustainability topics in their courses, but always within the framework of the general curriculum approved by the relevant educational authorities (the university, the quality control agencies, etc.). Therefore, whether teachers can actually use this possibility depends on whether the legally approved study plan allows it or not. Usually, the teachers can decide on what and how to teach on sustainable development, on the condition that the suggested teaching approach and contents align with the educational objectives outlined in the course description approved by the university, and supervised by the quality control bodies.

6.1.2. Resources

In general, the resources available to universities to promote sustainability originate from the university's regular budget and human resources. In practice, therefore, sustainability-related activities are usually, although not always, undertaken by teachers or administrative and service workers willing to voluntarily dedicate part of their time to these tasks.

In **Finland**, the University of Jyväskylä has employed specialists for sustainability and responsibility. Furthermore, human resources are allocated to a teamwork and curriculum planning concerning sustainability, while knowledge-creation (cognitive resources) are provided through a project related to the cross-faculty community of sustainability experts, JYU.Wisdom.

In **Portugal**, the Instituto Superior Tecnico has not allocated dedicated funding to projects such as Técnico Sustentável and other sustainability-related initiatives. The university employees who work on these projects do so voluntarily.

In **Romania**, the Pitesti University can use the funds from the national budget (from the Ministry of Education) or its own funds (from student fees, research funding, contracts, etc) for courses related to sustainability.

In **Spain**, most of the human and organisational resources rest within the administrative units of the UAB in charge of the environmental aspects of the campus (Environment Office, Mobility Table, Energy Unit). Some of the employees in these services have been specifically hired for sustainability-related projects.

6.1.3. Contents of sustainability competences

The importance given to sustainability varies across the four universities. The universities in Finland and Portugal seem to prioritise sustainability higher and in a more comprehensive manner, proposing ways to measure progress and acting in various fronts (structures, organization, course content, etc.). Our Romanian and Spanish universities seem to give somewhat lower priority to the subject.

In **Finland**, JYU aims to be a leader in sustainable development and responsibility in Finland as well as internationally. To certify the quality of its sustainability work, JYU has received a number of green certificates (such as the WWF Green Office Certificate since 2013 and Fair-Trade University label since 2014), and is committed to promoting the principles and actions on sustainable development and responsibility (such as those defined by the Council of Finnish Universities, UNIFI). Importantly, JYU has an environmental programme called “Roadmap of planetary well-being”, and a campus development programme 2019-2030 which, among other things, proposes goals towards a ‘responsible and sustainable campus’. Moreover, in Finland, the contents of the curriculum vary between faculties, but ongoing process of new curriculum planning will bring sustainability issues to all degree programmes.

In **Portugal**, the strategy for the future of IST gives priority to the implementation of a long-term sustainable strategy and to improving sustainability at the three IST campuses. The environmental, social, and economic dimensions of sustainable development are mentioned in the IST strategy.

In **Romania**, the University of Pitesti has a course addressed to the students of the Faculty of Sciences on “Sustainable development”. Environmental and economic dimensions seem to receive more attention than the social dimension. The course envisaged competences for graduates to apply the sustainability policies and strategies in public and private organisations.

In **Spain**, UAB is well placed in the Greenmetrics ranking of universities. However, most of the objectives of the Campus Plan deal with the environmental dimension of sustainability. Some social objectives (although rather marginal in the Plan) are also evoked, such as those related to responsible consumption, and the promotion of physical activity, seasonal and local food, emotional well-being and better social interactions. Curiously, there are no mentions of economic sustainability in the Plan.

6.2. Schools of basic education

6.2.1. Responsibilities

Responsibilities for sustainability are shared and attributed in somewhat distinct ways depending on the school and the country. In some cases, teachers are very well organised to promote action for sustainability, while in others, sustainability activities depend solely on the initiative of each teacher. In all cases, the commitment of the leadership and management of the organisation appears as an essential requirement. Furthermore, decisions on energy consumption, water, etc., usually depend on external actors (either companies in charge of offering these services, or the municipalities responsible for managing the school).

In **Finland**, the primary school has a “Sustainable Future team”, chaired by the “contact person of a sustainable future”, who is a teacher and member of the school management team, and is responsible for championing sustainability amongst the staff, and attending possible meetings on sustainable future organised by the municipality. The contact person can suggest actions for sustainability but cannot decide on whether or not they will be implemented. Either the principal, the management team, or the teachers’ meeting have this decision-making power, but mostly on extracurricular pedagogical activities. The teaching staff can suggest initiatives to other staff groups (maintenance, restaurant, cleaning), but it does not have authority on the companies who provide these services. There are no regular meetings for cooperation in sustainability between the school and the service providers.

The annual plan of the Juhannuskylä school includes some goals and activities concerning a sustainable future. Participation in the ECF4CLIM project is among those.

Every teacher is in charge of her/his own teaching and can decide on the teaching objectives and methods, within the limits of the national curriculum.

In **Portugal**, the primary school has an educational project that defines the school’s mission, vision, principles, values, purposes, goals, and action strategy. This educational project includes goals related to sustainability, such as those relating to attitudes towards UN Sustainable Development Goals and respect for the environment. Escola EB 2.3 Mário de Sá Carneiro has participated in the Eco-schools programme since 2015. This international programme is led by the Foundation for Environmental Education. In Portugal, the programme is managed by the NGO Associação Bandeira Azul da Europa (ABAE), and has the support of several partners that collaborate by providing specific funding for various activities, in particular competitions. The Eco-schools’ guide and rules are mandatory and require coordination among teachers to carry out sustainability activities and develop an annual action plan.

In **Romania**, the principal of the primary school is responsible for the planning, implementation and revision of the teaching objectives in the area of sustainable development. The plans and monitoring reports are discussed and approved by the school council, and are supervised by the county inspectorates.

In Romania, the schools are integrated in in the municipality structure. The funding from national budget is channelled through the municipalities, which are responsible for the budgeting of the schools. The schools are therefore highly dependent on the municipality's decisions concerning energy, water, mobility, consumption, etc. The principal and the mayor play decisive roles in this respect, and jointly take most of the key decisions concerning the provision of these services.

The autonomy of the teacher is greater on sustainability-related teaching than in the regular courses. The teacher can freely propose the contents of a course in the CSD.

