Education for Sustainable Development
Croatia
Research Report

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1. Introduction

1.1. Why focus on ESD why ESD is important?

“The world continues to face various critical challenges such as: human-induced climate change, the rapid depletion of natural resources, the frequency of natural disasters, the spread of (old and new) infectious diseases, the loss of biodiversity, the violation of human rights, increased poverty, the dependency of our economic systems on continuous growth in consumerism and so forth. Sustainable development (SD) has become a vehicle around the globe for expressing the need to depart from present dominant models of development which appear unable to balance the needs of people and the planet in the pursuit of peace and prosperity.” (UNESCO, 2009, p. 6.)

Entire generations are at least in part shaped in their attitudes, personal and communal aspirations, in their development goals, by what formal educational systems equipped them with in terms of conceptual toolboxes and mental models. If the current predicament is seen as unbalanced, as not sustainable through the forthcoming generations and thus in need of alteration, it cannot be altered using the existing dominant ways of acting and living (Tillbury, 2007). And those ways of acting and living are, at least partly, a product of the existing formal education. In order to abandon them educational systems have to be reconceptualised to provide current and future generations with new mental models of material, living and social environments and their role in the socio-economic processes.

Among traditional tasks of equipping young people to become successful members of national and global communities, formal education will also have to enable them to live together in way that contributes to sustainable development of their communities. 

**Education for sustainable development (ESD)** is a formal education’s response to global challenges in order to help students understand what sustainable development requires globally and locally, help them understand how to use their own capacity for critical reflection and systemic futures-thinking and motivate them to consider individual actions contributing to communal sustainable development.

1.2. Why we were doing this study?

UNESCO’ (2009) reports that the most common global response to the calls for inclusion of ESD into formal education is to make adjustments (either minor or substantial) to the existing educational system, with all its pre-existing strengths and weaknesses. However, all additions to the national formal education curricula struggle
with an already crowded curriculum which has a primary task of teaching the basics of reading, writing and arithmetic. ESD content can be seen as “an integrative, cross-curricular theme that can bring together many of the single issues that schools are already expected to address” (UNESCO, 2009, p. 48).

The research sets out to map the content that already exists in the national curricula, the content that is either explicitly aligned with the teaching for sustainable development, or is related to it. Based on such mapping it is expected to show how the existing curricular content can be modified (in minor or substantial manner) to contribute to ESD. Besides curricular mapping it is looking into the subject curricula and textbooks concerning the same ESD content. Though not as comprehensive as the curricular mapping, these provide a clearer idea of how important goals expressed in the Framework Curriculum are presented directly to the pupils.

It is expected that this mapping will provide the foundation in each of the participating countries for a public debate on inclusion of ESD learning outcomes in the national curricula (and further educational documents based on them) and their importance for future sustainable development. It is expected that it will point out and stress the important role the formal education has in actively shaping a more secure future for the next generation.

1.3. Sustainable Development and Education for Sustainable Development

The Notion of Sustainable Development

According to the World Commission on Sustainable Development (WCSD) report, also referred as the Brundtland Report “Our Common Future” (WCED, 1987), sustainable development marks the ability of “humanity to /…/ ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.” Thus, the report called for the need to look beyond today’s needs and short-term effects of decisions.

The pursuit for sustainable development continued at the Rio Summit in 1992 in signing the Agenda 21, the commitment was renewed in the Summit on Sustainable Development in Johannesburg in 2002 (Rio+10). In 2012 the Rio process shall celebrate its 20th anniversary, but the definition of SD evolves further. The evolution of SD has been marked by the attempts to develop a clear notion. However, it has been realized that defining SD is actually implementing the SD. Today, sustainability is firmly embedded in the language of development - locally, globally and at every level between, but according to several authors the popularity of the notion has been accompanied by more verbal adherence than practical implementation (Gibson et al. 2005). Moreover, the practice at all levels mostly still follows the mainstream economic
growth agenda. The difficulties to apply the SD derive from the need for fundamental changes in values and perceptions, but also political and administrative structures.

SD is very much context dependant (social-cultural, political, economic and other) and the interpretation of sustainability changes between contexts and also over time, as new knowledge emerges. Weaver and Rotmans (2006) propose to the use ‘sustainability interpretation’ rather than ‘sustainability definition’. In addition to the social context, the interpretation of SD may depend on other perspectives, such as on the extent of trade-offs made between values (economic, social and environmental).

In conclusion, the concept of sustainable development has created a great challenge for the socio-economic development. The concept of weak and strong sustainability (WS and SS) has questioned the limits of the Planet Earth to cope with the growing demand for resources and the thresholds for harmful impacts. Rockström et al. (2009) have identified the Earth-system processes and associated thresholds which, if crossed, generate unacceptable environmental change. This group of researchers has presented evidence that three boundaries of Earth-system processes (climate change, rate of biodiversity loss, nitrogen cycle) have been overstepped already. The debate over WS and SS is largely about the options for substitutability of natural assets, on one hand, and the acceptability of this by people and communities on the other hand. Understanding of the SD concept assumes to look beyond today’s needs and short-term effects of decisions. Developing this ability has become much in the focus of the education for sustainable development.

Education for Sustainable Development

While the roots of education for sustainable development (ESD) could be traced back to the early 1970s ESD was formally tabled at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. UNCED among other landmark publications, it also resulted in “Agenda 21” which provides a comprehensive plan of action to be taken globally, nationally and locally by UN agencies, governments and major organizations and networks to reduce the human impact on the environment. “Agenda 21”, the Rio Declaration on Environment and Development and the Statement of Principles for the Sustainable Management of Forests were adopted by 178 Governments. The Commission on Sustainable Development (CSD) was created in December 1992 to ensure effective follow-up of UNCED and to monitor and report on implementation of multilateral environmental agreements.

Chapter 36 of Agenda 21 is addressing the education, training and public awareness. UNESCO has been designated as Task Manager for ESD to address four overarching goals (http://www.un.org/esa/dsd/agenda21/res_agenda21_36.shtml):
promote and improve the quality of education: the aim is to refocus lifelong education on the acquisition of knowledge, skills and values needed by citizens to improve their quality of life;

reorient the curricula: from pre-school to university, education must be rethought and reformed to be a vehicle of knowledge, thought patterns and values needed to build a sustainable world;

raise public awareness of the concept of sustainable development: this will make it possible to develop enlightened, active and responsible citizenship locally, nationally and internationally; and

train the workforce: continuing technical and vocational education of directors and workers, particularly those in trade and industry, will be enriched to enable them to adopt sustainable modes of production and consumption.

