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The State of Environmental Education Addressing fifth to ninth Grade Students in Republic of Macedonia

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ABSTRACT OF THESIS submitted by:
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EE today is a successful way to prevent the occurrence of environmental problems in the future. EE is especially important in countries such as those in Central and Eastern Europe, where financial availability for addressing environmental issues is very low. The Republic of Macedonia is not an exception.

The aim of this study is to give an account for the current status of EE addressing children in primary school level grades 5 to 9 in Macedonia through curriculum courses developed by the state institutions, the NGO and IO sectors' activity and contribution to field of EE and an auxiliary EE teaching tool – the Green Pack.

The method used is a qualitative research for which primary data was gathered through interviews with representatives from all relevant stakeholders, namely teachers, individuals involved in developing the curriculum, NGOs and IOs.

It was recognised by all stakeholders in the country that there is lack of EE in both formal and non – formal education. In mandatory curriculum EE prevails in natural science teaching subjects, whereas those teaching social science are almost avoided and there is a lack of practical approach to it. Teachers' lack of capacity and motivation, lack of teacher training as well as the social circumstances in which the children live have been identified as factors influencing EE delivery. The research found that the NGO sector has played and still plays a leading role in the field, cooperating with the state institutions, enabled by the funding provided by the IOs. Auxiliary EE teaching tools such as the Green Pack are expected to contribute to successful EE delivery. Recommendations are provided accordingly.

Keywords: Environmental education, Republic of Macedonia, primary school curriculum, non – governmental organizations, international organizations, Green Pack.

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List of Abbreviations

EE	Environmental Education
ENGO	Environmental non – governmental organizations
ESD	Education for sustainable development
EU	European Union
GP	Green Pack
IEEP	The International Environmental Education Programme
IO	International organisations
IUCN	International Union for the Conservation of Nature and Natural Resources
NC	National curriculum
NFE	Non-formal education
NGOs	Non – governmental organizations
PS	Primary school
REC	Regional Environmental Center for Central and Eastern Europe
SDC	Swiss Development Cooperation
SEE	South - East European
SWOT	Strengths, weaknesses, opportunities, threats
UN	United Nations
UNCED	United Nations for Conference for the Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

Chapter 1 - Introduction

"The educational system as an organized, systematic and intentional action represents an important factor that can greatly influence the development of environmental culture among people" (Bandulieva 2000). This refers to environmental education (EE) as well. EE is especially important in countries such as those in Central and Eastern Europe, where financial availability for addressing environmental issues is very low. EE in these countries is realized in the context of general educational reforms which are bringing education built on the principles of democracy (OEC 2006). Macedonia is not an exception.

It has been recognized that one way to avoid environmental issues in the future is by addressing people at present at their early stages of education. The earlier people are addressed, the more likely it is that they will develop the desired attitude. Having learned from the past, Macedonia demonstrates an increasing concern about environmental issues and EE by implementing EE in the mandatory curriculum in primary schools and by an increasing cooperation among the state and the civil society.

Approaches to teaching EE change and advance as teaching and learning develops. But such a change entails participation and recognition by the society as whole, placing it on the social, political and economic agenda, and being properly recognized in the formal and non-formal education by all stakeholders. It is a slow process, but it is the best way to achieve steady change.

The aim of this study is to give an account for the current status of EE addressing children in primary school level grades 5 to 9 in Macedonia. Several objectives have been developed in order to achieve this aim:

- identifying the status of and approaches to teaching EE in primary schools
- identifying the NGO and IO sectors' contribution to EE
- identifying factors influencing EE and
- identifying how auxiliary EE teaching tools function.

Chapter 2 brakes down the research methodology. In order to achieve the above aim and objectives a qualitative research for primary data collection was carried out through interviews conducted with individuals representing all relevant stakeholders in delivering EE in Macedonia. Namely, teachers, individuals engaged in state institutions designing and preparing the mandatory curriculum for primary school and individuals engaged in NGOs and IOs dealing with EE. This qualitative research was supported by academic articles on the topic and archival research of various documents and reports and the Green Pack itself. Chapter 3 serves to present the development of EE on an international level, the practice of organising, and approach to EE in curriculum in the world, factors influencing successful delivery of EE, the meaning of teacher training for successful EE delivery and the importance of networking among all relevant stakeholders for good EE practice both in formal and informal education. Chapter 4 analyzes and discusses the main findings of the research. It provides an overview of the state of EE in Macedonia and then concentrates on specific findings of the research. It gives an insight into how EE is organised and approached in curriculum, with regards to subjects through which is

being taught and the ratio between theory and practice. It identifies the main factors influencing EE delivery, the role that teachers play in it, as well as the role of the NGO, the IO sector and auxiliary EE teaching tool. Chapters 5 and 6 give concluding notes with regards to the aims and objectives of the study and provide recommendations.

It is believed that the findings presented in this study will be useful and are but a small contribution to the field of EE in Macedonia. It is hoped that the results of this thesis will be useful for improving the EE not only in the Republic in Macedonia, but also in the countries in the region, as they all share similar environmental and educational backgrounds.

Chapter 2 - Methodology

2.1. Research scope

The aim of the research is to illustrate the status of EE in Macedonia at present, addressing children in primary school level grades 5 to 9, through curriculum courses developed by the state institutions and the NGOs and IOs activity and contribution to field of EE and an auxiliary teaching tool – the Green Pack. In order to achieve this, it was necessary to collect relevant data from different involved parties in form of their opinion, reflections and suggestions regarding content, activities, issues and the future of EE in Macedonia.

The research used is a qualitative investigation in the area of environmental education in Macedonia done through combining interviews and archival research, more precisely, interviews with:

- teachers involved in the teaching process in primary schools
- individuals employed in state institutions dealing with education, such as designing and preparing the curricula and cooperating with primary schools on different levels
- individuals working in NGOs dealing with and contributing to EE in Macedonia
- individuals working in IOs covering EE in Macedonia

- archival data (various types of materials obtained from schools, teachers, NGOs, IOs, including the Green Pack as an auxiliary EE teaching tool, etc.)
- available literature on the topic and
- internet sources

2.2. Primary data collection

As the core of an interview is the deep interest in understanding other peoples' experience and its meaning to them (Seidman, 2006), it was decided that this method is used for the research. The interview is designed as a detailed discussion while the questions are very wide and open-ended thus allowing the interviewee to take the lead. The questions cover general areas of EE, such as its overall quality and in particular in schools, challenges, issues and barriers throughout its design and process of implementation, factors for success, ways to increase pupils' exposure to EE, attitudes towards EE, modes of implementation, as well as assessing the work of both schools and NGOs. Finally, there are questions intended for those involved in all its phases designed to assess the Green Pack, its structure, implementation, expectations and how to increase its use. Furthermore, the answers to these questions provide answers to the nature of the role of the particular institution (ministry, school, a NGO or an IO), and their cooperation. Although some questions in the interviews are common and some overlap, they are designed in a way that they relate to the particular field of the above four target groups that the individual belongs to and the questions correspond to the interviewees experience and knowledge. It is believed that the questions are worded in a neutral way so that they

do not lead the respondents towards a biased answer and the interview can only work if they are comfortable revealing their side of the story and their personal experiences. Most interviews were recorded on a recording device. Some individuals answered the same set of questions in a written form via e-mail. The interview questions can be found as annex towards the end of this thesis.

The interviews are conducted at meetings with individuals involved in the process of creating, teaching or contributing to EE in Macedonia through various activities. The interviewees include individuals employed in the state institutions, such as the Ministry of Education and Science of the Republic of Macedonia, the Ministry of Environment and Physical Planning of the Republic of Macedonia, the Bureau for Development of Education, the local municipalities, IOs, such as UNDP, the USAID, the Swiss Agency for Development and Cooperation office in Macedonia, the REC office in Macedonia and various NGOs. The complete list can be found as annex towards the end of this thesis.

As stated previously, the core interest of this research is EE aiming at children in 5 to 9 grade in primary schools. However, teachers who teach in lower grades were also interviewed, since they were involved in EE activities in their respective schools and were using the Green Pack even though this edition was not aimed at lower level grades. Their opinion is taken into consideration, since they are active in the field and it is believed that they have valuable insights to share. Some of the challenges faced through the process include getting in touch with the prospective interviewees and making them answer objectively, regardless of the institution they are engaged with.