In **Spain**, the Pedagogical Coordination Commission, the Teachers' Council and the School Council define the objectives and teaching methods on SD by elaborating the pedagogical proposal on sustainability that is included in the Annual General Plan. This plan is reviewed at the end of the school year and proposals for improvement are made by the teaching team. The Steering team (formed by the Director, the Secretary and the Head of Studies) is in charge of the organisational arrangements in the area of SD. In the school, the operation and coordination in the area of sustainability is carried out through the Action Committee and the Environmental Brigades.

However, final decisions on environmental aspects (such as energy, water supply, consumption, etc.) are made by the city council, the Autonomous Community and the school.

Every teacher has autonomy to develop the teaching units within the bounds of what is stipulated by the regional government (Autonomous Community), and in the Annual General Plan of the school.

6.2.2. Resources

None of the schools included in our project has dedicated financial or human resources to carry out actions for sustainability. Only the Romanian school has the possibility to introduce a course on sustainability financed by a state budget.

However, it is observed that the majority of schools reach agreements with external entities (regional governments, municipalities, NGOs, etc.) to carry out actions for sustainability, although in most cases they imply an additional effort for teachers, who are usually not compensated for these extra activities.

In **Finland**, there are no resources specified to sustainability in the budget of the Juhannuskylä school, but the Sustainable Future Team can in some ways be considered a resource, as one of the eight thematic teams of which the each teacher must choose one as his/her "home base". Teachers can spend 38 hours per school year for meetings, that is, one hour/week. This includes all teachers' joint meetings, team meetings, and meetings with peer teaching groups. In addition, the teachers have 30 hours per school year for collaborative planning, which means less than one hour per week. Sustainability issues constitute only a minor part of these meetings and planning activities.

The City of Tampere offers various resources for the school. For instance, it offers for schools (including the Juhannuskylä school) practical group-based teaching on topics such as forest education, water analysis, and sustainable lifestyles. The Nature school also organises short training

courses for teachers. Furthermore, among its “curriculum agents” that can provide help for schools and teachers, the city has one agent specialised in media issues and eco-social competences. The city’s Art Arc cultural education programme, open to all schools, has contents related to environmental sustainability. All schools can take part in, and Juhannuskylä has booked some programs. The city can cover the payment of these programs.

In **Portugal**, there are no financial resources specified for sustainability. Human resources are the teachers' own, who undertake activities and projects during their non-teaching hours. Cognitive resources are attributed for the “Citizenship and Development” course. There are also several cognitive resources provided by the ABAE or by the municipality.

In **Romania**, the funding of a CSD course is ensured by the regular funding for education (national/local budget). Consequently, if a course on sustainability is approved by the school, it will be funded without any restriction in terms of salary, expenses for rooms, based on the inclusion in the annually budget. However, it is very difficult to include other costs (e.g., transport of students to a protected nature area) due to budget limitations. In such cases, the partnership with local stakeholders or the use of funds from another project is used. The human resources are generally limited to those existing in the school. Usually, a teacher from the school is the initiator of a course included in CSD. If the application is successful, resources for teaching are included in the budget. At least in principle, different schools can collaborate and share teacher resources for CSD teaching. The collection of the necessary knowledge is the responsibility of the teacher that initiated the CSD course. Therefore, many difficulties may appear, especially relating to the specific pedagogical needs of each level of education.

In **Spain**, the schools have not specific resources for this topic but rely on the existing available financial and human resources. The regional government (Autonomous Community of Madrid) provides educational material through the Centre for Environmental Resources, which also works with private entities and NGOs. The central government also provides educational material on sustainability and the environment.

6.2.3. Contents of sustainability competences

In **Finland**, sustainability is included in the national curriculum, but there are no specific local sustainability contents at the Juhannuskylä school, except through participation in the ECF4CLIM project.

In **Portugal**, the “Citizenship and Development” subject, which is mandatory for pupils at several grades (as said above in the regulatory competences section), provides various contents of sustainability competences.

In **Romania**, the optional subject “Ecological and environmental education” was included in the educational programme. According to the guidelines produced by the Ministry of Education, the course is designed for one hour a week for 1 to 7 grades. There is a recommended content, but the school has the final decision on the structure and implementation of the curriculum. The course is

devoted only to environmental sustainability, whereas the social and economic dimensions are addressed only sporadically.

In **Spain**, sustainability is a transversal topic in the curricular programming. Environmental sustainability is mainly taught in natural science subjects, social sustainability in social science subjects, and economic sustainability is covered to some extent in education for responsible consumption. Hence, sustainability appears to be distributed throughout the entire curriculum. The school can complement teaching in sustainability through collaborations with external entities with activities included in the Annual General Program.

6.3. High schools

6.3.1. Responsibilities

In **Finland**, the SamkeCO2 team (to which at least one school teacher belongs) can elaborate plans and propositions for sustainability, and either the principal, the management team, or teacher meeting has the power to decide about extracurricular pedagogical activities. However, the school does not have authority over the companies that provide services such as maintenance, restaurant, cleaning, etc. The headmaster holds regular monthly meetings with the maintenance services, where they also address sustainability issues.

In **Portugal**, the Educational Project document establishes the guidelines and defines the school mission, vision, principles, values, purposes, goals, and action strategy. Part of this educational project covers goals related to sustainability as it seeks the development of attitudes that aim to achieve sustainable development goals and respect for the environment. The analysed school is part of the UNESCO Associated Schools Network, which is one of the policies to raise awareness of the educational community in the adoption of strategies that promote sustainable development, contributing to ecological and ethical awareness. Moreover, a more technical document, the Education Program for Health and Citizenship at School, presents the guidelines that the school will follow to educate the school community on health and citizenship, mainly through the discipline of Citizenship and Development.

In **Romania**, the Principal is responsible for the planning, implementation and revision of the teaching objectives in the area of sustainable development. The plans and the monitoring reports are discussed and approved by the School Council, and are supervised by the County Inspectorates.

In Romania, the schools are integrated in in the municipality structure. The funding from national budget is channelled through the municipalities, which are responsible for the budgeting of the schools. The schools are therefore highly dependent on the municipality's decisions concerning energy, water, mobility, consumption, etc. The principal and the mayor play decisive roles in this respect, and jointly take most of the key decisions concerning the provision of these services, in exceptional cases in collaboration with the president of the local council.

In **Spain**, the Management Team and the school council decide whether to participate in environmental education programs (such as the ALDEA program), as well as which teacher will coordinate the activities to be undertaken and manage the programme at the school. Cooperation and coordination are continuous activities, although the teacher for whom coordination is delegated is autonomous.