Although there appears widespread consensus about these goals, there is less agreement about the meaning of ESD. Just as is the case with sustainable development, there is not one single correct interpretation and use of ESD. ESD is argued to be seen as the total sum of diverse ways to arrive at a ‘learning society’ in which people learn from and with one another and collectively become more capable of withstanding setbacks and dealing with sustainability-induced insecurity, complexity and risks. From this point of view, ESD is about - through education and learning - engaging people in SD issues, developing their capacities to give meaning to SD and to contribute to its development and utilizing the diversity represented by all people.

In order to bring the ESD into the attention of governments and the public, the United Nations has declared a Decade of Education for Sustainable Development (DESD). Resolution 57/254 on the DESD (2005–2014) was adopted by the United Nations General Assembly in December 2002, shortly after the World Summit on Sustainable Development (Rio+10) which was held in Johannesburg in August/September of the same year. The basic vision of the Decade is of a world in which everyone has the
opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation. DESD seeks to promote the meaningful development and implementation of ESD on all geographical scales (locally, nationally, regionally and internationally) with the involvement of a wide range of stakeholders. At the start of the Decade, this vision was translated into four objectives: 1) facilitate networking, linkages, exchange and interaction among stakeholders in ESD; 2) foster an increased quality of teaching and learning in ESD; 3) help countries progress towards and attain the Millennium Development Goals; and 4) provide countries with new opportunities to incorporate ESD into education reform efforts.

![Figure 2: sustainability representation showing how environment and society limit economics (Source: Wikipedia)](image)

Current project addresses all the four goals of DESD, but specifically the goal of networking, linkages and learning among education centres in Europe in ESD, fostering the increased quality of teaching and learning in ESD and sharing experiences and knowledge of teaching of ESD.

### Sustainable development in national curricula

Daniela Tillbury (2007), Director of International Research Institute in Sustainability (IRIS), suggests that sustainability is about challenging our mental models, policies and practices and not just about accommodating new dimensions into current work or finding common ground between related existing programmes. She holds that learning based change for sustainability challenges educators to think beyond raising awareness and go beyond involving learners merely in one-off activities such as cleaning-up or planting trees. Though these are useful and beneficial activities, what is essential is to encourage learners to develop critical and systemic thinking skills, enabling them to get to the core of the issues. This reflects the major shift in thinking
from environmental education (EE) to education for sustainability or ESD (Tillbury, 2007).

In terms of curricula content, EE can be whole part of ESD, or have significant overlaps with ESD, but EE is insufficient to replace ESD as it lacks the socio-cultural and economic dimensions (see Methodology, next chapter). Conceptually, ESD also contains important pedagogical elements which are somewhat harder to capture with our current research, and which includes social learning, participation and capacity-building. On top of these, some countries are moving away from the anthropocentric (or human-centred) perspective towards eco-centric interpretation of sustainable development through references to living in harmony with nature and the rights of other species and the non-human world.

It is clear from the above that ESD is not just a matter of information, but is setting the ground for a gradual change, a learning-based change. This comes from the perspective that dominant current models of development appear unable to balance the needs of the people and the plant in the pursuit of peace and prosperity. SD is mainly portrayed through three dimensions and their interrelation in time (past-present-future) and in space (near-far) (see Figure 2).

Sustainable social development (people) is aimed at the development of people and their social organization, in which the realization of social cohesion, equity, justice and wellbeing plays an important role.

A sustainable environmental development (planetary boundaries) refers to the development of natural ecosystems in ways that maintain the carrying capacity of the Earth and respect the non-human world.

Sustainable socio-economic development (prosperity) focuses on the development of the socio-economic infrastructure, in which the efficient management of natural and human resources is important. It is the finding of balanced ways to integrate these dimensions in everyday living and working that poses, perhaps, the greatest challenge of our time as this requires alternative ways of thinking, valuing and acting.

In brief, in the SD context it is important to consider the environmental and socio-economic development in cross generational (i.e. intergenerational) perspective.

According to the DESD Monitoring and Evaluation document by UNESCO (2009), ESD would be focused on development of knowledge, capacities, qualities or competences required for active, critical and meaningful contribution to sustainable development, on the transfer of appropriate sets of knowledge, attitudes, values and behaviour. The report states:
“ESD must be seen as a comprehensive package for quality education and learning within which key issues such as poverty reduction, sustainable livelihoods, climate change, gender equality, corporate social responsibility and protection of indigenous cultures, to name a few, are found.”

“ESD supports five fundamental types of learning to provide quality education and foster sustainable human development – learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society.”

“ESD is a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability and is concerned with all levels and types of education.” (UNESCO, 2009, p.26., Box 3)

However, ESD still remains debatable around the world. It is now understood that more room will be left for localization and contextualization, and national and regional debates towards the development of the meaning are seen as crucial. Further to that, the current study aims at identifying the cognitive and skills and values elements of sustainable development in the national curricula in 8 countries included in the ENjoinED initiative (Bosnia and Herzegovina, Croatia, Estonia, Georgia, Kosovo, Macedonia, Romania and Slovenia).

1.4. ESD in Croatia

Over the past 20 years, Croatian education system is in a state of permanent change and reform where the philosophies and approaches to education, as well as basic documents are changed. Numerous reforms were initiated and one such reform is currently underway.

The educational system in Croatia includes four levels: preschool, primary, secondary and tertiary/higher education. Compulsory education lasts 8 years (age 6 to 14) with 360,581 attending pupils in year 2009/2010. It should be noted that in the last two years there are plans to extend compulsory education on two years of high school, which would then expand compulsory education to 10 years.

The last series of reforms was launched in 2005 with adoption of the Education Sector Development Plan 2005-2010 by the Ministry of Science, Education and Sports, that was approved by the Croatian Government in June 2005. The document accepted curricular approach to designing a national curriculum which has subsequently led to the creation of the Strategy for the Development of the National Curriculum for Preschool Education, General Compulsory and Secondary Education in June 2007. Through next three years the National Curriculum Framework for Preschool Education, and General Compulsory and Secondary education”1 (hereinafter referred

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1 For the purposes of this research we used edition of the National Curriculum Framework published on the website of the Ministry of Science, Education and Sports in June 2010.
to as NCF) was drafted and adopted by the Minister of Science, Education and Sports in July 2011. The NCF incorporated the idea of 10 years compulsory education.

As for sustainable development and education for sustainable development, these are not in any way especially prominent themes in the NCF, nor are these terms often mentioned in the document. Yet the few places where sustainable development is mentioned can give picture which this document gives to the concept of sustainable development. In the chapter Educational Values and General Educational Goals reads the following passage:

“The fundamental educational values of the National Curriculum Framework arise from the commitment of Croatian education policy to the complete personal development of students; to fostering and developing the national, spiritual, material, and natural heritage of the Republic of Croatia; to European co-existence; and to the creation of a knowledge-based society that will enable sustainable development” (NCF, p. 14).