2.3. Sampling

The total number of primary schools in Macedonia is 253 (Brasnarska pers. comm.). Due to time and resource limitations it was decided that the research will be conducted mainly in the capital city - Skopje. Also, some of the contacted teachers either asked for a meeting on another day or canceled the meeting stating their engagement with the end-of-the-school-year activities as a reason. Due to limitation on the number of schools that can be part of the research imposed by the Ministry of Education and Science in Macedonia, schools in Skopje were randomly, but carefully selected from the list of schools that took part in the training for teaching the Green Pack, assuming that these individuals are part of the EE process in Macedonia and are well informed about its current status. The representation of different ethnic background corresponding to the different ethnicity of the people in the country was also taken into consideration. Thus, it is believed that the results of the research will be representative for all primary schools in Macedonia for several reasons:

- all primary schools in Macedonia use the same teaching curricula
- the majority of primary schools in Macedonia are in Skopje
- interviewed teachers have worked with children from different social strata and ethnic backgrounds
- the interviewed NGOs have addressed children of all social and ethnic backgrounds
- the Green Pack was distributed to all primary schools in Macedonia

The primary contact information of NGOs was collected from the West Balkan Environmental Civil Society Organisations directory published by the Regional

Environmental Centre in Szentendre, Hungary. Then a desk study on which environmental NGOs and IOs in Macedonia participate in EE with their activities was done, seeking for those that can best offer insights to the topic studied and the majority of them were accordingly contacted and interviewed. Also, a valuable insight was obtained from individuals who participated in the development of the Green Pack and are currently working on the Green Pack Junior. An important sampling method was the chain sampling i.e. respondents providing contacts of other possible individuals relevant to the research. The total number of conducted interviews is 38.

2.4. Archival research

Various materials in form of publications, documents, reports, journals, booklets and articles obtained from teachers, NGO's and IOs obtained either in hard copy or via e-mail, as well as other information on their websites and available literature on the topic both in hard copy and from the internet was used in order to highlight the essence of the research topic and develop dominant and reoccurring themes. An exemplification of EE in Macedonia is done through analysis of an auxiliary EE tool named Green Pack, developed and implemented jointly by the Ministry of Education and Science and the REC and distributed in primary schools, namely between 5-th and 9-th grade. The SWOT analysis of the Green Pack is to serve as an illustration of how non-mandatory EE teaching tools function in Macedonia.

2.5 Research framework

It has been decided that the definition of EE provided by the International Union for the Conservation of Nature and Natural Resources at the meeting on *Environmental Education in the School Curriculum* in 1970 analysis framework, UNESCO's recommendation on how to approach teaching EE, as well as the three aims of EE identified by the Canadian National Curriculum Council in 1990 be used as a framework for the research. Namely:

"Environmental education is the process of recognising values and clarifying concepts in order to develop skills ad attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self-formulation of a code of behaviour about issues concerning environmental equality",

"All subject areas including the humanities and social sciences need to address issues related to environment and sustainable development. Addressing sustainability requires a holistic, interdisciplinary approach which brings together the different disciplines and institutions while retaining their distinct identities" (UNESCO/UNEP 1977),

and

1. To provide opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.

2. To encourage pupils to examine and interpret the environment from a variety of perspectives: physical, geographical, biological, sociological, economic, political, technological, historical, aesthetic, ethical and spiritual.

3. To arouse pupils' awareness and curiosity about the environment and encourage active participation in resolving environmental problems (CNCC 1990).

It has been decided that this approach fits best to study EE in the context of Macedonia, since the research itself deals with issues such as, approaches to teaching EE, both in mandatory curriculum in natural and social sciences teaching subjects and in out - of - school activities through the engagement of the NGO sector and the opportunities provided to students to understand the interrelatedness of the living and non-living, the human and the non-human biosphere.

Chapter 3 - Literature review

The purpose of the literature review is to present the history of EE, existing research on the topic in general and specifically regarding curriculum development in primary school, as well as teacher training and networking for EE. This was done by reviewing academic literature, various documents and reports relevant for the topic. In conclusion, literature review is a useful way for comparing international practice in EE and relating it to case in Macedonia.

3.1. Historical Milestones of International Environmental Education

There has been a debate about when EE was first mentioned and defined. At the Balkans EE content is first mentioned in the short pledge made at the beginning of each school year in the Kingdom of Serbs, Croats and Slavs beginning 1913, such as a promise to take care of and protect the environment during the school year, but in more recent history and on a more serious occasion EE was defined by the International Union for the Conservation of Nature and Natural Resources at the meeting on *Environmental Education in the School Curriculum* in 1970 as follows:

> "Environmental education is the process of recognising values and clarifying concepts in order to develop skills ad attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self-formulation of a code of behaviour about issues concerning environmental equality" (IUCN 1970).

The International Environmental Education Programme (IEEP) was initiated in 1975 at the International Workshop on Environmental Education in Belgrade. This was the

place where the first aims, objectives, concepts and principles of EE were established creating the *Belgrade charter – a Global Framework for Environmental Education* (UNESCO 1975) Then, in 1977 the first Intergovernmental Conference on Environmental Education took place in Tbilisi (then in USSR) organized by the UNESCO which planned recommendations for a wider application of EE both in formal and non-formal education (UNESCO, 1977). One of the most significant documents published regarding EE on a global level was in 1980 by the IUCN, namely the World Conservation Strategy which has a separate chapter on EE (IUCN 1980). Ten years after the Tbilisi conference, another conference named *Tbilisi Plus Ten* was held again in Tbilisi, this time organised by UNESCO and the UNEP at which the crucial importance of EE for sustainable development was recognised. The very same year the World Commission on Environment and Development created the *Our Common Future* report (World Commission on Environment and Development 1987*)*. This was a major event for EE since it was placed as a focal point on the global environmental agenda, which led to the second major conference of the United Nations (UN), the United Nations Conference on Environment and Development - the Earth Summit in Brazil in 1992. The central outcome of this event is the Agenda 21 and chapter 25 (Children and Youth in Sustainable Development) referring directly to EE **(**UN 1992). A key recommendation that emerged from this conference regarding EE was that it should be incorporated as an essential part of learning within both formal and non-formal education.

The concept of EE started to expand in Europe since 1988 when it was recognised by the Ministers of the European Union (EU) as a very important European way of up - bringing. Some European countries integrate EE in environmental policies. Also, an increasing funding from the business sector has been noted which is a sign of high

environmental awareness within this sector. Examples include, *Beyond Petroleum, Shell International and Ford Motor Company* which provide large funds for EE projects (IUCN 2002). In recent years, in all countries in the EU, EE is provided as a mandatory subject, or as an interdisciplinary topic in primary schools (Stokes *et al.* 2001).

3.2. Environmental Education in International Practice and Primary School Curriculum

Education is essential in providing a critical reflection of the world, promoting greater consciousness and awareness, enabling people to make informed and ethical choices (Bor *et al.* 2000). It is a way to prepare people to assume more responsible attitude towards the environment, to equip future policy makers with skills to implement sound environmental protection strategies (Filho, 1993). EE is part of this international education and one may confirm that the evolution of EE happened through interaction of the international community. It is now widely recognized that the future well-being of the Earth will depend on the environmental knowledge and skills that pupils develop over the course of their education (Filho, 1993).

But in order to be universal, education has to be framed one way or the other. The usual way is through a national curriculum. As a provider of the guidelines of aims and objectives for education, Filho (1993) suggests that the national curriculum is intended to:

- give a clear incentive for all schools to catch up with the best and the best will be challenged to do even better
- provide teachers with detailed and precise objectives
- provide parents with clear and accurate information
- ensure continuity and progression from one year to another
- help teachers concentrate on the task of getting the best possible results from each student

Further, Filho (1993) proposes that once a solid national curriculum is established, a five – stage process for successful incorporation of EE on a national level within the national curriculum should take place:

- fact – finding
- facilitating cooperative development of national and regional frameworks
- supporting programme strategies in curriculum design, pre – and in – service training of teachers and development, production and distribution of educational materials
- identifying models for EE with innovative strategies and activities
- establishing and implementing an on – going evaluative process.

Until recently, curriculum development was perceived as the sole responsibility of the education authorities, and teachers although officially recognized as professionals, unfortunately were rarely consulted. This also should be taken in consideration when incorporating EE either through a separate EE subject or in the existing curriculum, but without unnecessary fragmentation (Filho, 2000). However, with the various

pressures on schools associated with the implementation of the curricula, there has been a general disappointment of implementing EE in schools (Filho 1993).

Palmer and Neal (1994) argue that there are 3 distinct parts of EE curriculum planning. Namely, education *about* the environment, education *for* the environment and education *in* the environment. Each of these types of educational approach has specific elements. Education *about the* environment deals with knowledge, values and attitude. Education *for* the environment is concerned with developing skills and participation, while education *in* the environment treats sensory awareness. The effects of good EE may only be obtained through implementation of all three parts. Still, emphasis may be put on different parts, according to the students' age. To be precise, as primary school children are amazed by interacting with nature, emphasis should be put on education *in* the environment as a means to reach the next level of the mentioned three.

A feature that is indicative of a traditional approach to EE is a monodisciplinary curriculum structure. (Filho 2000). However, EE can enrich many subject areas. It begins from scientific foundations and links them to social surrounding. According to Huckle and Sterling (1996), there are usually two ways used to teach EE. Namely, there is a long tradition of teaching the natural environment through the natural science subjects. The identified danger of this approach is that students may fail to see the interconnectedness of all living and non-living things in nature and end up seeing "trees, flowers and birds" as the only natural object, where as the humans are seen as something that nature should be protected from. Very often EE as part of global education is being deprived of all message of political significance and

reduced to romanticized nature (Bor *et al.* 2000). Additionally, such a method is not addressing the growing social issues that inevitably impact the environment.