Autonomy of the teacher: In the four secondary schools analysed, teachers have considerable autonomy to decide how to introduce sustainability subjects in their classes. It is easier to introduce SD in extracurricular activities than in the regular teaching. In **Finland** and in **Spain**, every teacher is responsible for her/his own teaching and can decide teaching objectives and methods within the limits of the national curriculum. In **Portugal**, the Educational Programs do not impose obligations upon the teachers; it only indicates the way forward and defines several goals to be achieved in the subsequent years. In **Romania**, the autonomy of the teacher is greater in SD-related than in the regular courses. The teacher can freely propose the contents of a courses in the CSD.

6.3.2. Resources

In **Finland**, a person in charge of SamkeCO2-activities receives some extra salary from the task of organising extracurricular sustainability activities. There are no other resources allocated to sustainability in the regular budget of the Sampo upper secondary school. However, the school received funding from the National Board of Education to enhance student engagement in sustainability education. In addition, there are several ongoing projects that offer extra resources.

In **Portugal**, there are no financial resources specified for sustainability. Human resources are the teachers' own, who undertake activities and projects during their non-teaching hours. Cognitive resources are attributed for the "Citizenship and Development" course. There are also several cognitive resources provided by projects such as the schools of the UNESCO network, or by the municipality.

In **Romania**, the funding of a CSD course is ensured by the regular funding for education (national/local budget). Consequently, if a course on sustainability is approved by the school, it will be funded without any restriction in terms of salary, expenses for rooms, based on the inclusion in the annually budget. However, it is very difficult to include other costs (e.g., transport of students to a protected nature area) due to budget limitations. In such cases, the partnership with local stakeholders or the use of funds from another project is used. The human resources are generally limited to those existing in the school. Usually, a teacher from the school is the initiator of a course included in CSD. If the application is successful, resources for teaching are included in the budget. At least in principle, different schools can collaborate and share teacher resources for CSD teaching. The collection of the necessary knowledge is the responsibility of the teacher that initiated the CSD course. Therefore, many difficulties may appear, especially relating to the specific pedagogical needs of each level of education. Limited training courses are available through the School County Inspectorates.

In **Spain**, the secondary schools that apply to the Aldea programme in Andalusia, can receive human and knowledge resources but not financial ones. Regarding human resources, the teachers involved in the programme benefit from a reduction in teaching hours. The regional government (Junta de Andalucía) itself produces the educational material for the Aldea program as well as training and support material for teachers. In addition, the schools could participate in projects or activities carried out by third parties (such as municipalities or universities) that would provide resources to the proposed activities.

6.3.3. Contents of sustainability competences

In general, the contents of the competencies are defined by the general curriculum programs, although at the level of each centre, each teacher gives the final content adapted to local circumstances.

In **Finland**, the National Core Curriculum for General Upper Secondary Education includes a large variety of sustainability issues, and some local courses are available. The annual plan based on curriculum (PESU) mentions SamkeCO2 activities, including cooperation with the ECF4CLIM project.

In **Portugal**, the secondary school includes the “Citizenship and Development” subject, which is mandatory for several secondary school grades, and provides various contents of sustainability competences.

In **Romania** (Iulia Zamfirescu school, Mioveni), sustainability-related extracurricular activities can be specified in the CSD. The school is involved currently in actions for environmental protection, thus contributing to the formation of capacities to act in a sustainable manner. Furthermore, in the last years the subject “Ecological education” has been a part of the educational programme for higher-secondary level (9 to 12 grades), within the CSD programme.

In **Spain**, there are not specific sustainability competences in IES Ítaca secondary school. Contents about sustainability are developed in a transversal manner alongside the main competences, following the educational curriculum set out in legislation, and through the participation in the Aldea programme.

7. CULTURAL-COGNITIVE COLLECTIVE COMPETENCES

In general terms, cultural-cognitive collective competences reflect the degree to which the primarily formal regulative and normative competences (laws, regulations, strategies, action plans, etc.) are internalised and turned into an integral part of the dominant discourses, taken-for-granted collective norms, beliefs, and daily routines within the organisation.

Cultural-cognitive competences translate the regulative and normative competences into the organisation's operating culture and daily practices. They stress the fact that internal interpretive processes are shaped by external cultural frameworks, as well as shaped also by the involved professional and broader cultures at various levels.

Drawing on the categorisation presented in the initial ECF4CLIM Roadmap for sustainability competences, we structure the following presentation of the preliminary findings from the SCTs and SCCs under five headings: attitudes and general atmosphere; rules and norms; prioritisation; assumptions, taken-for-granted norms and beliefs, and gaps; and Facilities, infrastructure, and collaboration.

7.1. *Attitudes and general atmosphere*

Schools of basic education

Our Finnish students mentioned that some students might hesitate to show environmentally-aware attitudes, for fear of being different – and possibly ridiculed. In our Portugal case-study, the concept of sustainability was considered as somewhat hard to understand, and the topic essentially equated to environmental issues. A great difference was seen to exist between the theory and practice of sustainability – between the bold objectives stated in school strategies and the actual behaviours. A similar gap between the general norms and actual practices was evoked in our school at Spain: for example, a lot of emphasis is typically placed on the need to save energy, but in practice, classroom lights and computers are often left on and doors left open, even after the end of the class.

High schools

In **Finland**, our students feel embarrassed to talk about sustainability to their peers, although the topic pops up everywhere in the school environment. Students also doubted that given the limited possibilities to have an impact on global sustainability, adults may give unfounded hope that the youth can actually do something to improve sustainability.

In **Portugal**, students noted that there is a lack of knowledge and interest in the broader notion of sustainability, which they tend to associate only with environmental issues. The teachers and staff, by contrast, have a broad vision, and are able to make connections between the macro-level ideas and principles on the one hand, and micro-level day-to-day activities on the other.

In **Romania**, the dominant perception among students is that people are unlikely to change their daily behaviours to become more sustainable. In a complex society, immediate concerns such as individual wealth, leisure and pleasure override the concerns for sustainability.

Universities

In Finland, the tight schedule of studies leaves little time for extracurricular sustainability activities. Sustainability is often reduced to only recycling, while broader considerations are missing.

In Romania, the students identified barriers to sustainability, such as high individual ambitions, influence from friends and the community, and powerful advertising. On the whole, the university students were critical towards the prevailing system focused on short-term economic growth and profit-making.

In Spain, both teachers and students considered that sustainability was not highly visible in university activities. Like in Romania, the Spanish university students hold critical views concerning the prevailing socio-economic model and doubted the ability of technological solutions to solve sustainability problems.