Sustainable development is, thus, recognized and defined as a sole concept of development where education, education system and knowledge based society play a decisive role in its facilitation. Therefore, it can be expected that the document itself include socio-cultural, environmental and economic aspects related to sustainable development, and promote skills and values inherent to sustainable development.

It is important to note that certain segments of sustainable development are contained in core values, particularly the segments related to the socio-cultural aspects of sustainable development. Solidarity is seen as the value which presupposes children and young people who are concerned “for others; for the family; for the weak, the poor, and the underprivileged; for inter-generational care; for the natural environment; and for their overall living environment” (NCF, p. 14). Furthermore, the responsibility presumes educational system that encourages active participation of children and young people in civic life and promotion of responsibility towards society and other members of society (cf. NCF, p. 14).

The NCF is also introducing a novelty into the educational system: six interdisciplinary themes. Two of these themes are of concern for this research: "Health, safety and environmental protection" and “Civil Education”. Interwoven with the content of other subjects, these interdisciplinary themes aim to develop skills, promote values and share knowledge about their respective topics.

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2 Themes: Personal and social development, Health, safety, and environmental protection, Learning to learn, Entrepreneurship, Use of information and communication technology, Civil education.
“Health, Safety and Environmental Protection” aims to “develop a positive and responsible attitude of pupils towards our health and safety, health and safety of others, and environmental protection and sustainable development” (NCF, p. 24). The NCF see this topic as “Education for Environment and Sustainable Development”, where students discover and recognize the diversity and multiplicity of links between different sectors. However, by analyzing the objectives of this interdisciplinary theme it can be seen that it is mostly directed towards the environmental aspects of sustainable development, and skills of risk identification and management as well as behaviour in crisis situations.

The purpose of “Civil Education” as interdisciplinary theme is “to prepare students for an active and effective civic life” (NCF, p. 26). Content of the theme covers mainly socio-cultural aspects of sustainable development with accent on active participation in local communities and democratic process, developing positive attitude towards right, obligations and responsibilities, and respect of human rights and rights of national minorities (cf. NCF, p. 27).

2. Methodology of research

The aim of the research was to collect and analyze the existing content most directly relevant to sustainable development in the national curriculums of the participating countries. The research methodology was designed by the Central Research Team (CRT) of the project to be as straightforward and efficient as possible for the country teams to gather as well as to analyze such complex data, and to aid the CRT in comparative analyses of the findings. The method involved three separate phases (A, B and C) that aimed to restrain and circumscribe the scope of research from the most abstract educational documents (framework curriculum) to the “grass root”, to what exactly is delivered to the children in the classroom (the textbooks).

All three phases used the ESD Content list (Annex 1), categorization as well as specially designed matrixes for each phase.

ESD Content list - there are two major groups of SD content elements that make up the content list: cognitive content and skills and values. The cognitive content was organized on three categories: social cultural elements (human rights, peace and human security, gender equality, etc.), environmental elements (natural resources, water, soil, air, energy, etc.), economic elements (poverty, planetary boundaries, market economy, corporate and social responsibility and accountability, etc.). Skills and values group contains items like: acting with responsibility locally and globally, acting with respect to others, critical reflective thinking, applying learning in a variety of life-wide contents, etc.
All elements of the content lists had **codes** assigned and **descriptions** that added coherence and unity for the analysis process in all participating countries, while at the same time permitted a quantitative approach along with the qualitative one.

**Categories** - the research also used for analyses **five categories**: Environment affects Humanity (EH), Humanity affects Environment (HE), Individuals affect Environment (IE), Sustainable Development Values (V), Other (O). The five categories aim to show if the curriculums have an orientation, a vision.

**Phase A** of the research aims to scan the framework curriculum to reveal the SD content and its distribution in six curricular areas, by going through the document(s) and recording in the **matrix** all occurrences of ESD content according to the Content list as well as categorizing it according to the **Categories**.

The given **curricular areas** were reorganized (for coherence across countries) as follows:

- Area A – natural sciences, physical environment and technology
- Area B – social sciences, socio-economic development, history and economics
- Area C – values and ethics education, citizenship education, religious education and philosophy
- Area D – arts, humanities and languages (communication)
- Area E – mathematics
- Area F – physical and health education

**Phase B** of the research analyzed the subject curricula. In order to focus the research two most loaded curricular areas based on Phase A were selected: one according to cognitive content and one according to skills and values content. Once the curriculum areas were selected country researchers in consultation with CRT selected subjects again by the criteria of SD loaded at certain grade levels (max 6 subjects) for deeper analyses.

Following subjects were taken for next stage of study:

- Nature and Society (1 to 4 grade);
- Nature (5 and 6 grade);
- Biology (5 to 8 grade);
- Technical Education (5 to 8 grade);
- Geography (5 to 8 grade).

In this case subjects’ curricula made under Croatian National Educational Standards³ (hereinafter referred to as CNES) were analyzed. This document has been adopted by

³ Source: [http://public.mzos.hr/figs.axd?id=14181](http://public.mzos.hr/figs.axd?id=14181) (Croatian version).
the Minister of Science, Education and Sports in August 2006 and reasons why this document is selected for the study are:

- NCF has not yet been worked out in the relevant subject curricula that would enable to carry out analysis.
- The CNES and subjects curricula made under it are still in force and currently used in Croatian schools.
- All textbooks and other educational materials that are currently in use in elementary schools are made and approved under CNES.
- The analysis of CNES allows comparison of the representation of content, skills and values of education for sustainable development between the currently used framework and the future framework.

The steps from Phase A were then repeated on the selected subject curricula the SD content from the Content list was recorded into predesigned matrixes and categorized according to categories.

**Phase C** of the research analyzed textbooks and it was conducted in two steps. Step 1 of these phase aims to select the three textbooks whose content was to be analyzed. This is based on Phase B of the research and includes the following criteria:

1. The most content loaded subject + grade combination. This was based on the highest number of content elements and skills and values elements.

2. The most 'IE only' loaded subject + grade combination. This was based on the highest number of category IE (individuals affects environment).

3. The most 'IE alone or with other categories combination.' loaded subject + grade combination. This was based on the highest number of IE (individuals affects environment) in combination with other category.

The rationale behind this selection procedure was to increase the focus on the framing of the content, as denoted by the Categories. The primary drive behind the selection of textbooks was not to perform an evaluation of such a limited sample, but to provide internationally comparable examples of good practice in interweaving different aspects of education for sustainable development into a coherent narrative delivered to students. Also, relationship between the curricular proscriptions (indicated both in the framework curricula and the specific subject curricula) and the content, tasks and illustrations directly presented to students was to be mapped.

Research has shown that 4th grade "Nature and Society" and 6th grade "Nature" and "Geography" are the most sustainable development loaded curricula in the CNES.
Based on data available on the Ministry of Science, Education and Sports website⁴, the textbooks and workbooks that are the most used in the schools were selected:


The second step of phase C had a matrix which asked the researcher to analyze content, illustrations and tasks from each textbook selected.

