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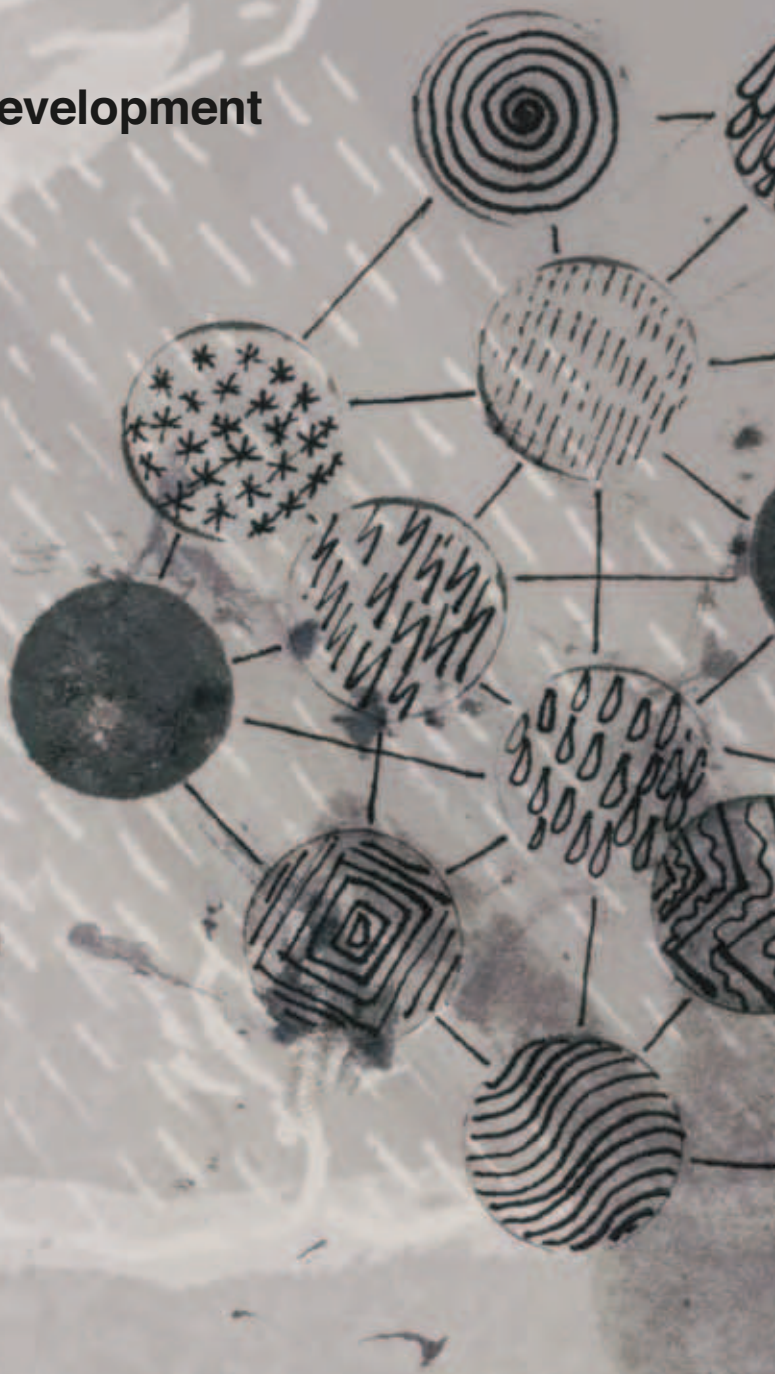
educate for sustainable development

Education for Sustainable Development

Georgia

Research Report



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1. General 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

1.3.1. The Notion of Sustainable Development

According to the World Commission on Sustainable Development (WCSD) report, also referred as the Brundtland Report “Our Common Future” (1987) (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 repeated 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 realised 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 societal 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 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.

1.3.2. 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 plus 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, behaviours 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.

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.

1.3.3. Sustainable development in national curricula

Daniela Tillbury (2007: 119), 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 arlop 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: 120).