7.2. Rules and norms

Schools of basic education

Both in Portugal and in Romania, the students identified a gap between discourse and behaviour: there is a discrepancy between what students learn at school and what adults do outside of the classroom. In Romania, for example, waste recycling rules are not followed, people sometimes burn waste, and are generally indifferent about sustainability. By contrast, some NGOs were praised for giving a good example.

In Spain, attitudes towards numerous issues were mentioned: recycling, paper use and recycling, lighting, book sharing, and the inefficient school infrastructures. Students would like to walk to school, but parents drive them to the school, because they drive to work directly after having

dropped off their children. Lack of time, interest, and infrastructure for recycling waste at home were evoked as barriers. Service staff complained that many students and teachers do not switch off the lights when leaving the classroom. Staff participants therefore suggested that recycling should be made mandatory by law, the number of recycling containers in the city increased, and the law adequately enforced.

High schools

In Portugal, both students and teachers evoked the prevailing discrepancy between discourse and action, on topics such as recycling.

Universities

In Romania, the students highlighted the gaps between the normative/regulative competences on the one hand and the actual practices on the other. They attributed the reasons for this gap to individualism, insufficient social cohesion, and lack of understanding of the objectives of sustainability and their importance. The students considered the normative and legislative frameworks “too complex, sometimes full of contradictions”, and hence not “well accepted”, let alone implemented in practice. Legislation would imperatively need to be buttressed by better education. Moreover, sustainability-related legislation is poorly enforced as the control authorities are excessively permissive to violations of for example waste management regulation. Introducing a “system of incentives and bonuses” would be very powerful means of initiating and maintaining behaviour changes especially at the initial phase. The students also expressed belief in the cumulative impact of a multitude of small individual actions

The Spanish students remarked that adequate legislation on issues such as waste and water management has been in vigour since the 1990s, yet to achieve more profound change, it is now necessary to mobilise more young people in political action. The attention should shift away from individual anxieties and action towards political attitudes and mobilisation. The university should motivate students to mobilise for comprehensive reforms towards sustainability.

7.3. Prioritisation

Schools of basic education

The Portuguese students considered the compulsory course on “citizenship” as important but not alone sufficient to integrate sustainability in a more comprehensive manner, rather than merely as an isolated element of natural sciences and geography classes. The lack of resources – including

teachers' time – available demonstrates that the school does not prioritise sustainability. Moreover, sustainability does not seem to be a priority for the parents either.

In Romania, the students perceived a great gap between the top-down declarations inscribed in the strategic documents on the one hand and the reality of concrete action on the other, both at the school and in the entire community. In school, sustainability is treated in a very diffuse way in some disciplines (biology, environmental education, geography, civic education), with many overlaps. Sometimes specialised optional courses are provided, at the initiative of a teacher and confirmed by through school decision (CSD). However, coordination and collaboration between teachers is lacking. Weaknesses of the CSD (Curriculum at school decision) procedure are that it relies on the initiative of the teacher and does not ensure continuity (because any given course is approved for only one year at the time).

In Spain, teachers lack the necessary time to address sustainability in the classes, yet the new law will alleviate the problem, by introducing sustainability in the curriculum and in the textbooks. During the ongoing period of transition, a lot of teachers' working hours go into translating the requirements of the law into the new syllabus and teaching practice, and to attending training courses on sustainability.

High schools

In Finland, students lack time for extracurricular activities, whereas teachers lack time to collaborate with each other to better organise sustainability teaching. Sustainability may well be highlighted as a priority in the school strategies and curricula, but in actual resource allocation it does not receive the same high priority. For example, the suggestion by teachers to organise for the entire school personnel an excursion focused on practical applications of circular economy was not implemented. While considering the idea excellent, the headmaster alluded to time and resource limitations, and noted that other things were even more important.

In Portugal, the students thought the compulsory course on "citizenship" was important but not sufficient alone to allow sustainability to be integrated in a comprehensive manner, and not merely as an isolated element of natural sciences and geography classes. The students argued that sustainability should be included in the curricular plans, to ensure its consistent integration and in order not to leave the topic at the mercy of the individual initiative of teachers. The tendency to equate sustainability with environmental issues, to the neglect the other dimensions of sustainability, was again evoked, as was the low priority given to sustainability in resource allocation. This, in turn, is reflected in the lack of time among teachers for extracurricular activities.

The Romanian student believed that the current energy crisis will change the worldviews, attitudes and behaviours and thereby help us move towards a more sustainable world. While the students tend to see sustainability as merely an environmental issue, in the meeting they nevertheless highlighted the importance of human resources and competences, arguing that to ensure sustainability, it was essential to ensure that the local area remains attractive (esp. professionally) to young talents.

Universities

In Finland, neither the personnel nor most students rank sustainability high among their priorities. Sustainability measures remain largely invisible at the university, and the very notion of sustainability is vague. Students lack motivation to participate in extracurricular sustainability activities.

The Spanish students show great interest in sustainability, especially topics such as food, the energy crisis, and climate change. According to both teachers and students climate change is only discussed when students bring it up in the classroom and the university management does not address climate change or the place that sustainability should play in the curriculum. Students underlined that university is not a company and should instead have a positive transformative role.

7.4. Assumptions, taken-for-granted norms and beliefs, gaps

Schools of basic education

The Portuguese students evoked resistance to change and the difficulties for the school community to change its customary practices. In this respect, they underlined the vital importance of perseverance and constant need for good examples. They further remarked that blaming others for not respecting sustainability principles seems much easier than assuming one's own faults and need for improvement.

In Romania, the students considered they understood the importance of and concrete steps needed to foster for example electricity and water conservation and waste recycling. They noted that this awareness and action increased as students advance from lower (1st-4th) to higher (5th-9th) grades, yet teenagers tend to like breaking the rules and on the other hand readily adopt the unsustainable habits of adults. The students considered lower-primary-level education as crucial for the development of lasting attitudes towards sustainability. They attributed the resistance to change among adults to factors such as insufficient awareness, lack of resources, indifference, inaction, and sheer laziness.

In Spain, the students show willingness to act, but this willingness has yet to materialise in practice. Various participants in the first SCC stressed the importance of road safety to allow children to walk to school. The City Council representative agreed, and promised to contribute by advancing measures such as signposting the streets, facilitating the work of road safety volunteers, and seeking collaboration with the small businesses in the area. The discussions mostly focused on issues external to the school (infrastructures, laws...).