**Research limitations.** We must draw attention to some limitations of the present research, which are inherent to social empirical studies. This is an international initiative, deployed in eight countries with different linguistic, cultural, historical and social context. Each county had a team formed by an educational partner and an environmental partner. A dose of subjectivity in analyzing the curriculum is present, due to so many researchers involved. The central research team anticipated this and it is the reason for introducing codes. However it is not possible to assure that all coding is totally uniform and standardized. The central research team tried to keep subjectivity at a minimum by describing accurately all SD elements and discussing in depth with country teams every aspect of tasks.

### 3. Introduction to analyses

⁴ Source: Najzastupljeniji udžbenici i pripadajuca dopunska nastavna sredstva prema kategorijama [The most used textbooks and accompanying supplementary teaching resources by category]

http://public.mzos.hr/ges.ex2?1-168&id=16629 (Croatian version)
3.1. The path towards ESD as a path towards a durable future

Although the fascination with future and potential developmental paths is well known, at least since it became possible to record fears, wants and states (and thus also to repeatedly transmit them to future generations), contemporary scientific and social global institutions warn that the humanity is collectively facing an unprecedented challenge, at least as important as the coming of the Stone or Agricultural Ages, or the beginning of the Industrial Revolution (Glasser, 2007). The current predicament is at least in part fraught with problems which cannot be resolved using the existing dominant ways of acting and living, but require a step out of the standard conceptualization of our material, living and social environments and their role in the socio-economic processes (Tillbury, 2007).

Though this is a broad socio-cultural task, broader than any formal curriculum can hope to encompass, on the conceptual level it requires an inclusion of questioning of the existing mental models, mostly successfully reproduced through formal education, which have consigned most contemporary societies to the path of unsustainable development. Alongside inquisitive reconsideration of how we act, this also includes a better understanding and questioning of the social expectations and prejudices that influence individual action. The required change is deeper than a curricular intervention, based on educational processes and learning. The perceived threat is big and every community should address it through responses based on planned and all-encompassing learning and understanding. Education needs to be restructured into education for sustainable development, which is more than reducing the lack of knowledge. It is adoption of an attitude and development of motivation to act based on the stimuli from the immediate environment and independent formulation of own interests and attitudes.

One of the current and future tasks of education is to enable people to live together in ways that contribute to sustainable development of their communities and states. However at present education often contributes to unsustainable living because of the lack of opportunity for learners to question their own lifestyles and the systems that promote those lifestyles, because it advocates reproduction of unsustainable models and practices. A reorientation of formal educational content towards sustainable development is thus recommended. More concretely, that includes helping students understand what sustainable development requires globally and locally and also to help them understand how to use their own capacity for critical reflection and systemic and futures thinking, as well as to motivate them to consider actions towards sustainable development.

3.2. ESD and the national curriculum
The most common global response to the calls for inclusion of ESD into formal education is to make adjustments (minor or substantial) to the existing educational system, with all its imperfections and peculiarities. This is achieved either as an expansion of the existing inclusion of environmental education topics (thus their importance in our methodology and the results; see section 2 and 4) or adoption of altogether new cross-curricular and interdisciplinary teaching and learning. It is especially interesting that at the global level (UNESCO, 2009) few countries report the support of ESD in early childhood education, which is something we have investigated in greater detail from both the side of skills and values development (see section 4.2) and the cognitive content introduction (see section 4.1), through analysis of curricula from the beginning of compulsory schooling. It is often the case that ESD themes are seen as too complex and suitable only for later stages of education, rather than being seen as mostly a matter of presentation of the existing curricular content.

All additions to the national framework curricula, such as sustainable development topics, need to be added to an already fully packed curriculum, which in the formal compulsory education has explicit task of teaching the basics of reading, writing and arithmetic. That was the reason to start the analyses with mapping of the content that already exists in the national curricula (both framework and subject curricula), either explicitly referring or related to sustainable development. In the cases where the contents are related to sustainable development they can be slightly modified to contribute to education for sustainable development (ESD) without introducing additional content to the curriculum. It is therefore of utmost importance that the sustainable development content can be seen as “an integrative, cross-curricular theme that can bring together many of the single issues that schools are already expected to address” (UNESCO, 2009, p.48).

As is expected from the 2009 Review of Contexts and Structures for ESD (UNESCO, 2009) most of the ESD-content was found in those curricular segments where environmental education content can traditionally be found: in natural sciences. It was in this segment of the national framework curriculum that most content was identified in all the participating countries. It was especially interesting for us to determine the extent to which the generally-applicable learning goals (part of our Skills and Values Content elements – SV), such as acting with respect for others, acting with responsibility globally and locally, critical thinking, understanding complexity, futures thinking, understanding interdisciplinary relations, ability to identify and clarify values (see section 4.2), are represented across the national framework and selected subject curricula. Some of these learning outcomes can be seen as instrumental (for example, acting with responsibility, futures thinking or understanding interdisciplinary relations), whilst others are more emancipatory (e.g. critical and reflexive thinking, participating in consensus building and democratic decision making, decision-making in uncertain situations). As Review of Contexts and
"Structures for ESD reports these differences may reflect the historical and political context of individual countries, but through explicitly presenting its role and position in the curriculum we hope to open a public debate about its importance for sustainable development.

3.3. What we teach and how we teach it

In that light, and building on from the methodological and historical foundation of ESD in the curricular environmental education, we also sought to map how curricular content presents the interaction between individuals, humanity and their bio-physical environment (see section 4.1.1.1). We thus report on the overall findings of this type of framing of the curricular content. We have sought to map whether the segments of the curriculum state that some aspect of a natural system affects or impacts people, or that humanity is dependent on some aspect of the Earth or environment; that the actions or decisions of society influence or change the Earth and environment, for better or for worse; or that the actions or decisions of individuals, in their private capacity, influence or change the Earth and environment, for better or for worse (Kastens and Turin, 2006). The latter is especially important for its emancipator aspect in combination with development of certain skills and values. The analysis has sought after mapping and reporting on the content from selected textbooks on how they reflect and represented these curricular recommendations. In regards to overall national and selected subject curricula, it was expected that the analysis will show the prevalence of different framings of perceived interaction between individuals, communities and the environment.

Following the Review of Contexts and Structures analysis and recommendations it was sought to map both the environmental as well as developmental, disaster prevention and corporate and social responsibility ESD content themes. As is the general global trend it is most often the case that the traditional environmental elements (natural resource management, health, water and importance of biodiversity) are more represented than the social, cultural and economic aspects of development. In the case of Macedonia topics such as peace, citizenship, ethics, equality, and cultural diversity are relatively more emphasized. It is important to note that globally two SD focal areas emerge (a) a focus on understanding the causes and impacts of key issues and their mutual interconnections, and (b) focus on capacity development for addressing the key issues at individual, communal and global level (UNESCO, 2009).