An alternative method is via the social sciences i.e. the meaning of social aspects of the environment. This approach concentrates on quality of the living environment, problems of overpopulation and industrialization, the role of new technologies, etc. Nevertheless, this approach does not provide the needed combination of social with natural phenomena. An ideal method is the use of both. As the links between EE and other subjects are both strengths and weakness, a careful planning of the environmental elements is needed in order to ensure coherent, progressive learning experience. A successful strategy for implementation of EE across the curriculum will depend on the internal organization, management structures, relationship with the governing body, etc. The development of understanding the natural environment, this referring to both natural and social phenomena, is what the aim is. As the author argues, only the combination of both is a satisfactory foundation for the students to be able to grasp the causes, effects, issues and possible implications in order to be able to make informed choices about the environment in the future (Filho 1993).

An additional reason for such a perspective the author argues, is that children should learn to respond thoughtfully to issues as they grow up. Primary school children possess the greatest openness to the world, are curious and open to accept a variety of viewpoints. Consequently, this is a vital age to infuse questioning attitude towards the surrounding environment. Nevertheless, a national curriculum should provide a framework as a basis for EE and still leave room for the teachers to decide on the way they teach the required knowledge and skills (Filho 1993).

Finally, research shows that environment is not the only beneficiary of EE. Namely, there is a mounting evidence showing that students exposed to EE had higher standardized test scores and grade point averages. Moreover, students that attended schools where EE was part of the curriculum, had significantly higher scores in math, reading and writing compared to those who attended where EE was not studied (Strife 2010).

3.3. Teacher Training for Teaching Environmental Education

There are many forms for EE to be taught. A common way is that professionals in one specific field, for example biology, geography, chemistry are being produced and then involved in EE teaching through their subject respectively. A similar approach is observed in the division of the responsibility of environmental issues through various governmental ministries and departments within them dealing with water and air protection, agriculture, education, etc. Such a split leads to lack of interdisciplinary system that will tackle all areas at the same time (Bor *et al.* 2000).

It is often suggested that EE occurs when there is a particularly passionate and motivated teacher who maintains EE as priority. But, Tan and Pedretti (2010) and Spiropolou *et al. (*2007) suggest that there is a significant gap between teachers' views of what EE should be and what they practice, and they express concern about the ability of teachers to instruct students appropriately since they, themselves do not have a proper understanding of some environmental phenomena. Teachers are often afraid that they do not know the answers to all the questions that may arise (Bor *et al.*

2000) they usually confuse renewable with non – renewable resources and resort to mostly local and avoid international environmental burning issues. Identified sources of such disparity are overcrowded curriculum, lack of resources, low priority of EE in schools, etc. Furthermore, the research done by Barrett (Barret 2007) and suggests that even strong beliefs and skills exist, complemented by an ideal curriculum, do not lead to effective implementation of EE. It is recognized that desired outcomes in EE will not be realized without appropriate changes in teacher education and preparation (Ravandranath 2007). This is why a teacher training in EE teaching is needed. As Huckle and Sterling (1996) argue, teachers retain the role of potential bearers of knowledge and experts of pedagogy and methodology.

Technological developments offer various teaching techniques, tools and various ways of teaching EE and remaining responsive in fast developing topics such as environment. Teacher training should be a communicative process, learning through workshop and community based knowledge sharing. Workshops should be run by trained facilitators who have both educational and environmental expertise. Ideally, workshops need to have a base of accepted and validated EE principles. According to (Filho 2000) workshops need to be structured so that the teachers attending them can have time to learn, apply principles to their own context, have a model to follow, network with others and obtain coaching and feedback on their thinking.

Developing skills for teaching and learning EE should be the utmost goal, while experiential learning for both teachers and students are a central element of training. Bor *et al. (*2000) suggest that there should be a several - years plan for teacher training in order to secure sustainability in teacher training, as well as performance

indicators through which teachers' progress will be measured. This would help teacher trainees develop a better understanding of not only the concepts, but also the processes upon which EE is based. Hence, involving teachers in EE training needs to be guided by factors such as the relevance and appropriateness of the content, but most importantly the ability to foster and support sustainable actions. Teacher training programmes should aim at equipping teachers with knowledge, understanding and skills to select and organize suitable projects and community oriented actions (Ravandranath 2007).

Another significant aspect is consistency with both personal and the management of the environment by the schools. Research shows that many teachers in their initial teaching years, hold pro – environmental values, but they do not always act in accordance to these values (Bor *et al.* 2000) and that they do not provide an atmosphere in which students are encouraged to adopt positive attitudes towards the environment (Filho 2000). Children are said to be like "sponges", they absorb everything they hear or see. Any discrepancy between what is thought and what is practiced will be noted by them. To prevent this mismatch, everything that is being taught, should be mirrored in the everyday practice both by the teachers and the school which requires a commitment by the society as a whole.

3.4. Networking for Environmental Education

The need to develop partnerships to facilitate a coordinated approach to EE is a reoccurring theme in the literature. Developing EE programmes with the target community will enhance its relevance and outcome. The more stakeholders are

involved in the process, the more effectively will the message be conveyed. Scientists are not the only ones who are interested in EE. Many individuals, politicians and communities are also concerned. Encouraging active citizen participation has become a global component of EE. One way of providing opportunities to encourage environmental awareness is to develop partnerships between schools and communities. A place – based activities can lead to improve understanding and empathy towards environmental issues (Evans *et al.* 2007). In the field of EE this refers to students, teachers, schools management, municipalities, government institutions, NGOs, etc. (Rush et al. 1999).

People and institution active in the field of EE form networks. Usually, they are formal networks constituted as NGOs which have other networks, individuals or associations as members. Their goal, as they present it is dissemination of information, training and education about the environment. However, a not clearly displayed objective is the “political type of action“ group in order to ensure the recognition of EE by the institutional authorities. In this way, these networks aspire to be recognized as official interlocutors of the institutional authorities regarding EE in the country. Practically, these networks ensure exchange of experiences between their members, the diffusion of information concerning their projects and other projects in which their members participate and teaching materials. Sometimes, they even act as educational institutions not only for individuals and groups outside their network, but also for their own members. Networks such as NGOs, offer an opportunity to multiply the effects of EE and their directories and databases facilitate opening towards an international exchange of ideas on EE (Filho 2000).

Chapter 4 - Results and Discussion

This chapter summarizes the main research findings and describes their links and implications for EE in Macedonia. It is based on bottom – up analysis of reoccurring themes during the field research supported by archival research.

4.1. The Status and Presence of Overall Environmental Education in Macedonia

Neoliberal developments in Macedonia have contributed to diversified implications in the educational system. The country has been perceived as one still struggling to adapt its educational system to the country's needs (Buzhar, 2004).

It is widely accepted that if changes want to be achieved in people's perception and way of behavior, one should begin with changing children's education. They have the potential to absorb new visions and are open to new actions and ways of thinking, thus may contribute to changing the future. This was the approach used for introducing environmental education in Macedonia addressing pre-school and school children. Until the nineties, schools had neither the practice, nor the resources, both human and technical to provide environmental education programmes (SDC 2010).

EE and ESD in Macedonia are by many considered to be identical. In practice there are clear differences as EE deals with the impact of people's behavior, while ESD focuses more on reasonable use of natural resources; a common ground is

increasing the environmental awareness. EE, ESD together with a solid legal framework should result in actions with a long term effect for protection and management of the environment. The overall environmental awareness and culture in Macedonia is at a rather low level. A research shows that only 10% of the population understands the concept of sustainable development. A general deduction is that EE in Macedonia has not been able to make a "quantum leap" due to the fact that it is innately linked with too many social factors, such as unemployment and poverty (Abazi *et al.* 2008).

According to one of the experts in the field of EE in Macedonia, Mile Srbinovski (pers. comm.), EE in the country is disorganised, unplanned, random, there is a lack of coordination among the "formal, non – formal and informal (the media) EE and it certainly has not found its deserved place" in the official educational system. EE is a relatively new concept in Macedonia. The fact that IOs are funding activities in the field, articulates lack of its presence. Although in a rather rudimental form (Popovska pers. comm.), in recent years the quality of EE in Macedonia has been on the increase for several reasons. First of all, it was recognised that the results of the non - formal education are not sufficient in the area of EE, so it was decided to incorporate it in schools although as a non-mandatory, elective subject. This was done by the Ministry of Education and Science, namely the Bureau for Development of Education and the introduction of the Green Pack in cooperation between the Ministry of Education and Science, the Ministry of Environment and Physical Planning, the REC and the Swiss Cooperation Agency. But as EE is competing with other elective subjects "such as IT or other skills, EE usually does not stand a chance, as it is considered that IT is something that students will need in the future,

whereas EE is something they learn naturally" (Popovska pers. comm.). A second reason is the gradual development of the NGO sector and its competitiveness. One of them - OXO has been recognised as the leading NGO working in the field of EE for several years. Thirdly, schools have become knowledgeable enough to recognise which EE project will be effective and recognise those that are simply "hunting for money". Finally, the fund - providers, usually IOs have learned the capacities of the NGOs in Macedonia and are familiar with those that are capable of creating and implementing a successful EE projects.