High schools

While in the Finnish high school the school curriculum includes sustainability in a cross-cutting manner, students could only mention geography as a subject in which sustainability was addressed. The bold objectives stated in the curriculum and strategies are in practice reduced to discussions on things such as recycling (which started in Finland already thirty years ago).

In Portugal, the students evoked resistance to change and the difficulties for the school community to change its customary practices. To effectuate change, perseverance and constant good examples would be vital. The students further remarked that it seems to be much easier to blame others for not respecting sustainability principles than to assume one's own faults and the need for improvement.

The Romanian students remarked that in the community in general, longer-term sustainability concerns tend to be overridden by present-day concerns. The prevailing norms and values hence have a deleterious impact on individuals, including children, as people seeking to act sustainably fear being ridiculed by their peers. Students also underlined that people often lack the knowledge needed to act in favour of sustainability, and that this limits the dissemination of sustainability knowledge and behaviours. The problem is compounded by “consumerism”, deeply-rooted “resource addiction”, advertising, commercial profit-seeking, neglect of recycling by both citizens and the local authorities, social status, and general patterns of “our own thinking”.

Universities

The Finnish students showed frustration about the weak or lacking integration of sustainability norms into university practice. Examples included the low offer of vegetarian meals at the university restaurant (only one option per day), and lack of continuity in the contents of sustainability teaching throughout the students' educational career. Some teachers observed that students get frustrated as sustainability teaching is repetitive and lacks deeper perspectives. For professional travel, alternatives to flying (esp. train) are allowed but not actively promoted by the university management. Overall, open discussions on the meaning of sustainability are lacking, as are clear

guidelines from the university management for sustainable travel, procurement, and restaurant services. Likewise, clearer definition of responsibilities is needed, including the nomination of persons whom one could contact if one wishes to promote sustainability. Making the course of planetary well-being mandatory for all students was seen as a positive step in principle, but students worried that the course may appear as meaningless and leave a negative experience if not integrated in other courses. Two participants remarked that although JYU and its transdisciplinary Wisdom community has a remarkable role in promoting sustainability in the Finnish society, this community is dominated by natural-science and disciplinary expertise.

In Romania, the students pointed at the contradictions between the sustainability promoted at the university and the unsustainable behaviours in family and local community. Resistance to change especially among adults was seen to undermine sustainability teaching by setting a poor example to students. The students took note of a progression from strictly environment-related sustainability teaching in primary school, towards increasing attention to societal and economic aspects at high school and university. While raising awareness was relatively easy among primary-school children, translating these learnings to practical action at home is challenging. Water and electricity conservation appear as the easiest topics, while recycling is somewhat more difficult, and changing travel and food habits present the greatest challenges.

In Spain, both teachers and students considered that sustainability was still perceived as a highly individual matter, which lacks organisation and integration within broader societal institutions. Collective action remains weak, and organised movements that would enable action in defence of the environment are lacking (cf. labour unions). Both teachers and students also considered that the university does not demand any sustainability action from them. The students and teachers considered that often the university's information campaigns on things such as energy saving, recycling, the use of private car, etc. put the blame on individuals and can therefore be counterproductive. At the same time, the students and teachers said they wished to obtain more information about practical ways of improving sustainability.

7.5. Facilities, infrastructure, and collaboration

Schools of basic education

In Portugal, both the teachers and the staff identified several barriers stemming from the fact that key decisions are taken outside of the school: the lack of infrastructure and investment, rules of procurement, waste collection, school canteen, public transport services. The fact that most teachers commute to work by private car generated discussion, whereby the car commuters defended their choice by evoking the lack of public transport, long distances, and the need to travel

during the school day between distant points in the city that are often poorly connected by public transport. The school infrastructure was the enabling and constraining factor most often evoked in the SCT discussions. The green spaces at school were seen as a major driver for sustainability, whereas several infrastructure-related barriers were mentioned: lack of recycling containers as well as old and poorly insulated classrooms were mentioned, but so were the unclear rules and responsibilities for staff in recycling efforts. The students considered sensors (measuring water and energy consumption, etc.) as an opportunity for controlling the bad practices of some colleagues.

In Romania, the lack of adequate infrastructure was mentioned as a key barrier. The students criticised poor community services such as the scarcity of bike lanes and recycling infrastructure, but also blamed school infrastructure (waste containers placed far away in the school yard, too few automated or smart systems of e.g. lighting). This was seen largely as a historical legacy: most schools in Romania were built in the 1970s and 1980s, in dense apartment block neighbourhoods with little if any green spaces around, and without sufficient parking space for the current needs. During rush hours, cars of parents waiting for their kids congest the surrounding streets, and thus give a poor example to students. Needs for modernisation – including the building of parking and green spaces – are urgent yet the education budget is limited, since priorities lie elsewhere. Municipal decision-makers and the lack of collaboration among local authorities, school management, and the community were identified as major culprits for the dire situation. However, the students also pointed finger at individuals, especially adults, whom it is hard to persuade to take action for sustainability.

In Spain, a lot of emphasis was placed on this point. The quality of the school buildings is rather poor, yet collaboration with the local city council and a dedicated budget would be needed to rectify the problems of poor insulation and heating systems, too many doors, lack of volumetric and presence sensors that turn off lights and equipment when they are not in use. Since switching lights is not a duty of the service staff, the participants called for greater individual responsibility from the entire educational community.

High schools

In Portugal, both the teachers and the staff identified several barriers stemming from the fact that key decisions are taken outside of the school: the lack of infrastructure and investment, rules of procurement, waste collection, school canteen, poor public transport services.). The fact that most teachers commute to work by private car generated discussion on topics such as the lack of public transport, long distances, and the need of teachers to travel during the school day between points in the city, with poor public transport connections. Mismanagement of resources was identified as a barrier. Those who manage school resources are often not aware of the school's needs.

The Romanian students stressed the importance of ensuring that quality human resources are retained in the local community by ensuring that the young graduates have interesting job opportunities and an attractive environment in the community.

Universities

In Romania, the lack of adequate infrastructure was mentioned as a key barrier. The students criticised poor community services such as the scarcity of bike lanes and recycling infrastructure, but also school infrastructure (waste containers placed far away in the school yard, too few automated or smart systems of e.g. lighting). The decision-makers seem to consider sustainability as a merely secondary concern for local development. Most participants in the SCC meeting denounced “obsolete” infrastructure, evoking topics such as poorly-equipped laboratories, lack of adequate educational materials on sustainability, and poor energy efficiency of the school buildings. Stable and dedicated funding would be needed to rectify the situation.