The analysis tries to shed some light on two aspects by looking in greater detail into both the subjects that were expected to contain most cognitive environmental, economic and socio-cultural content (CC) and those subject that were expected to contain most ‘skills and values’ content (SV). Each will be presented in greater detail below. It is important to note that approach focuses on the more conventional
presentation of the ESD content, through integration of the ESD and SD issues in the existing school subjects, rather than through innovative methods such as ‘adopting a whole school’ approach to ESD. Though latter is important, it does not have a potential to reach as wide a number of students as the former, and remains an open topic for further analyses and project development. Moreover, interventions in the formal national curriculum lead to more urgent and readily adoptable responses, which is one of the important first steps towards orienting educational practice in the direction of sustainable development.

4. Overview of country findings

Analysis showed the dominance of environmental (123 units) and socio-cultural elements of sustainable development in the overall curriculum, while the economic elements are very poorly represented (17 units). Looking at particular areas, most elements of sustainable development (61 units) are in the area that covers the humanities and languages. In this case we speak about very narrow area of sustainable development that is covered. Here, teaching languages (Croatian, foreign languages or ethnic minorities languages) aims to promote cultural diversity and intercultural understanding as the NCF states that students will

“Recognise and respect the Croatian culture, their own cultures (if not Croatian), and other cultures both in their immediate surroundings and in simple, non-literary and literary texts, either assigned or individually selected

Notice and accept the differences between the Croatian culture, their own cultures (if not Croatian), and other cultures both in their immediate surroundings and in simple, non-literary and literary texts, either assigned or individually selected” (NCF, p. 33).

This quote illustrates content and skill that are promoted through teaching languages in school as this educational outcome is repeated in each education cycle for the Croatian language, foreign languages and the languages of national minorities.

Further concentration of sustainable development elements is mainly focused on the social and natural curriculum area. In other areas the analysis did not detected elements of sustainable development.

When it comes to sustainable development skills and values, the emphasis is different from area to area. The most common skills across all areas are “acting with respect to others” (SV2) and “acting with responsibility locally and globally”
(SV1) with these two being the most represented in language curriculum area. The third most represented is “qualitative observation” skill (SV15), which is dominant in science part of curriculum. Out of all skills and values listed in research matrix, several were not found in the NCF:

- Identifying stakeholders and their interests (SV12);
- Negotiating and consensus building (SV14);
- Quantitative measure (SV16);
- Communication and understanding graphs and symbols (sv20);
- Manipulating mathematical ratios (SV21).

Second phase of the study consisted of the analysis of subject curricula selected on the bases on the results of the first phase. Generally, there is dominance of the environmental elements over economic and socio-cultural elements of ESD.

Looking at each subject, “Nature and Society” is rich with socio-cultural and environmental elements, while the “Geography” is abundant with economic elements. The reason can be found in the fact that the "Nature and Society," taught from 1st to 4th grade, as its name suggests, introduces students to general concepts related to nature and society. On the other hand, "Geography," taught from the 5th to 8th grade, handles geographic, demographic, economic and other characteristics of the continents, regions and countries, and of Croatia. Economy and economic picture of the continents, regions or countries is one of the important topics in the “Geography” curriculum as study recorded.

Sustainable development skills and values are represented in all subjects, but it is visible narrowness in the “Biology” subject curricula. Most common skill across subjects is “applying learning in a variety of life-wide situations” (SV8; 129 units), then “critical reflective thinking” (SV3; 81 units), “acting with responsibility locally and globally” (SV1; 65 units) and “acting with respect to others” (SV2; 40 units). It should also be noted that in all analyzed subject curricula following skills and values were not found:

- Identifying stakeholders and their interests (SV12);
- Participation in democratic decision-making (SV13);
- Quantitative measure (SV16);
- Prediction (SV19);
- Communication and understanding graphs and symbols (sv20);
- Manipulating mathematical ratios (SV21).

---

5 Narrowness is seen in the fact that “Biology” curriculum predominantly is focused on following skills and values: “acting with responsibility locally and globally” (SV1), “acting with respect to others” (SV2), “critical reflective thinking” (SV3) and “understanding complexity/applying systematic thinking” (SV4).
The third part of the study focused on selected textbooks and workbooks that are very well equipped and graphically attractive. All textbooks have established concept of presenting the content consequently used throughout textbook with various forms of reminders, short notes, pictures, sidebars with quick information, textboxes with quotes and Internet links.

Textbooks predominantly follow instructions defined in curriculum with environmental elements dominating. However, “Nature and Society” textbook does not cover 3 socio-cultural, 2 environmental and 2 economic elements even though they are in curriculum. On the other hand, the same textbook has 3 (environmental) elements which are not detected in the curriculum. With these changes, the textbook placed focus on environmental elements, while the curriculum equally represents socio-cultural and environmental elements. Further looking at the lessons in the textbook, most of them are devoted to environmental side of sustainable development, and then to economic elements. Identical situation is with images that are located next to the text in the textbooks and where the most of them are with environmental content.

Sixth grade “Nature” textbook covers all topics prescribed by the curriculum with a very strong emphasis on environmental, followed by economic and socio-cultural elements. The situation is similar when it comes to the representation of elements in the lessons where the environmental elements exceed the other.

The “Geography” subject curriculum for 6th grade also covers significantly environmental elements and selected textbook follows the curriculum what is shown by the number of lessons devoted to the certain environmental topics. Identical situation is with pictures and illustrations with 226 covering environmental, 21 economic and 18 socio-cultural elements. Furthermore, the analysis found that the textbook covers one environmental and two economic elements which are not found in curriculum.
4.1. The analysis of the SD cognitive content

4.1.1. Environmental aspect vs. other aspects of SD representation in the curriculum

It was mentioned that, on the NCF level, the natural and social curricular areas have a monopoly over environmental aspects. As special situation, it should be noted that the study recorded the presence of environmental elements, namely “pollution” (B12), in the physical and health education area. For this curriculum area, NCF define that at the end of 1st education cycle students will "acquire the basic knowledge regarding the connection between environmental protection and physical exercise" (NCF, p. 188) and at the end of 2nd educational cycle will "recognise and understand the need to protect the environment during the physical exercises" (NCF, p. 190).

Among other elements, the most represented aspects are ones about “energy” (B5; 28 units), followed by “natural resources” (B1; 25 units), and the content about “water” (B2, 12 units). Across the entire NCF curriculum areas two environmental elements have not been identified: “rural development” (B9) and “urbanization” (B10). This is a content gap from the perspective of ESD, which can be closed in the development of new subject curricula.