Some of the identified issues during the research include insufficient public interest for the need of environmental education, lack of coordination between ministries, schools and the NGO sector, slow design of good quality curricula and teacher aimed materials and lack of applying foreign success approach in dealing with environmental education on all levels. Finally, it must be mentioned that pupils' effort to learn something is predominantly and most of the time in order to obtain a better mark for a particular subject, which will later help them to enroll in a subsequent educational level (Abazi *et al.* 2008). Clearly, an "all inclusive" approach incorporating all the above mentioned features is not feasible instantaneously, but a step by step approach is desired and recommended. Below are addressed the most often and reoccurring themes during the research.

As further findings will reveal, the current situation of EE in the country can not be associated with a single, but several issues. A general conclusion however, is that the state in which EE in Macedonia currently is, is due to insufficient engagement by

all relevant stakeholders (the state, the NGO sector, the teachers), and due to lack of cooperation on a bilateral and multilateral level.

4.2. Teaching Environmental Education in Primary Schools (grades 5 to 9)

In the Republic of Macedonia, everyone is granted the right to educate oneself. Elementary education and secondary education is compulsory and tuition free. The responsibility to educate and gain knowledge emerges from the regulations as well. In accordance with the Law on Environment and Nature Protection and Promotion, public establishments for education, upbringing, health, informing, culture and science are responsible to promote activities aimed to develop active attitude toward protection and improvement of the environment (UNDP 2002).

The educational system in Macedonia consists of primary education, followed by secondary and university education. The primary education is comprised of nine years of primary schooling, which is divided into two stages of five and four years, respectively. After the completion of the first five years, the curriculum expands. Namely, it includes mandatory courses in biology, chemistry, geography and physics (Hristovski *et al.* 2010).

4.2.1. Environmental Education in Natural versus Social Science Teaching Subjects

Like any other area of the curriculum, EE requires appropriate planning. Given the multi- and interdisciplinary character of EE, one would expect that EE will one way or the other be incorporated in all schools subjects. As previous research showed (Srbinovski *et al. 2007*) natural science subjects are the ones that are mostly concerned with EE in their curriculum, whereas subjects such as history, art, and physical education do not incorporate EE at all. These science subjects are mandatory in both comprehensive and vocational secondary education schools where the "struggle" for a higher grade is even more expressed, since it determines their university education. As a legacy, the notion that only science teaching subjects and especially biology are the ones that should be dealing with EE is being passed through generations in schools. Just as the GAIA hypothesis suggests that the strict division of Earth's components to living and non-living is not sustainable, the same may be held for the curriculum. Namely, the incorporation of EE topics solely in natural science teaching subjects is not adequate, to say the least. There is a promising recent trend of occurrence of EE topics in social subjects, such as languages. Still, the emphasis is on natural phenomena, while societal notions such as population growth are not common.

Foundations of EE are found throughout the science subjects' curriculum and are divided in three developing and consecutive periods in primary schools in Macedonia. Namely, the first one is from 1-st to 3-rd grade and this is done via the only subject named – Introduction of the environment. The second period is from 4-th

to 6-th grade where science is studied within subjects such as nature (4-th grade), science (5-th grade) and science and technique (6-th grade). The third period is between 7-th and 9-th grade within which science is studied in four subjects, namely, biology, geography, chemistry and physics. As a responsible body the Department of Education develops goals and contents within separate disciplines and each grade level. These are then confirmed by the Ministry of Education and Science. Some of the programmes, such as science for 5-th grade, science and technique for 6-th grade, biology, physics, chemistry and geography for 9-th grade are being currently developed and will be introduced as early as the next academic year i.e. 2010/2011. The introduction of these courses will be done in accordance with the dynamics of the introduction of the 9-year primary schools system in Macedonia. In addition to this, pupils from 7-th, 8-th and 9-th grade have an opportunity to choose an elective course – environmental education (BRO 2010).

These reforms are relatively new and their effect is yet to be seen. But judging according to the current description of the courses, there is no much change with regards to involving EE in social science teaching subjects. This reinstates the exclusion of presenting the environment as a social phenomenon. However, the researcher believes that the notion that social science teaching subjects are ones that are not concerned with the environment still prevails among teachers, and it requires action on their part since at the end of the day it is them who organise the lecture and decide what to put emphasis on.

4.2.2. Environmental Education in Theory and Practice

In terms of quantitative presence of EE in the curricula, the fifth grade is with 4.28% by far the "richest" in EE content. Of all the aspects that are addressed in the curriculum, greatest attention is paid to the "ecological aspect of nature in their narrow sense", while "health related issues" get the least attention. Research concludes that EE in the curriculum is left to chance and lacks consistency, while some of the most burning environmental issues of today's world are not included at all (Srbinovski *et al.* 2007).

A reoccurring argument is the notion that there is a lot of emphasis put on theoretical EE in the curriculum without doing much in practice. Teachers agree that results will increase if at least less than half of the classes regarding EE are held out of the classroom. An interesting example of how EE "functions" was provided by Biljana Stevanovska (pers. comm.). Namely, during a school yard cleaning activity in a primary school organised by an NGO, the students were told to collect the litter and gather it in bags. The outcome was that the students collected the fallen leaves, branches and other organic litter from the surrounding vegetation, whereas the plastic bags, chewing gums and paper were left out. Asked why they did so, the students were surprised that they should collect such "stuff, as they appeared to be their normal surrounding". An inert attitude was illustrated by Ilija Leskovski saying that there are cases when the day following a litter collection action organised in a school yard, there are "parts of their snacks lying around". This reveals a rather "pro forma" approach while either preparing or conducting the activities with children. This may be either on the part of the teachers, the school, or the organiser, be it an NGO or an IO. It has been concluded that this is partially due to weaknesses in the

environmental education provided in schools for decades and the pro forma approach to such activities. It is being admitted by teachers that students are eager to participate in such events, since this is an opportunity for them to avoid attending classes.

EE topics are not widely integrated in the didactic materials and those that are related to the education “about” the environment are without much “hands on” experience. The reasons for this may also be traced to the traditional educational system inherited from the socialist era where the teacher is the omniscient and knowledgeable, while the students are to absorb and be able to reproduce the information. This is even more emphasized in rural areas where schools lack more basic facilities such as heating, water, electricity (Buzhar, 2004), while some do not have proper classrooms, not to mention auxiliary teaching tools such as computers, internet and the likes. It first affects the motivation of the teachers. During the research, this was also found to be a major reason for not using the Green Pack, explained by the fact that the teachers do not have an incentive to do something outside of the curriculum, not mandatory, something that they would need to allocate more time then they usually do and for which they are not paid for additionally. There are a total of 36 lessons offered throughout the year to the students who choose EE as an elective course, there are lesson plans that put accent on practical skills, but the teacher has an absolute freedom to create the lectures according to the students’ needs. On one hand, what this implies is that as hopeful as we may be, by introducing EE as an elective subject, even if the students do select it, it will be up to the teachers’ motivation to decide on how they teach it. On the other hand, as far as the presence of EE in mandatory curriculum is concerned, this means that even if

there is no specific EE topic in a particular lecture, motivated and interested teachers may choose to teach the same aims and objectives of a lesson as they are described in the curriculum through an EE activity or project that they decide to work on outside the classroom.

4.2.3. Approaches to Teaching Environmental Education in Primary Schools

EE in Macedonia is organized in a mix of interdisciplinary and multidisciplinary approach. Namely, the authors of the research done argue that interdisciplinary approach is applied in primary school grades, while multidisciplinary approach is mostly used in secondary level (Abazi *et al.* 2008). Still, the research revealed that EE in primary schools in Macedonia is taught through already existing subjects in the curriculum, usually science teaching subjects (biology, geography, chemistry and physics), through so called “eco clubs” or “biology sections” (REC 2000 and Spare/PROAKTIVA 2006) organized on a voluntary basis by the teachers and the students, through activities organized by NGOs, as an elective subject, which is offered among other elective subjects and finally through using the Green Pack. Still, in “conveying the message” the most widely used approach are the chalk and the board. Many IOs, such as the USAID, the Peace Corps (Hristovski *et al.* 2010), the SDC have contributed to improvement of the situation by financing projects that will contribute to changing the approach to teaching EE and there has been improvement.

Even though EE has been offered as an elective subject, a research done by Srbinovski revealed that more than 80% of the teachers had never attended any course or training in how to teach EE. In the course of the research, it was found that the elective courses offered in each school are not the same, and that the school makes a selection of 3 of those offered and only then can students make a selection of those offered in their school. So, it happens that in some schools the pupils do not even have an option to select this course. This implies that offering EE as an elective subject, is not enough. Recently, there has been an intention to introduce EE as a mandatory subject in the curriculum, but research on if and how much it will burden the already crowded curriculum, is still under way (Leskovski pers. comm.).