In Spain, both teachers and students considered building infrastructure as the main obstacle to university sustainability, clearly more so than what each and everyone does in their office or in classes. The UAB environment was described as very uncomfortable – very hot in the summer, and very cold in the winter. The buildings are in a very bad condition, poorly insulated, and not energy efficient. The space is poorly utilised, and more coworking spaces and well-designed common areas should be created. The faculty should conduct a study on ways to improve insulation and energy efficiency, including energy-efficient cooling systems for the summer months.

8. CONCLUSIONS

This baseline analysis of the three types of collective competences for sustainability in education, identified a number of enabling and constraining institutional factors that condition the success of sustainability efforts in basic, secondary, and higher education at our twelve demonstration sites in four countries. Together with the analysis of individual competences (D4.2) and environmental performance of the organisations in question (D4.3), this report provides a basis for the subsequent design and evaluation of specific sustainability interventions in WP5.

The analysis revealed a clear tension between the regulatory and normative competences on the one hand and the cultural-cognitive competences on the other. Our exploration allowed us to identify points on which theory and practice coincide and where they diverge. It also revealed similarities and differences between countries and between different educational levels.

Similarities between our four country-case-studies include the significant autonomy that the teachers have in deciding whether and how to introduce sustainability topics in their teaching; the key role of municipal authorities in decisions concerning infrastructure and services (in the Spanish cases, regional); and frequent outsourcing of maintenance, waste collection, and catering to external service providers. At the university level, in our case-based sample autonomy reaches beyond the individual teachers, and key decisions are made by the university itself – not municipal, regional, or national authorities. The economic dimension of sustainability receives little attention in the curricula and teaching in all four country-case-studies. Common across our demonstration sites of the four countries was also the perception of a significant gap between the bold ambitions set out in legislation as well as the school/university-level plans and strategies on the one hand, and their implementation in practice, on the other. Common was also the experience-based conviction that without firm commitment by the leadership of the organisation, efforts at integrating sustainability in the daily educational practices cannot succeed. The university students in our case-studies tended to blame the predominant societal values, individualism, consumerism, and the profit- and growth-oriented societal development model as a major obstacle to sustainability.

Cross-country differences with respect to the regulative competences concern the complex multi-level governance arrangements in Spain, characterised by negotiations between the Autonomous Communities (who carry the main responsibility for education) and the national government, as opposed to the somewhat more straightforward arrangements in the three other countries, with the municipality in a leading role (esp. in Finland), within the framework of national education system, and in collaboration with the national education authorities. As for the contents of sustainability teaching, the environmental dimension tends to dominate, with the social dimension receiving great attention especially in Finland and to a somewhat lesser extent in the other countries. The Spanish regulatory framework – especially through the new legislation currently

being implemented – most clearly emphasises the cross-cutting nature of sustainability as a theme to be integrated in teaching across the board.

Our Finnish case appeared as an outlier in many respects – mostly in a positive sense. This was seen in the clear arrangements in the JYU university for addressing sustainability in a holistic, multidimensional manner, integrating also its social, economic, and cultural “pillars”; its “Sustainable and responsible development team” formed by professors and experts from various faculties to advise the university on sustainability matters; the allocation of dedicated working hours enabling school teachers to participate in the work of the school’s “Sustainable future team”; and the fact that, unlike in the other three countries, neither students nor teachers complained about the quality of the school premises and infrastructure.

Some factors enabling and facilitating sustainability activities could be identified in our demonstration sites– for example the provision of mandatory or optional courses on the topic (e.g., on citizenship and environmental education, or the mandate to introduce sustainability topics in a cross-cutting, transversal manner. However, numerous obstacles and constraining factors were highly visible in all the case-studies. The wordings in the legislative texts tend to be general and unspecific, but on the other hand, the national curricula and inspection systems also act as a barrier by imposing curricular and evaluation frameworks still relying on established disciplinary divisions. Both national and school/university-specific curricula also add to one of the key constraints identified in our study, namely the lack of time that teachers and students have extracurricular sustainability-related activities. With the exception of some Finnish examples, no dedicated resources are allocated for sustainability-related teaching or teacher training, or coordination and collaboration among teachers and between the schools/universities and other stakeholders. Somewhat paradoxically, complaints about the lack of time for sustainability education appear as omnipresent precisely in the Finnish case – the only country where the demonstration sites seem to have available dedicated resources for the topic.

A constraint related to the lack of dedicated resources, time, and funding is the great autonomy that teachers (and universities as autonomous organisations) have on decision concerning sustainability activities in all the case studies. An obvious downside of this freedom and autonomy is that it leaves sustainability largely at the mercy of individual initiative, thereby undermining the continuity and institutionalisation of actions for sustainability. A lot therefore depends on the awareness, motivation, and energy of the individual teacher – who in most cases is not compensated for undertaking these extra tasks. At the organisational level, the autonomy of universities, and lack of dedicated funding for sustainability feeds institutional inertia, as existing disciplines and courses tend to have precedence in the rivalry for scarce funding within the university. In general, the university students of our case-studies showed significant scepticism concerning their university’s efforts towards sustainability, considering these as lacking visibility, coordination, and practical application.

Last but not least, the analysed schools and universities of our case-studies have often limited possibilities to improve their environmental performance through better management of facilities and services. This results on the one hand from the prominent role of municipal (in Spain, also regional) authorities in decisions concerning services such as energy and water supply, waste collection and recycling, and on the other hand from the common practice of outsourcing services such as catering, cleaning, and procurement of material. Remarkably, students and teachers at the demonstration sites of all our countries but the Finnish case pointed at the poor quality of infrastructures (green spaces, poor energy efficiency, waste containers, public transport, bike lanes, quality of buildings) as a major constraint to improving the environmental performance of their school/university.

While this baseline study provided useful material for further analysis, as a first cut into the topic of collective competences, it also suffers from weaknesses, and caution is hence recommended when interpreting the findings. The analysis of regulatory and normative competences was based on a non-exhaustive document analysis conducted by local teams. Although guidance and a reporting template was provided to each team to ensure consistency across the demonstration sites, there are unavoidable differences in the definitions and interpretation of key concepts and facts. Furthermore, while some generalisations are possible, and especially the regulative competences cover aspects relating to the country as a whole, our findings ultimately only relate to the twelve demonstration sites – not to the country or education level as a whole. The differences between the demonstration sites in their socio-economic and socio-professional profiles as well as motivation and involvement in voluntary sustainability-related work should likewise be borne in mind. Such motivational and contextual differences may indeed to a large extent explain also some of the findings.