In the analyzed subject curricula most content related to the environmental aspects of sustainable development is in the "Nature and Society" curriculum and then in "Geography" curriculum. When it comes to certain aspects then “biodiversity” (B7, 67 units) holds the primacy, followed by aspect of “human being as living organism” (B13, 45 units), primarily due to the fact that 8th grade “Biology” deals with human anatomy. After that, the most represented aspects are “pollution” (B12) and “water” (B2). The study did not record presence of elements of “waste” (B14) in the plans and programs.

On the "waste" issue, the same situation is recorded in the study of selected textbooks in which the “waste” is not mentioned in any context. Although NFC shows improvement in this area the fact that it does not deal with “rural development” (B9) and “urbanization” (B10) leads to a conclusion that even in the traditionally best covered aspect of ESD environmental there is still room for improvement.

Looking at textbooks together, there is a particularly interesting situation with the "Nature and Society" textbook. Specifically, the textbook does not cover two aspects that are prescribed by the curriculum, and covers three that are not identified in the curriculum. Not covered aspects are those concerning “climate change” (B8) and “natural disasters” (B11), while covered are “soil” (B4), “energy” (B5) and “agriculture” (B6). This is due to the fact that the subject introduces students with characteristics
of particular Croatian regions: agricultural activities, use of soil and production of energy. Looking at the lessons, textbook devotes most attention to “biological diversity” (B7) by describing the living conditions of animals and plants; relationship of animals and plants and describing biological diversity of the Croatian territory. Other aspects are covered mostly on the level of paragraphs in a broader context.

"Nature" textbook gives most attention to “biodiversity” (B7, 29 lessons) that refers to the general description of the species and their habitats, description of plants and animals, their role in biosphere and also lists endangered species in the Croatia and the world. A fair share of attention is given to “planetary boundaries” (B2), “agriculture” (B5) and “pollution” (B12).

"Geography” textbook covers almost all content and themes prescribed by curriculum, but do not include one topic contained in the curriculum - the one that tackles content about “soil” (B4). Aspect that is the most represented is the “energy” (B5) due to the fact that the textbook devote lessons in which is described the role played by oil resources in Asia in the world energy market, the largest manufacturers, exporters and time from production to consumers. An ESD-oriented perspective could include topics on the future development of energy sources in these textbooks, beyond the factual information of the current dependence on carbon intense fuels.

4.1.1.1. Framing of environmental aspects

Study showed that the NCF’s environmental content is mainly framed in neutral position, without having major accent either on human or environmental role. This means that extracted units of the NCF could not be categorized in any of categories in the research matrix.

Looking further, it can be seen that the natural and social curriculum area provides more accent on content that describes the human impact on the environment. For illustration, in part of the NCF which covers the natural sciences students will

"Name renewable and non-renewable energy sources and discuss the effectiveness and impact on the environment” (NCF, p. 99),

"Explain the role of humans in using, modifying and protection of nature”
(NCF, p. 101)

"Differ ways to exploit the sea and to emphasize the harm of over-exploitation” (NCF, p. 102) and similar.
In the social part of the curriculum students will explain the importance of protecting and preserving the environment and threats to the environment pollution caused by the negligence of each individual” (NCF, p. 118);

“Know that technology, aside it usefulness to humans, have harmful effects on the environment and the whole ecosystem as well” (NCF, p. 122);

“Explain that technological processes affects the distortion of the natural balance, but also adaptation of technology can reduce the impact of harmful effects on the environment” (NCF, p. 130) and

“Explain the connection between human activities and environmental pollution and to propose measures how to protect environment” (NCF, p. 134).

Similar situation exists at the subject curricula and textbooks levels, where the content is mostly neutrally presented. However, "Nature" subject curriculum puts emphasis on how humans influence environment. This is easy to understand after having insight that one of the general objectives of the subject is to “stimulate interest in observing in nature, research and logical reasoning about components and structure of the living world” (CNES, p. 261) which is then operationalised in set of goals where students are encouraged to see and research how human being affects nature, environment and other species.

Second interesting finding of the study is that, if the neutral layer is skipped, one can find the content where the influence of humans and individuals on nature and environment is emphasized. Looking at particular units extracted from the curricula one can see that this framework deals with the issues concerning human exploitation of natural resources, use of technology and its effect on living beings, as well as how to prevent pollution, and what can be done on individual level to preserve biodiversity, save endangered species and keep environment clean.

Textbooks deliver the framework much similar to the one suggested by the subject curricula. Here the “Nature” textbook is the most generous with whole chapter dedicated to “Human Influence on the Environment” with the description and analysis of dangers for biosphere, protected areas in Croatia, causes of vulnerability and extinction of animals and plants, and ways this can be prevented (cf. Bošnjak et al. (2008) 55-72). This aspect is also elaborated in chapter “Energy” (Bošnjak et al. (2008) 73-90) as well as in other part of the textbook. “Nature and Society” textbook also
covers similar topics but on a smaller scale, and “Geography” textbook puts it in a broader context of problems in certain areas of the World.

4.1.2. Economic aspects representation in curriculum

The economic aspects of ESD are the least represented at all levels of the study. At the NCF level, the economic aspects are represented only in the social and natural curricular area and they are listed below by frequency:

- Sustainability, Sustainable Development (C6; 7 units);
- Market economy (C4; 4 units) and Production and/or Consumption (C5; 4 units);
- Poverty (C1; 1 unit) and Planetary Boundaries (C2; 1 unit).

The two most common elements across all analysed subjects curricula are “production and/or consumption” (C5), and “sustainability and sustainable development” (C6). Also, across all curricular areas no elements that deals with “corporate social responsibility” (C3) has been found.

At the level of the particular curriculums, "Geography" has a monopoly on economic elements of sustainable development. This is because the element of “production and/or consumption” (C5) is studied in "Geography" through overview of economy, economic activities, production, main export activities of different parts of the world.

Other elements are rarely present in the curriculum with “planetary boundaries” (C2) being the least represented.

"Nature and Society” textbook have an interesting situation where two elements required by the curriculum are in the textbook (production and/or consumption (C5) and sustainability and sustainable development (C6)), while the two elements are not. Elements in question are “corporate responsibility” (C3) and “market economy” (C4). Although the curriculum gave accent on sustainability and sustainable development (C6; 2 units), the textbook is more focused on the elements of consumption and/or production (C5; 4 lessons). The reason is that 4th grade “Nature and Society” mostly deals with lessons describing types of economic activities in Croatian regions.

The next interesting case is "Geography" textbook where authors have covered two elements that are not prescribed by subject’s program. These are the elements of the “planetary boundaries” (C2) and “market economy” (C4). “Poverty” (C1) and “consumption and/or production” (C5) are the most common elements, while sustainability and sustainable development (C6) is mentioned in a very broad context.
The reason for such representation of certain elements is similar to cases explained before. Sixth grade “Geography” deals with features of continents and regions where economic factors make a significant piece of information that student receive through textbooks.