Some teachers emphasized that it is very important to provide the students with the "good picture" of taking care of the environment, rather than repeatedly stating how desperate the situation is, since some may get discouraged and get a sense that no matter what they do, the world is hopeless. Even the ones that do involve EE, lack modern teaching techniques, such as learning by investigation, problem solving, etc, and the purpose of texts is to provide authoritative knowledge about the field, while teachers are familiar with the "correct" answers (Srbinovski *et al. 2007)*. Although there has been a lot done in order to improve EE and implement it in schools, research shows that parameters valuing knowledge of EE concepts are decreasing as the age of the students increases (Srbinovski pers. comm.). All this aims to show the need for change of the approach, while at the same time training the teachers on how to use the technical equipment, since many of them do not know how to use computers for instance (Trenkoska pers. comm.).

It is concluded that greater attention is paid to environmental knowledge, relatively little attention to skill, and even less to affective and behavioural components. Even as an elective course, EE is left as a non – statutory, and not separately examined part of the curriculum. Still, EE has a long way before realising its full potential in the curriculum. In such a teaching climate, EE is found to be marginal to mainstream education. Yet, the basic concepts of environmental education are dealt with in these grades in primary schools in Macedonia.

4.3. Factors and Barriers to Institutionalising Good Environmental Education Practice

Another research by Srbinovski (Srbinovski 2005) showed that both teachers and students believe that the school is the most significant factor influencing students' behaviour, while the family is the second. He argues that EE largely depends on the teachers, since they are not only the ones who initiate it, but the ones who plan and organise it and act as an expert, pedagogue, methodologist and an evaluator. Also, there are a number of schools that are constantly present and active in whatever the NGOs are organising, whereas there are some that do not do so at all. This largely depends on the teachers and the school principals. Unquestionably, teachers' motivation and the family have been confirmed as ranked very high as factors contributing to the successful institutionalisation of EE.

4.3.1. Capacity and motivation lack

Identified barrier in schools is the lack of teacher education i.e. capacity, leading to lack of awareness, which consequently leads to an inert attitude towards the environment and teaching EE. “You can not expect from teachers whose classroom is covered in dirt and litter to teach EE” (Srbinovski pers. comm.). This is even more emphasized as the general effect of EE depends on the teachers, their motivation and willingness to carry out an activity, observe the process and come up with a solution. This is not a very frequent scenario, since very few teachers have a special training. Those who work on EE are the ones who would work on any kind of activity anyways, usually that being the science subjects teaching ones, which takes us back to the personal motivation level of the teacher.

It is concluded that in a supposed ideal educational system, one and the first of the indicators which determines the success of EE is the capacity of the teachers which is consistent with motivation. Namely, elderly teachers and those teaching in rural areas are not even expected to be familiar with general contemporary events in the environmental arena, not to mention showing proactive attitude to teach EE. Sometimes, students especially those living in urban areas exposed to all sorts of information sources know more than the teacher leaving the teacher in an unpleasant position and making them even less eager to deal with the topic. This implies weakness in the educational system as a whole, and lack of teacher motivation plan.

4.3.2. Communicating Environmental Education Knowledge

Another factor is the teachers' lack of competence for transferring EE knowledge. This, some argue, causes lack of motivation to teach something they are not especially familiar with. Some consider that allowing science subjects teaching teachers to teach the environmental education elective subject as well is not desirable, as they do not have the "whole picture" (Memedov pers. comm.), but rather are specialists in their field (biology, physics, chemistry, etc.). On the other hand, there are people who are graduates from an interdisciplinary environmental management department in one of the state universities in Macedonia and thus "have the whole picture", although willing to take the necessary training in methodology, pedagogy and psychology to be able to teach, they are not given the chance to teach such subjects, simply because such an elective course is distributed among teachers who lack teaching hours in order to fulfil the minimum full time employment hours. Although this is "a practical way to solve someone's employment status", it is not the right way to approach and teach EE. This was also observed by some of the teachers as well, although they are unanimous in that any subject can be used to teach EE. This is an illustration of how other social factors, such as unemployment and poverty indirectly affect EE teaching process by adapting the need to the existing social system.

4.3.3. Institutional Barriers

A dentist (Sonja Trajkovska) working with children in the villages of Bulacani and Rashtak in the surrounding of the capital Skopje, has provided a vivid image of what usually happens in primary schools in rural settlements, especially in villages with a

small population. The problem has been identified in the small number of students in each of the schools years, so several, namely first, second, third and fourth graders are being taught in 1 grade. This is so because there are not enough children to form a single class, so they are being combined in one, and are being taught with a mixture of what they ideally would need to study. Additionally, these villages are not regularly, to say the least, visited by the communal service to collect the litter. Consequently, all household garbage is either thrown in the nearby passing river, or burnt by local inhabitants. Examples include children buying snacks and immediately getting rid of the packaging in the river. Since there are no bins in the village, or in the school, because no one ever collects them, such behaviour is encouraged, as there is no other way for them to deal with the litter. In such settings, where there are no fundamental institutionally set circumstances, “even talking about EE in schools is in vain” (Trajkovska pers. comm.). In such cases there is not time to carry out the elementary parts of the national curriculum for each grade, not to mention any parts of EE. This does not directly influence EE, but by setting certain examples, it is inevitable that it will trigger definite undesirable actions on the part of the children. It is concluded that changing their habits at a later stage, is very difficult.

4.4. Non – governmental and International Organizations as Carriers of Environmental Education

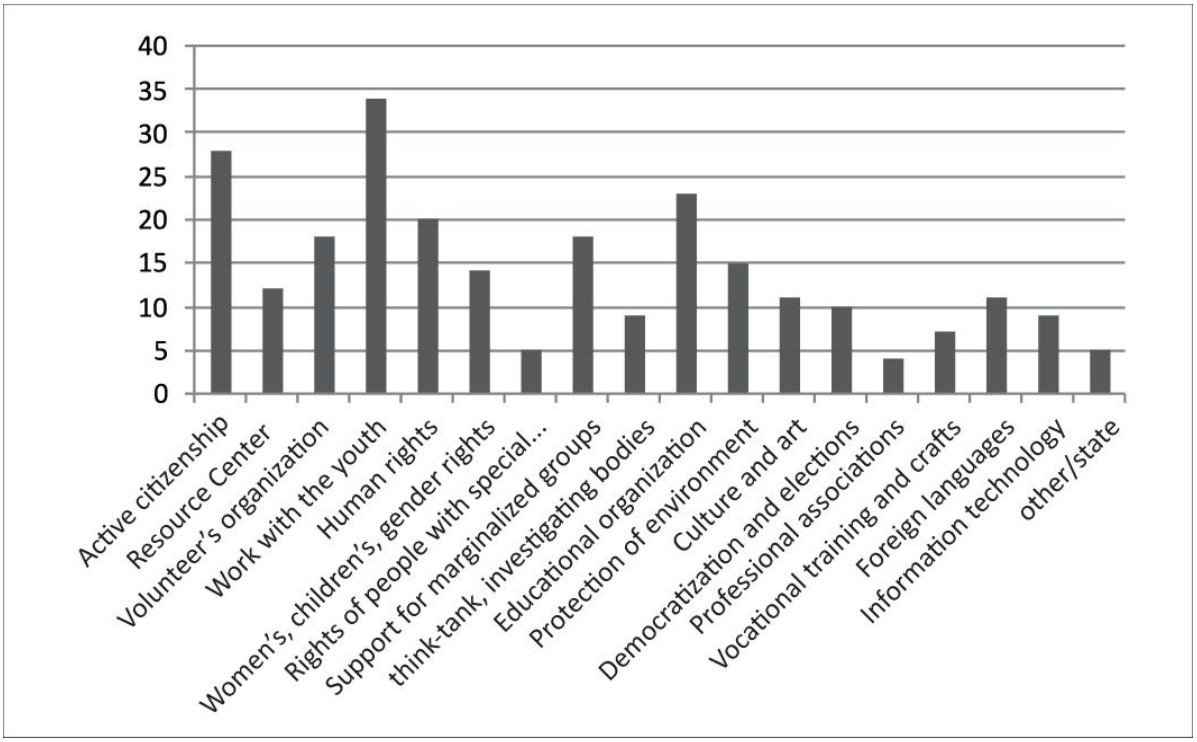
There is a divided opinion among different interviewees depending on which sector they belong to, regarding who is the carrier of EE in Macedonia. Namely, the IOs see themselves and the NGO sector as carriers, the teachers and those involved in the

Ministry of Education and Science and the Ministry of Environment and Physical Planning see the state or the NGO sector, while the NGO sector sees either itself or the local municipalities as carriers of EE activities in the country. There is even a feeling that municipalities compete among each other about who gets more EE project implemented (Stevanovska pers. comm.). The IO sector expressed concern that although very often one or more of the Ministries is the official carrier of an EE project, it does not act as one, but rather solely as a partner. However, this role gradually changes and is expected that in near future the state will take over the leading role. Private enterprises being funders, if not carriers of EE are seen as "western practice" and one which is distant from the Macedonian reality. As Arsovska (pers. comm.) pointed out, their efforts to gather paper for recycling in their school, resulted in being turn down by the company that deals with collecting it, with the excuse that "it is not financially justified to come and collect from one school"; a common example of how things function: if it is not for someone's own benefit, then it is not worth investing in it. Still, this study finds that the informal EE through NGO activities has higher impact than the formal one through the mandatory curriculum.