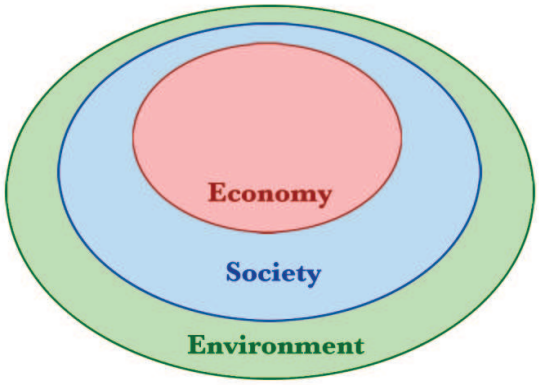

Figure 1: Three basic elements of sustainability – environmental, social and economic (Source:

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).

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.

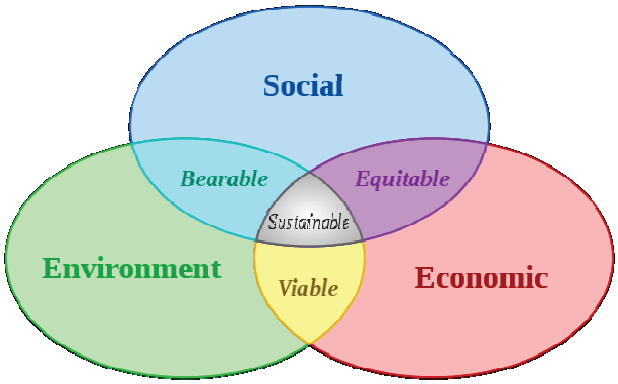

Figure 2: sustainability representation showing how environment and society limit economics (Source: Wikipedia)

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 (ie 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.*

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 of Europe.

1.4. ESD in Georgia

General education in Georgia is divided in three levels: elementary (grades I-VI), basic (grades –VII – IX) and secondary (grades X-XII). Elementary and basic levels of general education are compulsory. Main subjects are grouped in 6 subject groups:

1. Georgian language and literature;
2. Math;
3. Natural Sciences;
4. History, Geography and other social sciences;
5. Foreign languages; and
6. Physical and aesthetic education.

The general approach, as well as content and methods of teaching are defined by the two framework documents - National Goals of General Education and National Curriculum.

Mentioned compositions of the system as well as the two broad contextual documents listed above were introduced in Georgia in 2005, in the frames of a comprehensive and fundamental reform of the education system. Another important component of the reform that might be relevant to the context of the current research is decentralization of management of general education that gives more freedom to schools in making decisions on particular methods and content of teaching thus explaining a general character of framework curricular documents.

Building system anew is always easier than making revisions in the existing constructs. In an effort to compile the best practice of "what is not a Soviet-type education" Georgia has arrived to the model that formally incorporates many important priorities, modern trends and accents in education, including ESD.

Structure, functional interrelationship between the elements of the system as well as normative documents regulating the content and methods of teaching have been entirely reconstructed in response to worldwide stimuli and influences. Taking a brief glance on the framework documents may be enough to find keywords indicating importance of ESD in Georgian education system. General commitment to it is reflected in the Goals of General education. Logic of the new national curriculum envisages cross-cutting representation of ESD related content in the curriculum and emphasizes importance of generic skills development.

An important challenge, however, is to bring more blood and life in the perfectly built skeleton and to achieve that general commitment to ESD is reflected in real-life classroom activities and school experience of students. Therefore, it is important to consistently include ESD content in lower levels of hierarchy of the curricular documents and textbooks and ensure integrity of approach across different grades, subject groups and subjects.

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.

Six subjects comprising two broader curricular areas have been selected in Georgia: Physics, Chemistry, Biology (subject group – Natural sciences), History, Geography and Civic Education (subject group – Social sciences). As curricular documents in our country are broad, outline documents, all grades have been analyzed to obtain enough information for subsequent stages of research.

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.

As there were multiple versions of textbooks for a particular subject/grade combination in Georgia, the most widely used three textbooks with greater representation of the curricular content categorized as IE (Individuals affect

Environment) have been selected by the country team– Biology (grade VI), History (Grade X) and Civics (Grade IX).

