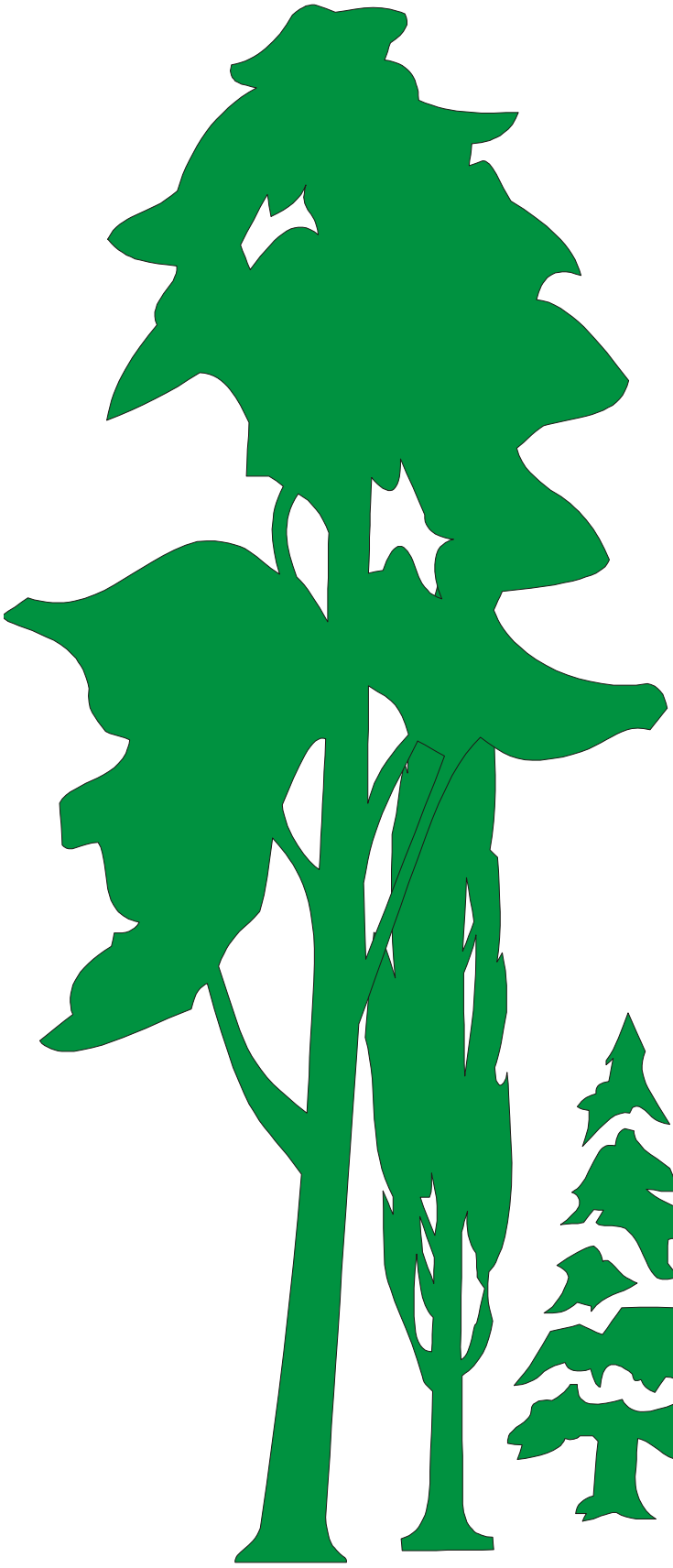

"This Is My Environment" (TIME) Foundation

THE CAPACITY BUILDING NEEDS WITHIN THE BULGARIAN PRIMARY AND SECONDARY EDUCATIONAL SYSTEM IN REGARD TO NATURE CONSERVATION EDUCATION

REPORT

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TABLE OF CONTENTS

ABBREVIATIONS 5

EXECUTIVE SUMMARY 6

INTRODUCTION 14

PART I. THE SCHOOL EDUCATIONAL SYSTEM IN BULGARIA 18

1. The Background 18
2. The Structure of the School Education System. 19
3. The content of education 19
4. Management of the school education in Bulgaria 22
5. Relationships between the school and the social environment 24
6. Educational materials 25
7. Institutional support for NCE 25
8. Pre-service and in-service teacher training 27