4.4.1. Non – governmental Sector's Contribution to Environmental Education

The role of non-governmental and international organisations, as well as that of the media has been vital in channelling the efforts by the previous (Palmer and 1994). The NGO sector has played a crucial role in areas where the state was unable to keep up with the turbulent changes after its independence. At the beginning of the NGO sector in Macedonia in 1990's there were a lot of activities undertaken by NGO

dealing with awareness rising among students and adults. As from 2000 onwards, the NGO sector concentrated more on narrower environmental topics or in light of the events in 2001 concentrated on human rights issues, political monitoring, etc. The IOs were doubtful about a fruitful cooperation with the state institutions and resorted to collaborating with the NGO sector. This was the case because the NGO sector presented a new, modern, contemporary culture, the NGO staff was familiar with and had the skills for developing projects, while most of the employees in the state institutions did not (Buzhar, 2004). The NGO sector also promoted the environmental agenda in the country. Recently, are many NGOs in Macedonia have environment as their focus. On average, as Igor Slavkoski from the NGO Mileu Kontakt stated, there is about 1 NGO dealing with EE in every city. A smaller number of them are concentrated on general education and awareness rising, and the rest are focused on very specific topic, such as forest protection, energy, etc.



(MKC 2009)

According to the graph, there are about 15 NGOs actively dealing with environmental issues in the country. Among all the topics that these NGOs deal with, EE and awareness raising campaigns are ranked first with 94% of all activities. About two thirds of the NGOs claim that they cooperate with educational institutions in the training delivery, of which 37.1 on a regular basis and 33.9 occasionally. A study on the topic in Macedonia revealed that the conditions of the NFE in Macedonia are in its initial phase and environmental education is not an exception (MKC 2009).

Still, as Macedonia is a country – candidate for a full membership in the EU, it has a responsibility to create a national strategy for sustainable development which was published in January 2010 and which among other things, recognizes the role of the NGO sector in promoting sustainable development. It can be argued that the NGO sector has considerable impact on the current status of EE through in – school and out – of – school activities, organised in cooperation with the schools and the IOs which usually take place in form of extracurricular activities, projects, competitions or simply acknowledging international environmental days, such as Earth Day, Tree Day, etc. it is believed that for the time being, the NGO sector will continue to be the leader in the filed of EE promotion and "push" for its greater presence in the formal education.

4.4.2. Lack of Cooperation

No educational project in the field of EE would be successful neither without individual and personal commitment, nor without cooperation on all levels of the

society. Situations when different NGOs organise the same type of event without knowing that it was already organised by another one, are not rare (Stevanovska pers. comm.). Decentralization in Macedonia includes the transfer of a number of competencies from central to local government. With this process, municipalities among other areas, have become responsible for schools. Consequently, the need to establish communication between the municipality and the NGOs put pressure on the municipality. This is also seen as an opportunity for NGOs to succeed in more locally based activities. However, they claim to lack cooperation with the local authorities. This is mainly due to lack of human, technical and financial resources.

The NGO sector recognizes that the Ministry of Environment and Physical Planning has made efforts to make information more available on the web, but it is said not to be comprehensive enough. The cooperation between the NGOs, the government and municipal officials is present to a certain level, but not in an organized and structured way. Improvement in this area is provided by IOs that boost this collaboration and make the links stronger on both sides. As an exception to the rule is the cooperation between the NGO OXO and the Ministry of Education and Science and the cooperation between the REC office in Macedonia and the Ministry of Education and Science while producing and implementing the Green Pack in primary schools.

4.4.3. Funding as a Binding Force

An example provided by Ilija Leskovski is that even if the school is well organised, it still “may be short of money in order to provide the transport for a field trip so that the

students get a practical sense of they are learning". This is just an illustrative example of an reoccurring topic – funding. A lack of sufficient funding in the field of EE has been observed by many NGOs. Also, it has been noted by Aleksandar Stojkovski from MCET that there is no developed system for donations in the country and although there is a law on donations, it is practically not applicable. Although the NGO sector recognizes that their primary drive is the need of the environment, the dependence on donors for capital is more than obvious. A feature typical of the NGOs activity in the domain of EE is that they are seasonal. What this implies is that as their principal source of funding is foreign capital originating mainly from IOs with offices in Macedonia (74%), domestic government grants and various business donations being their second source of funding, their activities are not systemic, because they are organized as they get funding. Sometimes NGOs mix commercial activities with their primary ones in order to obtain additional funding. The research revealed that there is a need based cooperation between these stakeholders. Namely, what usually happens is that an NGO has an idea on EE project in a primary school, but needs permission to access the school. Before the decentralisation process in Macedonia took place, this would have been carried out through the government institutions, but now the procedure is less cumbersome as the local municipality is in charge of the schools in its area. However, the municipality not having the finances to sponsor such a project, join forces with the NGO and apply for funding with an IO. IOs generally finance projects which fulfil their funding criteria, among which gender equality and multiethnicity (Memedov pers. comm.). As far as schools and EE curriculum are concerned, this does not apply, since the teaching curriculum is national and the same is used in each school. However, this is one of

the main decision criterions for IOs when they decide where to carry out an EE project and whom to fund.

An example was given by Samir Memedov from the UNDP office in Macedonia of an EE project that was carried out in the village of Loyane primarily with Albanian population where there is an abandoned mine with untreated arsenic waste just 50 meters away from the primary school. The worst part, according to Memedov, was that the school was not even aware of the threats of the "blue wind" that regularly blew from the mine towards the school. The implications confirm that taking in consideration the multiethnicity in their project proposals when NGOs apply for funding in IOs, they stand a better chance, since this is something the IOs pay attention to when it comes to EE project funding, thus "forcing" the NGOs to apply the same criterion. A shortcoming of such an approach has been observed to be a rather pressured criteria, since the NGOs may as well be following the recommendations simply because they financially depend on them, rather than because they feel the need for it, which in turn means that once the IOs are gone, the criteria will not be applied.

4.5. Case-studies on Multilateral Cooperation for Environmental Education

Below are 2 case studies of EE projects conducted in Macedonia with a multilateral cooperation among all stakeholders, proving that such an approach to EE is the most valued one as it provides best results.

4.5.1. OXO's "We do not have a spare planet "

In 1998 the civil society association OXO started to offer educational materials to several schools in Macedonia, using an innovative approach to EE. The initiative was met with eagerness by all stakeholders (schools, the ministry and the IO community). As of 2002 the initiative is supported by Switzerland through its Swiss Cooperation Office in Macedonia. During 2008 and 2009 the initiative developed and was introduced on a national level and the Ministry of Education and Science and the Ministry of Environment and Physical Planning decided to initiate a compulsory EE in Macedonia through integration into the curriculum of primary and secondary schools and kindergartens (SDC 2010).

"We do not have a spare planet" is OXO's excellent model of EE. Under the project there has been an Eco-school network established with the aim to set off the schools to establish eco-sections and to work on improving the environment by various outdoor and indoor activities, as well as to connect with the local communities in order to make links that will help in joint solving of environmental problems in the area.

The whole project is directed and put into action through the Ministry of Education and Science which acted as a leader in the process of institutionalizing, OXO as the main supporter in implementation and the teachers and students as final beneficiaries are consulted and are continuously involved in the activities.

An illustrative example of cooperation between stakeholders includes an event in the primary school "Rade Kratovce" in Kocani where the pupils organized a sale of

souvenirs made of recycled materials, a local company served refreshments, another company made t-shirt for the children, the municipality secured the area and the earned money was used to buy a door and windows for the school's eco - classroom (SDC 2010).

The conclusion is that in the long run, such a project will contribute to increasing children's environmental awareness by promoting good practice on protecting and preserving the environment. In such a way, EE will be recognized as an integral part of the overall education system in Macedonia, thus contributing to it becoming part of the majority teaching modes. At the same time, a programme organized in such a way will be more adapted to the European model of educational system, towards which Macedonia strives.

4.5.2. Case Study of the Green Pack as an Auxiliary Environmental Education Teaching Tool

In 2000 the REC for Central and Eastern Europe made a proposal to Toyota regarding a programme dealing with EE and ESD. It concerned development and implementation of an innovative multimedia package for children in primary schools in Central and Eastern Europe. A pilot version was prepared in Poland which turned to be very successful. Consequently, the same, but adapted per country version was developed in other countries, including Macedonia where it was financed and developed by the Austrian Development Cooperation, the REC, the Ministry of Education and Science, and the Ministry of Environment and Physical Planning (REC 2009).

The aim of the Green Pack is to contribute towards a better environment through initiating behavioural change in primary school children. At the moment, the Green Pack Junior is being prepared, aimed at grade 1 to 4 in primary schools (REC Macedonia 2010). It is a multimedia EE kit intended for 5 to 9 graders in primary schools, although it can be used in other levels, and as the research showed it is used in lower grades in primary schools in Macedonia. Perhaps the most useful part for teachers is that there is a scheme showing how each topic is related and can be dealt with each schools subject. Still, the Green Pack is used predominantly, if not solely by natural science teaching subjects, usually that being biology and geography, while the others classify themselves as “not dealing with environment” which in addition is supported by the mandatory curriculum’s approach.