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

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

Taking a bird's eye on the Georgian curriculum shows that ESD content is quite substantially covered by curricular documents and textbooks. The framework documents include general statements emphasizing importance of ESD:

> *„Students should understand general principles of sustainable development" (Social science subject curricula);*
>
> *„Students should realize reposnibility towards society and environment".*

ESD content in curricular documents embraces socio-cultural, environmental and economic components. For example, the national curriculum underlines importance of helping students to understand **„Global political, economic, enviornmenal and social challenges"**, or, more specifically ***„Cultural, economic and environmental interests of the state in a broader context of global problems and tasks"***.

However, the deeper analysis reveales some differences in representation of the mentioned three aspects as well as inconsistencies between the curricular documents and textbooks.

One of the most interesting findings of our research is that the Socio-cultural component represents the most widely covered aspect that is well represented in the both curricular documents and textbooks.
The framework document „ National goals of general education" stresses importance of:

> *„Building civic awareness among young generation that is based on liberal and democratic values";*
>
> *„Helping students understand their rights and reponsibilities towards families, society and state";*
>
> *„Strengthening respect to national and global values and facilitating creation of free and responsible individuals".*

Economic aspect is also also rather substantially covered by the curricular documents, but textbooks don't contain much of it. On the contrary, environmental aspects are underrepresented in the curriculum but covered in much more detail by textbooks.

Issues of Human security and new governance are the most widely represented content elements both in textbooks and curricular documents in Georgia. According to curricular documents students should be able to:

> *"Act responsibly in emergency situations", "Follow safety rules", "Apply different techniques of participatory decision making", "Understand the impact of different decisions on the whole society", "Apply conflict resolution techniques to various real life situations", "Demonstrate the principles of tolerance, openness to different opinions and viewpoints"*

Recent developments (such as gained independence as well as experienced civil war and conflicts) had of course a great influence on the curriculum. On this background, however, it is surprising that neither the curriculum nor textbooks include the content on rural and urban development that are considered very important issues in the developing countries like Georgia.

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

Environmental aspect is less represented in the Georgian curricular documents compared to socio-cultural and economic aspects. This aspect forms approximately 1/10 of all coded content and is mostly present in the Natural Sciences subject area (subject - Biology). One of the explanations of underrepresentation of the environmental component in the curricular documents is a generic character of the Georgian Curriculum. Some of the codes used for the content analysis of environmental component were too specific to be found in the framework documents. Although some of the specific environmental content was much more comprehensively covered in textbooks.

The table #2 lists main environmental codes used during the research and their representation in textbooks and curriculum. As it can be seen from the table, neither textbooks nor curricular documents include the issues of agriculture and rural

development. The issue of urbanization is once mentioned in the subject curriculum of history, but not reflected in the textbook. The mentioned themes are very important for developing economies like Georgia. Hence this is surprising that they are not adequately exposed in teaching materials and guidelines for teachers.

Table #2 Environmental content elements in curriculum and textbooks

Content	FC	Subject Curricula	Subject Curricula
Natural resources	■	■	■
Water		■	■
Air		■	■
Soil		■	■
Energy		■	■
Agriculture			
Biodiversity	■	■	■
Climate change	■	■	■
Rural development			
Urbanisation (urban footprint; urban sprawl)		■	
Natural disasters	■		■
Pollution	■	■	■
Human beings (as living organisms)	■	■	■
Waste		■	■

Analysis of curricula by subjects and subject groups revealed most of the cross-curricular environmental content at the elementary level. Only some of the environmental content (like natural resources) is present in several subject curricula at the basic level of general education. This issue is included in Geography, Physics, Biology, Chemistry and even Civic Education curricula. The rest of the environmental content is mostly included in Biology curriculum.

Therefore, it is not surprising that the environmental content was found only in one out of three selected textbooks – Biology, grade VI. However, this textbook covers environmental issues quite comprehensively – almost half of the illustrations in the textbook along with 1/3 of the total number of lessons highlight this or that aspect of the environmental content.
The content is backed by very good illustrated material (maps, diagrams) that helps students understand and visualize environmental content. For example:

Students should analyse special maps in order to identify continents with largest area of cultivated land or forest and classify countries by consumption of whater (Biology textbook - grade V).