"Nature" textbook follows the curriculum when it comes to the elements of sustainable development and places special emphasis on the “production and/or consumption” (C5) where 7 lessons are dedicated to water and energy production and impact of water and energy consumption on human life and the environment (cf. Bošnjak et al. (2008) 74-90; 92-95).

4.1.3. Socio-cultural aspect representation in curriculum

When it comes to NCF, the curriculum area of social sciences is the most socio-cultural elements loaded area. In other areas they are poorly represented. This makes the socio-cultural aspects of ESD an almost exclusive province of the social science school subjects, though they are conceptually and causally related to environmental and economic aspects that these subjects do not cover. The most represented elements are “cultural diversity and understanding between cultures” (A4), “health” (A5) and “human rights” (A1). On the other side, element of “gender equality” (A3) is mentioned 2 times in context that students will “identify and describe gender and social stereotypes and prejudices” (NCF, p. 144) and “specify possibilities of overcoming gender-based and social stereotypes and prejudices” (NCF, p. 146).

Furthermore, looking across subjects whose curricula was analyzed it is shown the dominance of “health” (A5; 60 units) that is specifically represented in the "Nature and Society," "Nature" and "Technical Culture”. Then follows “Human Rights” (A1; 32 units) and “cultural diversity and understanding between cultures” (A4; 30 particles). In the analyzed cases the least represented were elements of “gender equality” (A3; 17 units) and the new forms of governance (A6; 3 particles).

In the area of socio-cultural elements of sustainable development, "Nature" and "Geography" textbooks follow the curriculum while “Nature and Society” deviate from the subject’s program. The textbook covers two topics: “health” (A6) and “Human rights” (A1) where Human rights are more represented in the text through the promotion of human rights for all, a description of national minorities in Croatia and methods to fight against child abuse. The textbook does not include the three segments that are suggested by the subject curriculum:

- Peace and human security (A2);
- Gender equality (A3);
- Cultural diversity and intercultural understanding (A4).
4.2 The analysis of skills and values

Although the analysis of skills and values has been partially covered in previous chapters here it will be presented more deeply.

**Across all NCF the value of acting with respect to others (SV2) is the most present followed by Acting with responsibility locally and globally (SV1) being the second.** In table below, the most frequent skills and values by particular curriculum area are represented:

<table>
<thead>
<tr>
<th>Curriculum Area</th>
<th>Skills and Values</th>
</tr>
</thead>
</table>
| Science             | qualitative observing (SV15)  
                      | applying learning in a variety of life-wide situations (SV8)  
                      | inferring based on observation (SV17)                                  |
| Social Science      | acting with respect to others (SV2)  
                      | acting with responsibility locally and globally (SV1)  
                      | applying learning in a variety of life-wide situations (SV8)             |
| Languages           | acting with respect to others (SV2)  
                      | acting with responsibility locally and globally (SV1)  
                      | applying learning in a variety of life-wide situations (SV8)             
                      | understanding interrelationships across disciplines (SV7)               |
| Physical and Health | acting with responsibility locally and globally (SV1)  
                      | understanding complexity/applying systematic thinking (SV4)  
                      | applying learning in a variety of life-wide situations (SV8)             |

Table 1. Most frequent Skills and Value content according to curriculum area

One interesting finding is that the participation in democratic decision-making processes (SV15) is found twice in the health and physical education area in context of participation in promotion of health and preventing spread of diseases (cf. NCF, p 187-189).

**Across analyzed subject curricula the most dominant skill is applying learning in a variety of life-wide situations (SV8)** followed by critical reflective thinking (SV3), acting with responsibility locally and globally (SV1) and acting with respect to others (SV2). Though application of the school-learning in a variety of life-wide situations is important part of implementation of the SD-practices in everyday life, its significance is lost of other cognitive and process aspects of ESD are missing.

“Nature and Society” curriculum is mainly focused on values of acting with respect to others, as well as on local and global level with encouraging students in critical reflective thinking. Other subjects are focused predominantly on applying learning in a variety of life-wide situations.
5. Conclusions and recommendations

1. The educational content for general primary education in Croatia is undergoing significant reform, with noticeable difference between the new and old educational documents from the perspective of content for ESD. This content is present in the new and old documents, but often scattered and segmented through rigid disciplinary domains.

2. Overall, Croatian national educational curricular documents contain some ESD-relevant content, with a tendency of increase through educational content reform. The current ESD content is beset by presentational problems though.

   (i) It is focused on environmental aspects of ESD and factual descriptions of status quo or related problems, with no ‘active’ components aimed at development, change and individual engagement.

   (ii) It is scattered rather than strategically placed through the curriculum as a whole, and often bound to the conceptually closest disciplines making even its universal and transversal aspects limited in reach and appeal.

   (iii) Finally, there are clear gaps in content (novel sustainability oriented topics such as forms of governance or urbanisation trends), relative to global trends, with potential for these topics to be introduced in the subsequent iterations of content-update in line with global visions and EU integration of Croatia.

3. The new curricula framework (NCF) is an improvement from the perspective of ESD as it places some of the sustainability principles as its foundational values. But even it is limited in the development and futures thinking focus.

4. Old Croatian curricular documents, which are still partially in use, cover mainly environmental aspects of ESD through factual knowledge about biodiversity, nature protection and energy production as well as frequent calls for implementation of school learning in everyday contexts. But they contain no explicit sustainability orientation and do not provide sufficient knowledge and skills important for sustainable development globally to be implemented in everyday contexts. They too would be improved in the future subject curricula reform by adding a development and futures thinking topics that will be increasingly important when current students become socially, economically and culturally engaged adults.

5. The new NCF sees education as one of enabling social systems for sustainable development. Sustainable development, as a term, is scarcely mentioned in the document but certain components, skills and values of sustainable development are reflected in basic values of the NCF.
6. Also, interdisciplinary theme “Health, Safety and Environmental Protection” can be seen as positive attitude of the document towards the concept, especially its environmental aspects. The document sees this theme as “education for sustainable development” and as it places emphasis on risk and crisis management it opens the door for teachers to actively introduce their own project concerning sustainable development.

7. Further, the new “Civil Education” theme strengthens the aspects of sustainable development regarding social relations, decision making and civic participation that are already present in schools and other curriculum areas.

8. With these themes NCF makes important step and gives more focus on sustainable development in comparison to the current CNES in which there is no direct mention of the sustainable development in any part of the document.