Its focus is on particular issues of environmental protection and sustainable development. Such a broad focus is helped by a variety of teaching materials such as a teacher’s handbook with lesson plans and fact sheet for students, a film collection with animated and educational films, an interactive CD-ROM and a dilemma game. Thus, the teachers and students can complement the information with a variety of supporting tools, rather than memorising “dry” information. The Green Pack puts emphasis on structuring new values and promotion of new model of behaviour that students will further promote in their homes and neighbourhood. It is designed in a way that teachers and students are both on the same level, and everyone is involved in role plays, games and other activities. A clear outcome of the Green Pack’s use so far is that it shows that environmental issues can neither be looked at, nor solved through an isolated approach, but rather by understanding the mutual relations that exist between nature and economic and cultural development of

the human civilisation. Its concept based on being both a book and a game, allows the students to understand the cause and effect relations existing in nature, how humans can improve this relationship and the interdisciplinary character of the environment.

“It is still too early to qualify a project at such an early stage, but it is worth putting high hopes in it” (Srbinovski pers. comm.). Although it is a relatively new project and it is still early to come up with conclusions, there are some indicators that show that the GP (Green Pack) is used. It has a solid methodological and didactic approach (Gievski pers. comm.). It has been observed by both teachers and the state institutions that the number of Green Packs per school was limited and not enough, and that many teachers do not have access to it, or have not heard of it, “because those that have it, for whatever reason, keep it to themselves” (Gievski pers. comm.). There were schools such as Tefeyuz, which claimed that they have never heard of or received a Green Pack at all. However, this research showed that the lack of motivation among teachers is a major obstacle to its use. On one hand, there are cases when elementary level teachers use the Green Pack by adapting it to their own purposes (Trenkoska pers. comm.); there are teachers who know about it, attended the training for its use, but still do not use it. On the other hand, a teacher who wanted to stay anonymous in this section, said that she heard about the Green Pack by accident, because she understood that it was for biology teachers and only a biology teacher from the school was sent to the training on how to use it. She was one of the few interviewed teachers that use the Green Pack not only in her teaching lectures, but also during the so – called general classes when she meets with the class that she is responsible for. The idea of the training for its use was that teachers

who attended it, convey the concepts to their colleagues in the school where they teach, but this is not often the case. This reiterates the lack of coordination not only between, but also within schools. However, such a broad generalisation is not possible for all the schools and teachers, especially not at this point, as it has been only a year since its implementation.

It is felt that the level is appropriate for the pupil's age and earlier knowledge and that there is a good agreement between the curriculum objectives and the content of the pack, thus making it easier to fit any subject and class and expect that the results will range from good to very good. The Green Pack is a good example of cooperation between the government, the IO and an NGO. This was observed throughout the development of the project, namely, the Ministry of Education and Science contributing to the packs' methodological and didactic development, the REC for coordination and the Austrian Development Cooperation and the Ministry for Environment and Physical Planning for financing.

4.5.3. Green Pack SWOT Analysis

Strengths: It exemplifies a large variety of topics, presents country – specific, as well as global environmental challenges, ideally provokes discussion for ways towards sustainable development. Through its use, students will be able to gain knowledge, develop skills for making estimates and decision and develop responsible attitudes towards the environment. It fits the age of the students that it is aimed for and fits any schools subject, furthermore, at the end of the pack there is a list of matching of each mandatory school subject with the topics in the pack.

Weaknesses: Since it is not a mandatory tool, but a recommended auxiliary one to be incorporated in any primary schools subject, its use greatly varies depending on the teachers' motivation and will to use it.

Opportunities: It possesses a great opportunity to steer a discussion on the interrelatedness of all areas of modern living through the lens of environmental protection. Own

Threats: Evaluation is important part of EE, so if its use is not regularly monitored by authorities, i.e. the Ministry of Education and Science, the Green Pack may eventually be forgotten.

Chapter 5 - Conclusions

The aim of the research was to give an account for the state of EE addressing children in primary school level grades 5 to 9 in Macedonia at present. This was achieved through analysis of the status of and approaches to EE in the curriculum in primary schools, the NGO and IO sectors' contribution to the field, investigation for factors influencing EE and the function of auxiliary EE teaching tools such as the Green Pack. Below are the main conclusions based on the research.

1. With regards to the general state of environmental education, the Republic of Macedonia has been perceived as a country still struggling to adapt its educational system to its own needs, even more when it comes to evening it with the EU educational system, as it aspires to join the alliance. This also refers to EE. Until the nineties, schools in Macedonia had neither the practice, nor the resources to address EE in the curriculum, or in extracurricular activity. However, in recent years there is an increase of its application and this is for several reasons.

First, it was recognised by all stakeholders in the country that there is lack of EE in both the formal and non – formal education. But, a step forward was recently done by introducing EE as an elective subject. However, this still does not give EE the needed statutory role, but rather one as any other elective course offered. It is believed that it is a rather "pro forma" decision which will not bring much change. Second, is the gradual evolution of the NGO sector, thus increasing its competitiveness which consequently produces better EE projects, therefore able to attract funding. The IOs have a leading role in financing such projects, thus

contributing to the development of EE. A third reason is that schools have become to understand and recognise which EE activity offered outside their school, usually by an NGO, is one that will make a real difference with children, as a result improving the quality of NGO sectors' offer in the field of EE. This creates an ever evolving circle of mutual support among schools, NGOs and IOs.

Still, there are issues such as lack of coordination, slow design of good quality curriculum, and the children's grade - driven learning that hinder a fast development of EE. Until students are made to understand the essence of environmental protection and its importance, rather than "hunting" for grades, EE will have little effect.

2. With regards to environmental education in the mandatory curriculum, the conclusion is that EE prevails in natural science teaching subjects, whereas those teaching socials science are almost avoided. Although the new curriculum for 5-th to 9-th grade is being currently updated, EE is again incorporated predominantly, if not only in natural science teaching subjects. It is believed that such an approach will continue to persist at least until recent future and until teachers themselves recognise that teaching English language, history or art can also teach about the environment.

Additionally, it is a reoccurring argument that of the EE content present in the curriculum, very little is practical, and more is theoretical. The reasons traced in the education system are seen as a main obstacle since it is one inherited from the past where the teachers were supposed to lecture and students were expected to be able to repeat the provided information. The elective subject in EE is an exception to this

where emphasis is put on practical and out – of – the – classroom activities. However, as mentioned earlier, not all students have the possibility to choose this subject since it is up to the school to decide which elective subjects will be offered in that particular school. The conclusion is that having EE at such offer is not enough to satisfy the needs of primary school children for EE and that the approach, whether theoretical or practical, inter- or multidisciplinary, with good or bad examples, does matter in teaching EE.

3. With regards to factors influencing environmental education in Macedonia, the school has been recognised as a main factor. In this regard, this research identified several barriers to successful implementation of EE. Namely, teachers' capacity and motivation lack has been observed to be one of the main obstacles to good EE practice. Furthermore, they are related; lack of knowledge creates lack of motivation to teach EE. But it's not all for the teachers to be blamed for, since there is very little training on EE teaching organised for them by the state authorities or NGOs. Another observed barrier is the lack of capacity to communicate knowledge which emphasizes the need for teacher training. Although specific natural science teaching subjects definitely should be dealing with EE, open space should also be provided to individuals with a more extensive viewpoint to environment, such as those graduating from interdisciplinary environmental fields. Finally, the social circumstances in which the children grow and are educated in has an indirect effect. To be precise, in areas where there is lack of communal hygiene, lack of electricity and water, institutionalising EE is not of primary concern neither of the state, nor of the population living there.

4. With regards to the NGO sector as a stakeholder in contributing to environmental education, it is this research's conclusion that the NGO sector has played and still plays a leading role in the field, but enabled by the funding provided by the IOs. It seems that the cooperation is mainly need based. Although the official role of the state is a leading one, it rarely is the case in reality. The NGO sector cooperates with the municipalities to get access to schools, in order to implement an EE activity so that it gets funding from the IOs. The free market creates enormous conditions in making use of foreign funding for improving EE in Macedonia, but this should be in a structured manner, not randomly. Funding seems to play a crucial role in such cooperation and allows the IOs to "push" for criteria in the project, which on the one hand is a good practice since they involve gender equality and miltiethnicity, but on the other hand it is done in a rather artificial way, since if it was not for the IOs, these criteria would probably not have been recognised and applied, which speaks of the unsustainability of the approach. It is has also been observed that the way EE is organised and structured at the moment does not satisfy its general aims and objectives. This has been confirmed by the state institutions, the NGO sector, teachers and the IOs and the need for a global national strategy for EE has also been recognised. This speaks of the need for greater cooperation on all levels.

Good examples of cooperation and multilateral approach to EE are OXO's "We do not have a spare planet" and the Green Pack. These and such projects are expected to contribute to increasing children's environmental awareness and EE in the country in the long run and make all stakeholders actively participate in children's environmental upbringing.