The biggest share of lessons is devoted to diversity issues. The next issues are importance of protection of natural resources, types of resources, consumption and waste management. The textbook also stresses importance of careful management of non-renewable resources, secondary use of resources and recycling; several lessons explain the issues of safety: ***safe scouting, water safety, first aid, poisonous plants, dangerous animals***. Each lesson includes at least one observation exercise or experiment.

4.1.1. Framing of environmental aspects (IE/EI/HE)

Analysis of background meaning of ESD content in curricular documents and textbooks illustrates that collective rather than individual responsibility is emphasized. Approximately 4/5 of the Illustrations, tasks and content show interdependence of environment and humanity:

Only 1/5 illustrate the impact of environment on individuals as well as the impact of individuals on environment.

4.2. Economic aspects representation in curriculum

As mentioned above the environmental aspect was less represented in curricular documents but better covered in textbooks. The situation is different with the economical aspect - It is more or less exposed in the curricular documents:

„Students should be able to understand basic economical aspects: goods, services, labor and consumer markets. . .” (Social sciences subject curricula, basic and secondary levels)

However, **there is almost no economical content in textbooks**.

Underrepresentation of the economic component in textbooks can be explained by lack of tradition of teaching economics in Georgian schools during the soviet times. However, as distinct for the environmental content the Economical aspect is scattered in different subject areas and this is the only aspect of the whole ESD content that is present in Math curriculum. Economical aspects are not included in Arts and Physical education curriculum.

The issues of sustainable development and corporate social responsibility are comparably better represented:

> *"Where possible, students should be informed of consumers rights and obligations, responsible and ethical consumption, principles of transparency" (Social science subject curricula, basic and secondary levels).*

However, there is almost nothing in curriculum and textbooks about *market economy* and *poverty* issue. Again, most of the content is concentrated in the textbook Nature, Vth grade. It is interesting that the textbooks of history and civics doesn't include the mentioned aspect of ESD curriculum.

There are several interesting illustrations and tasks in the textbook of Biology. For example:

> *Students should explain the meaning of the sentence "consumption of water is a human right, protection of water is an obligation";*
>
> *Students should explain whether it is possible to use renewable energy in their region.*

A significant share of tasks represent role plays. For example:

> *Students should imagine themselves being the ministers of environment and prepare laws on protection of natural resources and the use of renewable energy sources. Some of the exercises envisage calculating available natural resources per inhabitant by using statistical information and maps.*

4.3. Socio-cultural aspect representation in curriculum

Socio – cultural component is the most widely covered aspect of ESD in the Georgian curriculum. The greater consistency is also observed in this component between the National curriculum, subject curricula and textbooks. It is equally represented in the framework curriculum, subject curricula and textbooks.

It is not surprising that the biggest share of the socio-cultural content is found in social sciences curriculum and this trend is further observed in textbooks. The only subject area that doesn't include socio-cultural element is Math.

Georgian Framework curriculum place big emphasis on the issues of Peace and Human Security , human rights as well as on the forms of new governance.

These issues are also emphasized in the subject curricula and extensively covered in textbooks. However, comparatively less attention is paid to the issues of gender equality, cultural diversity and health. Generally speaking, the issues of Peace and human security and human rights are the most represented issues in the Georgian curriculum out of the whole ESD coded content.

4.4. The analysis of skills and values content

As mentioned several times in the report the Georgian Curriculum is skill-based and this general trend is also reflected in textbooks. During the analysis we identified the wide range of skills and values related to ESD such as: acting with responsibility locally and globally; acting with respect to others; critical reflective thinking; understanding complexity / applying systemic thinking; futures thinking; planning and managing change; understanding interrelationships across disciplines; applying learning in a variety of life-wide contents; decision-making, including in uncertain situations; communication; dealing with crisis and risks; identifying and clarifying values; identifying stakeholders and their interests; participation in democratic decision-making; negotiating and consensus building; observing; measuring; inferring, classifying and predicting;

Analysis of frequency of use of coded content in curricular documents revealed an interesting trend that Georgian curricular documents emphasize importance of responsible behavior and decision making skills the most.