9. REFERENCES

Bianchi, G., Pisiotis, U., Cabrera Giraldez, M. (2022). *GreenComp – The European sustainability competence framework*. Bacigalupo, M., Punie, Y. (editors), EUR 30955 EN, Publications Office of the European Union, Luxembourg; doi:10.2760/13286, JRC128040.

Scott, Richard W. 2013. *Institutions and Organizations: Ideas, Interests, and Identities*. Fourth Edition. <https://us.sagepub.com/en-us/nam/institutions-and-organizations/book237665#contents>

Vare, P., Rieckmann, M. & Lousselet, N. (2022). Introduction. In: P. Vare, N. Lousselet & M. Rieckmann, *Competences in Education for Sustainable Development: Critical Perspectives*, pp. 3 - 10. Springer.

10. ANNEX

10.1. Schools of basic education and High schools

Regulative competences: List of key laws and regulations affecting SD education

Finland

- Basic Education Act (628/1998)
- Basic Education Decree (852/1998)
- Government Decrees on the national goals of education and distribution of lesson hours in basic education (422/2012) and (378/2014),
- Government Decree amending the Basic Education Decree (423/2012)
- National Core Curriculum for General Basic Education 2014.
- Act on General Upper Secondary Education (714/2018)
- Government Decree on General Upper Secondary Education (810/2018)
- National Core Curriculum for General Upper Secondary Education 2019.
- Curriculum of the municipality of Tampere and Juhannuskylä school
- Curriculum of upper secondary schools in the municipality of Tampere
- Sustainable development policy of the Ministry of Education and Culture and its administrative branch.
- National youth work and youth policy programme VANUPO 2020–2023: Aiming to ensure a meaningful life and social inclusion for all young people. Publications of the Ministry of Education and Culture, Finland 2020:4. URN:ISBN:978-952-263-887-8.
- Ministry of Education and Culture. 2019. Ministry of Education and Culture Strategy 2030. URN:ISBN:978-952-263-632-4.
- The City of Action - Tampere City Strategy 2030.
- Carbon neutral Tampere 2030-roadmap
- Other special programmes of City of Tampere, e.g. Plan for sustainable urban mobility (Kestävän kaupunkiliikkumisen suunnitelma), Sustainable Tampere 2030 policies (Kestävä Tampere 2030 -linjaukset), Housing and land policies of Tampere City 2022-2025 (Tampereen kaupungin asunto- ja maapolitiikan linjaukset 2022–2025), Education policy program of Tampere City (Tampereen kaupungin koulutuspoliittinen ohjelma 2019-2025), Program for walking and city life in Tampere 2030 (Tampereen kävelyn ja kaupunkielämän ohjelma 2030), LUMO -Biodiversity program of Tampere (Tampereen LUMO - luonnon monimuotoisuusohjelma 2021-2030), Developing programme for bicycle mobility in Tampere 2030 (Tampereen pyöräliikenteen kehittämisohjelma 2030)
- Agenda 2030 and Tampere
- Service plan of the the Education and Culture Committee in Tampere (Sivistys- ja kulttuurilautakunnan palvelusuunnitelma 2022–2025)
- Annual plan of the the Education and Culture Committee in Tampere (Sivistys- ja kulttuurilautakunnan vuosisuunnitelma 2022)

- The template for annual plan of the schools from the Office of the Basic Education Services in Tampere
- A plan for sustainable future in education in Tampere (2018)
- A plan for global education and education for international understanding 2022-2023 for upper secondary schools in Tampere. (Globaali- ja kansainvälisyyskasvatuksen suunnitelma 2022–2023. Lukiokoulutus. Tampere.)

Portugal

- Students' Profile by the End of Compulsory Schooling
- National Education Strategy for Citizenship (ENEC – Estratégia Nacional para a Cidadania)
- National Strategy for the Environmental Education 2020 (ENEA – Estratégia Nacional de Educação Ambiental 2020)
- National Strategy for the Adaptation to Climate Change (ENAAC)
- Portuguese Carbon Fund (FPC)
- Leading the Transition: Action Plan for the Circular Economy in Portugal (PAEC)
- National Programme for Climate Change (PNAC 2020/2030)
- National Strategy for the Adaptation to Climate Change (ENAAC 2020)
- Action Plan for Climate Change Adaptation (P-3AC)
- National Plan for Energy and Climate 2030 (PNEC 2030)
- Carbon Neutrality Roadmap 2050 (RNC2050)
- National Youth Plan

Spain: national level

- LOMLOE: the Organic Law 3/2020 on primary and high school education, of December 29 (modifies LOE, the Education Act 2/2006, of May 3). <https://www.boe.es/boe/dias/2020/12/30/pdfs/BOE-A-2020-17264.pdf>
- Royal Decree 95/2022 on early childhood education. <https://www.boe.es/boe/dias/2020/12/30/pdfs/BOE-A-2020-17264.pdf>.
- Royal Decree 157/2022 on primary education, which consists of three cycles. <https://www.boe.es/eli/es/rd/2022/03/01/157>
- Royal Decree 243/2022, of April 5, on the basic high-school curriculum.
- Royal Decree 95/2022 (early childhood education)
- Royal Decree 157/2022 (primary education)
- Royal Decree 126/2014 (establishes the basic curriculum for primary education)

Spain: Madrid Autonomous Community

- Decree 36/2022 (early childhood education)
- Decree 61/2022 (primary education)

Spain: Andalusia

- Act 17/2007, of December 10, on education in Andalusia. 2020 Consolidated Text.

- Joint Instruction 1/2022, of June 23, from the General Directorate for Educational Planning and Evaluation and the General Directorate for Vocational Training (on the organisation and operation of compulsory secondary education schools in 2022-2023)
- Instruction 13/2022, of June 23, from the General Directorate for Educational Planning and Evaluation, on the organisation and operation of high schools in 2022-2023.
- Order of January 15, 2021 (establishes the curriculum for compulsory secondary education, including stipulations concerning diversity, student evaluation, and the advancement of students from one educational level to another).