This research recognises that there is no magic formula for successful EE programmes, but with a continuous upgrade, Macedonia is up to the challenge. It is concluded that EE in Macedonia needs improvements, both in quality and quantity. However, these should be improvements that will be successfully incorporated, rather than providing pro forma solutions that will either never be implemented or not effective. Perhaps it is time for an overall reform in the educational system in order to completely incorporate EE.

Chapter 6 - Recommendations

This study has revealed ways to improve EE in Macedonia on all levels. The following recommendations are some suggested steps directed towards all stakeholders in order to improve the state of EE in the country. Many of the recommendations are mutually supplemental and are not exhaustive. This is a rather preliminary set of recommended actions to build up on as the field of EE develops.

Recommendations to State Stakeholders (primarily the Ministry of Education and Science)

- Strengthen and expand activities on raising awareness on EE. This would ideally be done through both formal and informal education delivered in cooperation between the state and the NGO sector as a result of a so much needed partnership in order for this to create complementarity in organizing EE activities.

- Create a purposeful National Environmental Education Strategy and Programme with a joint action between the state institutions (the Ministry of Education and Science and the Ministry of Environment and Physical Planning), the NGO sector and the schools that will serve national and global environmental goals; one that will develop originating from demand and up - to - date developments in the topic with clearly defined goals, so that the activities related to the filed are more connected, organised and planned ahead.

- Provide training for teachers regarding teaching EE in cooperation between the Ministry of Education and Science providing the methodological and didactic part and the Ministry of Environmental Sciences and Policy providing the topic expertise. Training should not be only regarding specific EE tools, such as the Green Pack, but in general about how to teach EE. Increasing the level of qualification of teachers regarding environmental concepts will improve the quality of EE delivery.

- Incorporate EE topics in all social science teaching subjects in the mandatory curriculum.

- Implement practical approach to mandatory and extra – curricular EE topics.

- Revision of curriculum and textbooks is not enough. Teachers' guides and teachers' qualifications should also be updated in order to create a stimulating EE learning environment.

- Consider the option for a mandatory EE teaching subject, but without overburdening the curriculum or at least make sure that EE is offered in all schools as an elective subject.

- Engage people with multidisciplinary background in EE programme development and teaching, so that it gets the needed viewpoint angle.

- Equip schools with technical devices needed for a modern, up - to - date approach to teaching EE.

- Acknowledge evaluation of EE teaching so as to determine the quality of the EE offered in primary schools.

- Regular supervision should be carried out by the Ministry of Education and Science to ensure and foster the use of the Green Pack in all subjects as it is planned in the Green Pack itself.

Recommendations to Non-governmental Sector Stakeholders

- Create a network of ENGOs and a database of EE activities that will result in creating a common, not repetitive plan. For instance, this may be done by a web portal with pages on each NGO, distributive list, a free bulletin, magazine, etc. This network would ideally be consisted of representatives from the Ministry of Education and Science, the Ministry of Environment and Physical Planning, representatives of major NGOs dealing with EE and teacher association representatives. This would instigate a dialogue among all stakeholders in EE. Such a network would among other responsibilities have to provide additional EE teaching materials and generate EE journals.

- Acknowledge the need to assess delivered EE initiatives in order to determine if the goals have been met and to what extent.

- Convert some of their routine campaign activities and commit to a more planned and purposeful engagement in the field of EE.

Recommendations to Teachers

- Avoid passive approach where the teacher only delivers information and the students are expected to memorise and be able to reproduce it. Encouraging partner and cooperation based teaching is crucial.

- When planning lessons, teachers should make sure to use relevant experiences so that students can connect with their own lives. This could involve studying a local environmental issue.

- Cooperation on a regular basis should be established among teachers, preferably first among those already active in the field of EE, and then on a national level. This will create an opportunity to exchange opinions and improve the process of EE teaching.

- Disseminate information within their own schools, so that every teacher has a chance to participate in EE activities.

- Initiate more out – of – school and outdoor activities, so that students get more education *in* the environment. Elaborating the foundations for theoretical and applied information and linking them to EE.

Recommendations for further research

It is difficult to assign cause and effect to behaviours, especially in EE as it is an interdisciplinary matter, the approach is holistic and the actions are simultaneous. Nevertheless, any research on outcomes and changes in primary school students' behaviour after the Green Pack has been used for several years will be valuable.

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Annex I

Interview questions

How would you describe environmental education in Macedonia?

How would you rate the quality of environmental education in general in Macedonia? Why do you think so?

How would you rate the quality of environmental education in primary schools in Macedonia? Why do you think so?

Does it make a difference? If so, how?

What are the strengths and weaknesses of the curriculum of mandatory subjects in terms of environmental education?

Do you believe that there should be a change in the way environmental education is currently organised and how?

What are factors for success in environmental education in primary school children?

What are the main challenges for environmental education in Macedonia? Key issues.

How are 5-th to 9-th grade students exposed to environmental education?

In what ways, if any, does environmental education in Macedonia incorporate or not incorporate multi-ethnicity?

In what kind of environmental education activities was your organization/school involved and to your knowledge, in general NGOs and schools?

What, if any action, is taking place to publicize environmental education? Who is it initiated by?

Some NGOs contribute to environmental education. How would you assess their work?/How do you asses the work of schools in terms of environmental education?

How do you choose the children/ schools that you address? Criteria.

Questions directed to teachers:

What are you teaching and for how long?

Have you used the green pack? If so, how would you describe its application and usefulness?

How did the use of the Green Pack come about?

What supports or hinders the use and expansion of use of the Green Pack?

Does the Green Pack make a difference?

Annex II

List of interviewed people

Teachers:

Aida Petrovska, physics teacher, PS “Dimitar Miladinov”, Skopje

Aneta Korunoska, elementary level teacher, PS “Dimo Hadzi - Dimov”, Skopje, Coordinator for the “How to Become a Green School” Project

Aneta Trenkoska, elementary level teacher, PS “Krume Volnarski”, Topolcani village, Prilep (participated in developing the Green Pack)

Biljana Gligorova, geography teacher PS ”Gorgija Pulevski”, Skopje

Blagica Mihajlova, biology teacher, PS “Rajko Zinzifov”, Skopje

Emilija Vasileva - Colovik, biology teacher, PS “Dimo Hadzi - Dimov”, Skopje

Jagoda Arsovska, mathematics teacher, PS “Mirce Acev”, Skopje

Natalija Aceska, biology teacher, high school “Orce Chopela”, Prilep (participated in developing the Green Pack)

Slagana Tomik - Stamenkova, biology teacher, PS “Krste Misirkov”, Skopje

Suncica Milosevska - Stojanovik, geography teacher, PS “Mirce Acev”, Skopje

Suzana Popovska, English language teacher, PS “Mirce Acev”, Skopje

Tanja Trenkoska, elementary level teacher, PS “Goce Delcev”, Skopje

Valetina Nedelkova, biology teacher, PS “Partenija Zografski”, Skopje (participated in developing the Green Pack)

Vesna Veljanovska - Miladinova, biology teacher, high school “Metodij Mitevski – Brico”, Skopje (participated in developing the Green Pack)

People in the NGO sector:

Aleksandra Mladenovska Kostik, Programme director, OXO, Skopje

Andreja Stojkovski, Macedonian Centre for European Training, Skopje

Biljana Stevanovska, Director, ORT, Skopje

Dusko Hristov, National coordinator, BELLS, Skopje

Elez Bislim, Coordinator for International Cooperation, Sumnal, Skopje

Igor Slavkoski, Director, Mileu Kontakt, Skopje

Jovanco Sekuloski, Founder, Alliance for Lake Cooperation in Ohrid and Prespa

Kornelija Radovanovik, Project manager, REC, Skopje office

Metodija Sazdov, President, Macedonian Green Center, Skopje

Metodija Velevski, Executive director, Macedonian Ecological Society, Skopje

Neshad Azemovski, NVO BIOSFERA, Bitola

Svetlana Petrovska, Owner, Center for Promotion of Sustainable Agricultural Practices and Rural Development, Skopje

Vladimir Karchicki, President, PROACTIVA, Skopje

People employed in state institutions:

Ilija Leskovski, Head of publishing department, Bureau for Education Development, Skopje

Ivica Gievski, Head of department for information and documenting sector, Bureau for Education Development, Skopje

Saso Sekulovski, Head of public relations office in the Ministry of Environment and Physical Planning, Skopje

Sonja Lepitkova, Deputy Minister of Environment and Physical Planning

Vesna Jankova, Environmental inspector, Municipality of Centar, Skopje

People from IOs:

Milica Petrusevska, Green School Coordinator, USAID, Skopje office

Samir Memedov, Programme Associate, Environmental practice, UNDP, Skopje office

Stanislava Dodeva, National Programme Officer, Swiss Agency for Development and Cooperation SDC, Skopje office

Other:

Liljana Popovska, Member of Parliament, Democratic Renewal of Macedonia (green party)

Mile Srbinovski, Professor at the South-East European University, Tetovo (teaches environmental education)

Sonja Trajkovska, Dentist in the villages of Rashtak and Bulachani, near Skopje

Annex III

Some of the observed activities and posters

addressing environmental education in the visited primary schools