In general, Georgian textbooks are rich with the content that facilitates development of certain skills in students – project based learning approach, group exercises, experiments, observations, etc. It was also interesting to notice that most of the tasks in the textbooks are complex and simultaneously contribute to development of several skills as well as help students synthesize and generalize the learnt content. For example:

> *Students are involved in a mock Discussion of the decision of local government on granting the right to business organization to build a multi-store building (The right was given without participation of other stakeholders in the process). The discussion is to be held in groups where each participant plays a role of different stakeholder (Civic education textbook, grade IX).*

This exercise helps students master negotiating skills, build consensus, resolve conflicts, make decisions, exercise participatory planning approach as well as demonstrate knowledge of competencies of LG, analyze the issue from the perspective of sustainable development and corporate responsibility. Another exercise in the same textbook represents a mock hearing of public application on rehabilitation of sewage system by the city government.

All illustrations in textbooks are used as support material in certain tasks to develop skills of critical thinking, analysis, decision making and so on.

Most of the skill-based material that have been coded during the research is cross-cutting. Each lesson in the textbooks includes at least one or two complex tasks to be completed by students.

5. Conclusions and recommendations

ESD content is substantially covered by framework and subject curricula as well as textbooks in Georgia, is diffused across subjects and subject groups and represented at all the three levels of General education.

The ESD content is rich and includes most of the important themes with a significant accent on socio cultural component – Peace and human security along with new governance are the most widely covered issues out of the whole ESD content. Environmental component is also extensively represented especially in textbooks.

Interrelation of humanity and their bio-physical environment is represented as an interactive process.

Curricular documents place an emphasis on development of transferring skills in students (especially on decision making skills) that serve as glue for the whole ESD content and ensures integrity of ESD in Georgian curricular documents. This general trend is also reflected in textbooks - share of SD related tasks, exercises, different sources and illustrations greatly exceeds the share of a body text. Tasks are more process learning than rote learning.

It was also interesting to notice that most of the sample exercises in curricular documents as well as actual exercises in textbooks are complex and simultaneously contribute to development of several skills as well as help students synthesize and generalize the learnt content.

Along with the mentioned strong points the research also revealed areas for further improvement to ensure even more balanced and comprehensive coverage of ESD content in curricular documents and teaching materials:

- ESD content loadings can be increased in subject group of foreign languages as there is little ESD content in this area;
- ESD content and environmental component in particular should be paid more attention on basic and secondary levels of general education as it is less represented on upper grades of schooling.
- Across all subjects and grades more attention should be paid to stressing the role of individuals in changing the environment as current version of curriculum as well as teaching materials serve more to develop collective rather than individual responsibility.

- The share of economical aspect of ESD should be substantially increased both in curricular documents and textbooks. On the background of general lack of experience in teaching economical content in Georgian schools, teachers need more guidance in covering this important aspect of ESD.
- Planners may also consider enriching the ESD content with particular themes that are currently less represented in the curriculum and textbooks: market economy, rural and urban development, gender equality, cultural diversity and health.

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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*).

I	COGNITIVE CONTENT	Description
A	**Social Cultural elements**	
1	Human rights	Civil and political rights, economic; social and cultural rights; environmental rights (right for clean environment) is currently debated
2	Peace and human security	References to benefits and mechanisms of global peace, and securing "freedom from want" and "freedom from fear" for all persons.
3	Gender equality	In employment, career and salary; in political and social rights
4	Cultural diversity and intercultural understanding	Tolerance to other values and perceptions
5	Health	Human health, health problems, environmental health, ageing
6	New forms of governance	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).

I	COGNITIVE CONTENT	Description
B	**Environmental elements**	
1	Natural resources	Minerals, forest, land, soil etc (amount, location, quality)
2	Water	Fresh water, marine water, drinking water (location, quality)
3	Air	Ambient air (quality)
4	Soil	Agricultural soil, forest soil (quality); soil erosion processes
5	Energy	Fossil fuel-based energy, renewable energy (resources, dependence on these sources)
6	Agriculture	Role of agriculture (food, employment); position of agriculture within a wider economics system; forms of agriculture (industrial, small scale, organic, sustainable etc.)