9. The NCF also gives greater emphasis on cultural diversity and understanding between cultures (a globally important socio-cultural aspects of SD), while CNES put more emphasis on health as essential social and cultural aspect. One possible explanation of this reversal and change is the fact that Croatian society is becoming more a part of the global world, and the European Union as a multinational organization in which tolerance and understanding of other cultures is an essential prerequisite for the functioning of the individual in society.

10. The NCF makes important step towards integration of sustainability content schools in Croatia but under the condition that it is fully implemented, regularly updated with globally relevant topics, and that its implementation is meaningfully evaluated with sustainability in mind.

11. Both documents NCF and CNES provides very little emphasis on gender equality as in a traditional society such as the Croatian could mean a further perpetuation of gender and gender roles, and maintain existing levels of hostility towards gender and sexual minorities.

12. As addition to this research, it would be advisable to carry out another one that would map the concrete practices in school, i.e. how teachers teach sustainable development, to what aspect they give preference, how teachers are equipped with knowledge and skill to deal with sustainable development issues etc.

13. The educational documents should, beyond the factual content describing the current situation and its problems, include development- and future-oriented content combined with the possibilities of communal and individual action towards global sustainable future. Sustainability as a foundational value and principle of the
curriculum is important, but impotent if not translated into the educational topics, textbooks and knowledge to ‘take home and use in everyday life’.
References


## Annex 1 - ESD Content List

Below is a list of content elements that will help you map and extract curricular content related to ESD. For ease of use the list is divided into several sections, primarily into **Cognitive content** (knowledge, facts, learning) and **Skills and Values** (skill development, competences; understanding, acquiring and sharing values).

<table>
<thead>
<tr>
<th>I</th>
<th>COGNITIVE CONTENT</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>Social Cultural elements</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Human rights</td>
<td>Civil and political rights, economic; social and cultural rights; environmental rights (right for clean environment) is currently debated</td>
</tr>
<tr>
<td>2</td>
<td>Peace and human security</td>
<td>References to benefits and mechanisms of global peace, and securing “freedom from want” and “freedom from fear” for all persons.</td>
</tr>
<tr>
<td>3</td>
<td>Gender equality</td>
<td>In employment, career and salary; in political and social rights</td>
</tr>
<tr>
<td>4</td>
<td>Cultural diversity and intercultural understanding</td>
<td>Tolerance to other values and perceptions</td>
</tr>
<tr>
<td>5</td>
<td>Health</td>
<td>Human health, health problems, environmental health, ageing</td>
</tr>
<tr>
<td>6</td>
<td>New forms of governance</td>
<td>New ways to manage governing of goods and communities, e.g. environmental governance (environmental aspects considered in decision making); democratic decision making (transparent, involving stakeholders).</td>
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<tr>
<th>I</th>
<th>COGNITIVE CONTENT</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>B</strong></td>
<td><strong>Environmental elements</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Natural resources</td>
<td>Minerals, forest, land, soil etc (amount, location, quality)</td>
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<tr>
<td>2</td>
<td>Water</td>
<td>Fresh water, marine water, drinking water (location, quality)</td>
</tr>
<tr>
<td>3</td>
<td>Air</td>
<td>Ambient air (quality)</td>
</tr>
<tr>
<td>4</td>
<td>Soil</td>
<td>Agricultural soil, forest soil (quality); soil erosion processes</td>
</tr>
<tr>
<td>5</td>
<td>Energy</td>
<td>Fossil fuel-based energy, renewable energy (resources, dependence on these sources)</td>
</tr>
<tr>
<td>6</td>
<td>Agriculture</td>
<td>Role of agriculture (food, employment); position of agriculture within a wider economics system; forms of agriculture (industrial, small scale, organic, sustainable etc.)</td>
</tr>
</tbody>
</table>
## COGNITIVE CONTENT

### Environmental elements

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<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>7</td>
<td>Biodiversity</td>
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<tr>
<td>8</td>
<td>Climate change</td>
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<tr>
<td>9</td>
<td>Rural development</td>
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<tr>
<td>10</td>
<td>Urbanization (urban footprint; urban sprawl)</td>
</tr>
<tr>
<td>11</td>
<td>Natural disasters</td>
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<tr>
<td>12</td>
<td>Pollution</td>
</tr>
<tr>
<td>13</td>
<td>Human beings (as living organisms)</td>
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<tr>
<td>14</td>
<td>Waste</td>
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</tbody>
</table>

### Economic elements

<table>
<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Poverty</td>
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<tr>
<td>2</td>
<td>Planetary boundaries</td>
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<tr>
<td>3</td>
<td>Corporate social responsibility and accountability</td>
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<tr>
<td>4</td>
<td>Market economy</td>
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<tr>
<td>5</td>
<td>Production and/or consumption</td>
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<tr>
<td>6</td>
<td>Sustainability, sustainable development</td>
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<tr>
<td></td>
<td>SKILLS AND VALUES CONTENT</td>
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<tr>
<td>---</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Acting with responsibility locally and globally</td>
</tr>
<tr>
<td>2</td>
<td>Acting with respect to others</td>
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<tr>
<td>3</td>
<td>Critical reflective thinking</td>
</tr>
<tr>
<td>4</td>
<td>Understanding complexity / applying systemic thinking</td>
</tr>
<tr>
<td>5</td>
<td>Futures thinking</td>
</tr>
<tr>
<td>6</td>
<td>Planning and managing change</td>
</tr>
<tr>
<td>7</td>
<td>Understanding interrelationships across disciplines</td>
</tr>
<tr>
<td>8</td>
<td>Applying learning in a variety of life-wide contents</td>
</tr>
<tr>
<td>9</td>
<td>Decision-making, including in uncertain situations</td>
</tr>
<tr>
<td>10</td>
<td>Dealing with crisis and risks</td>
</tr>
<tr>
<td>11</td>
<td>Ability to identify and clarify values</td>
</tr>
<tr>
<td>12</td>
<td>Identifying stakeholders and their interests</td>
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<td>13</td>
<td>Participation in democratic decision-making</td>
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<td>Negotiating and consensus building</td>
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<td></td>
<td>SKILLS AND VALUES CONTENT</td>
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<td>-------------------------------------------------</td>
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<tr>
<td>15</td>
<td>Observing - qualitative</td>
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<td>Measuring - quantitative</td>
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<td>18</td>
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<td>Communication and understanding graphs and symbols</td>
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This report is a part of a wider ENjoinED initiative [http://www.enjoined.edupolicy.net](http://www.enjoined.edupolicy.net) that is active in 8 countries. The aims of the initiative are to uncover the content of the national curricula of the participating countries related to education for sustainable development (ESD), to develop and deliver training activities to those that can and must promote sustainable development, and knit a network of civil society organizations with different backgrounds and competences through a joint mission to exchange know-how for shifting social consciousness towards sustainable development. ENjoinED initiative is born out of Education for Sustainable Development Partnership Initiative (ESdPI) project.

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