Romania

- The National Strategy for Sustainable Development of Romania 2030 (NSSDR, 2018) adopted by the Government Decision 877/2018,
- The National Strategy on Climate Change and Economic Growth through Low Carbon (NSCCEG, 2013) and its Action Plan (NPCC, 2013); in the process of updating (2022) as the National Strategy on Adaptation to Climate Change (NSACC) for the period 2022-2030 with the perspective of 2050 and its National Action Plan for the implementation of the NSACC,
- Initiative "Education on Climate Change and the Environment" (ECCE, 2021) of Romanian Presidential Administration,
- The National Energy and Climate Plan (NECP, 2020)
- National Education Law (NEL, 2011), modified in 2022 (in debate, probably final approval in mid-2023) to include competences for sustainability in the core competences.
- Ministry of Education Decision 3238/2021 "Methodology regarding the development of the curriculum at the decision of the school" (MCSD, 2021)

10.2. Schools of basic education

Normative competences: List of key plans and strategies affecting SD education in Schools of basic education and High schools

Finland:

- Local curriculum of Juhannuskylä school
- The annual plan of Juhannuskylä school
- Mission and goals of the school
- Juhannuskylä school does not have a "plan for a sustainable future", which all schools should have according to municipal regulations. However, drafting such a plan is mentioned as an objective in the school's annual plan.

Portugal:

- Educational Project - 2018 – 2021 (Projeto Educativo - 2018 – 2021)

- Eco-schools guide for teachers (Guia eco-escolas para professores)

Romania:

- Plan for School Development, School “Nicolae Balcescu” Dragasani
- CSD, “Ecological and environmental education”, School “Nicolae Balcescu” Dragasani

Spain:

- The CEIP Mozart school participates in the International Network of Eco-schools through the projects "The Great Plant Hunt" (focused on plant and specie biodiversity), and the "Litter Less Campaign" (to reduce waste and contribute to long-term behaviour change among youth).
- The CEIP Mozart school participate in the “Naturaliza” project, developed by Ecoembes (non-profit environmental organisation dedicated to recycling and eco-design of light domestic packaging in Spain). The project aims to introduce environmental education (climate change, biodiversity, food, water, pollution, mobility, environmental conflicts, circular economy, energy, etc.) in a transversal way in the primary school curriculum. The project provides training and teaching resources for teachers on environmental topics.

10.3. High school

Normative competences: List of key norms and plans affecting SD education

Finland:

- Curriculum of Sampo upper secondary school
https://www.tampere.fi/sites/default/files/2022-09/sammon_keskuslukion_opetussuunnitelma_lops21_0.pdf
- Annual plan based on curriculum (PESU)
- Descriptions of the courses in Sampo upper secondary school (Opintojaksojen kuvaukset)
- Description of the school <https://www.tampere.fi/sammon-keskuslukio>

Portugal:

- Educational Project - 2021 – 2024 (Projeto Educativo - 2021 – 2024)
- Education Programme for Health and Citizenship at School (Programa de Educação para a Saúde e Cidadania na Escola)

Romania:

- Plan for the School Development, High School “Iulia Zamfirescu” Mioveni
- CSD, “Ecological education”, High School “Iulia Zamfirescu” Mioveni

Spain:

- ALDEA Environmental Education Programme (organised by the regional government): a tool for the development of competences in environmental education, which introduces and develops contents related to climate change, forest and coastal environment, waste management and waste reduction, biodiversity conservation, and knowledge about natural spaces of Andalusia within the educational project of the schools that join the program.

10.4. Universities

Regulative competences: List of key laws and regulations affecting SD education in the Universities of the sample

Finland

- Universities Act 2009/557
- Government Decree on Universities 2009/770
- Attachment to Government Decree on Universities (current: 595/2020, 1.8.2023->: 12/2022)
- Agreement between University of Jyväskylä and the Ministry of Education and Culture 2021-2024

Portugal

- Decree-Law No. 62/2007 - Legal Regime for the Higher Education Institutions
- Leading the Transition: Action Plan for the Circular Economy in Portugal (PAEC)
- National Programme for Climate Change (PNAC 2020/2030)
- National Strategy for the Adaptation to Climate Change (ENAAC 2020)
- Action Plan for Climate Change Adaptation (P-3AC)
- National Plan for Energy and Climate 2030 (PNEC 2030)
- Carbon Neutrality Roadmap 2050 (RNC2050)
- National Youth Plan

Spain

- LOU (2001): Organic Law of Universities 6/2001; modified by the Organic Law of Universities 4/2007
- LOSU (in preparation): Organic Law of the University System, to be approved by Parliament
- The CRUE Sustainability Assessment Working Group - Guidelines for Curriculum, from the Conference of Rectors of Spanish Universities
- Action Plan for the Catalan university system

Romania

- The National Strategy for Sustainable Development of Romania 2030 (NSSDR, 2018) adopted by the Government Decision 877/2018,
- The National Strategy on Climate Change and Economic Growth through Low Carbon (NSCCEG, 2013) and its Action Plan (NPCC, 2013); in the process of updating (2022) as the National Strategy

on Adaptation to Climate Change (NSACC) for the period 2022-2030 with the perspective of 2050 and its National Action Plan for the implementation of the NSACC,

- Initiative "Education on Climate Change and the Environment" (ECCE, 2021) of Romanian Presidential Administration,
- The National Energy and Climate Plan (NECP, 2020),
- National Education Law (NEL, 2011), modified in 2022 (in debate, probably final approval in mid-2023) to include competences for sustainability in the core competences.

Normative competences: list of key norms and plans affecting SD education

Finland:

- University of Jyväskylä Regulations
- Curricula of University of Jyväskylä
- Curriculum Policies of The University of Jyväskylä 2024–2027
- Theses on sustainable development and responsibility (UNIFI)
- Campus Development Programme 2019-2030: JYUnique Campus - where tradition and tomorrow meet
- A Road Map of Planetary Well-Being - an environmental programme of JYU and its action plan 2022-2030

Portugal:

- Instituto Superior Técnico Regulation – Estatutos do Instituto Superior Técnico
- Curricula of IST - Oferta curricular
- Instituto Superior Técnico – A School for the World – Strategic Plan 2015
- Técnico Sustentável - Environment, Society, Economy from the Environmental Science and Engineering Platform

Romania:

- **Strategic Plan (2020-2024)** of University of Pitesti and the Operational Plans (annually planning),

Spain:

- **Strategic Plan for a healthy and sustainable Campus** (2018-2022), Universitat Autònoma de Barcelona
- **Strategic Plan 2030 Horizon** (UAB) (with a section on social responsibility)