I	COGNITIVE CONTENT	Description
B	**Environmental elements**	
7	Biodiversity	Species and habitats (ecosystems) - diversity, quality, loss
8	Climate change	Global phenomenon; reasons and actions (mitigation, adaptation)
9	Rural development	Villages, communities - role, age ratio, employment; position within wider society, economic base
10	Urbanization (urban footprint; urban sprawl)	Cities/towns - size, population, dynamics, city planning, inc transport planning; impact on the landscape and wider environment; quality of life
11	Natural disasters	e.g. floods, droughts, volcano eruptions, tsunamis, extreme weather events
12	Pollution	Air pollution, water pollution, soil pollution; chemical, biological, physical; systemic or accidental
13	Human beings (as living organisms)	Anatomy and physiology of human being as a living organism; human being as a one of the living organisms in ecosystem/biosphere
14	Waste	Solid waste, liquid waste, waste management; recycling

I	COGNITIVE CONTENT	Description
C	**Economic elements**	
1	Poverty	Population living below average living standards; sanitation problems, food shortage, health care deficiency, availability of education; relation to natural resources and economics
2	Planetary boundaries	Planet Earth has limited resources for human consumption and emission mitigation (or absorption back into biological cycle).
3	Corporate social responsibility and accountability	Companies work out and implement certain plans on responsible resource use, a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere.
4	Market economy	An economic model; its role in today's global society
5	Production and/or consumption	Elements of contemporary market economy, role of companies, role of customers; cultural effects, environmental effects, examples from students' everyday life.
6	Sustainability, sustainable development	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

II	SKILLS AND VALUES CONTENT	Description
1	Acting with responsibility locally and globally	
2	Acting with respect to others	In this case 'others' may include other people, other communities (anthropocentric) or other beings (biocentric).
3	Critical reflective thinking	
4	Understanding complexity / applying systemic thinking	Understanding how things influence one another within a whole, for example in ecosystems where air, water, movement, plants and animals combine to a complex effect.
5	Futures thinking	Developing reasoning about possible, probable and preferable futures, understanding worldviews and myths that underlie them. Most clearly evident in projecting from study of history into what is likely to continue, what is likely to change and what is entirely novel. Based on spotting patterns in past and present.
6	Planning and managing change	
7	Understanding interrelationships across disciplines	Being taught how topics and processes from different scientific and artistic disciplines and subjects overlap, how individual issues may be viewed from several disciplines, e.g. physics and economics.
8	Applying learning in a variety of life-wide contents	Being instructed in how to apply the curricular knowledge in everyday life, but also basic pedagogic instructions how to learn from everyday situations (trial and error heuristic).
9	Decision-making, including in uncertain situations	Being taught about the process of decision making, individually, within groups and whole societies. Developing a skill of decision making in situations where there is no predetermined right outcome.
10	Dealing with crisis and risks	Learning about responses to crises and about assessing various risks in the environment. Training in managing one's own response to crises.
11	Ability to identify and clarify values	Developing skills in clarifying one's own and others' values, as well as identifying values that lie behind attitudes and statements.
12	Identifying stakeholders and their interests	Being able to discern who stands behind certain statements and attitudes and what their interests might be. Also being able to observe an issue from the multiple perspectives of different stakeholders and their interests in it.
13	Participation in democratic decision-making	Access to information, participation in decision making (on plans and permits), access to justice
14	Negotiating and consensus building	Resolving conflicts (for example)

II	SKILLS AND VALUES CONTENT	Description
15	Observing -qualitative	Part of basic science process skills: providing descriptions of the object of interest based on information gathering using one's senses.
16	Measuring - quantitative	Part of basic science process skills: using standard measures or estimations to describe specific dimensions of objects of interest.
17	Inferring - based on observation	Part of basic science process skills: formulating assumptions or possible explanations based upon observations.
18	Classifying	Part of basic science process skills: grouping or ordering objects or events into categories based upon characteristics or defined criteria.
19	Predicting	Part of basic science process skills: guessing the most likely outcome of a future event based upon a pattern of evidence.
20	Communication and understanding graphs and symbols	Part of basic science process skills: using age-appropriate scientific and mathematical symbolic language and graphs.
21	Manipulating mathematical ratios	Mathematical ratios (including equations and inequalities) are representation of relationships which in turn indicate dependency. Dependency concerns the fact that properties and changes of certain mathematical objects may depend on or influence properties and changes of other mathematical objects.

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