PART II. NATURE CONSERVATION EDUCATION IN THE FORMAL EDUCATION CONTENT 30

1. Introduction 30
2. NCE position in the educational plan 31
3. The position of NCE in the educational standards 34
4. NCE position in the educational programs 37
5. NCE opportunities through interdisciplinary links 38
6. NCE position in the assessment system 38

PART III. ANALYSIS OF AVAILABLE RESOURCES FOR NCE AND THE NEEDS FOR ADDITIONAL RESOURCE PROVISION 39

1. Introduction and summary 39
2. Nature Conservation Education in Bulgaria 39
3. Nature Conservation Education in Bulgarian Schools 41
4. Nature Conservation Education in Pre-Service Teacher Training 44
5. Nature Conservation Education in In-Service Teacher Training 45

6. Inter-institutional Cooperation for Nature Conservation Education 46

7. Human Resources for Nature Conservation Education 48

8. Informational Resources for Nature Conservation Education 56

9. Material Resources for Nature Conservation Education 59

10. Financial Resources for Nature Conservation Education 59

PART IV. RECOMMENDATIONS 61

1. Strengths and Weaknesses 61

2. Opportunities and Threats 65

3. Some important questions 67

4. Recommendations 68

BIBLIOGRAPHY 73

ATTACHMENT 1: CULTURAL-EDUCATIONAL AREAS AND THE EDUCATIONAL SUBJECTS IN THEM ACCORDING TO THE NEW EDUCATIONAL PLAN 74

ATTACHMENT 2: QUESTIONNAIRE FOR THE INTERVIEWS 75

ATTACHMENT 3: TERMS OF REFERENCE 76

ATTACHMENT 4: OPPORTUNITIES FOR NCE IN THE EDUCATIONAL STANDARDS 77

ATTACHMENT 5: INFORMATION ON SOME OF THE HIGHER EDUCATIONAL INSTITUTIONS PROVIDING PRE-SERVICE TEACHER TRAINING 87

ATTACHMENT 6: OPPORTUNITIES FOR NCE IN THE EDUCATIONAL PROGRAMS 88

ATTACHMENT 7: LIST OF INTERVIEWEES 104

ATTACHMENT 8: NUMBER OF EDUCATIONAL INSTITUTIONS, TEACHERS AND STUDENTS FOR THE EDUCATIONAL YEARS 1997/98 – 2000/2001 108

ATTACHMENT 9: PRE-SERVICE TEACHER TRAINING ADDITIONAL INFORMATION 109

ATTACHMENT 10: IN-SERVICE TEACHER TRAINING ADDITIONAL INFORMATION 111

ATTACHMENT 11: DESCRIPTION OF THE DEPARTMENT FOR INFORMATION AND ENHANCING OF TEACHER QUALIFICATION, SOFIA (DIETQ) 113

ATTACHMENT 12: DESCRIPTION OF DEPARTMENT FOR IMPROVEMENT OF TEACHER QUALIFICATION "DR. PETAR BERON", VARNA (DETQ) 117

ATTACHMENT 13: FORMAT OF THE EDUCATIONAL STANDARDS 120

ATTACHMENT 14: FORMAT OF THE EDUCATIONAL PROGRAMS 121

ATTACHMENT 15: RESULTS OF THE CONSULTATION WORKSHOP, OCTOBER 16, 2001 122

Abbreviations

AS	Assessment System
BAS	Bulgarian Academy of Science
BS	Basic School
CE	Compulsory Education
CEA	Cultural Educational Areas
CSE	Compulsory Selected Education
DETQ	Department for Enhancing Teacher Qualification
DIETQ	Department for Information and Enhancing Teacher Qualification
EC	Educational Contents
EI of MES	Educational Inspectorate of the Ministry of Education and Science
EP	Educational Program
EU	European Union
FPPSE	Faculty on Primary and Pre-School Education
FSE	Freely Selected Education
ICT	Information Communication Technologies
IT	Information Technologies
LHE	Law on Higher Education
LPE	Law on Public Education
LPET	Law on Professional Education and Training
LSECEMEP	Law on the Stage of Education, Common Educational Minimum and the Educational Plan
MA	Municipal administration
MCES	Middle Common Education School
MES	Ministry of Education and Science
MEW	Ministry of Environment and Waters
MPTS	Middle Professional-Technical School
NCE	Nature Conservation Education
NGO	Non-governmental organization
NPC	National Palace of Children
NSI	National Statistical Institute
PQD	Professional Qualification Degree
SILPE	Statute for the Implementation of the Law on Public Education
RI of MEW	Regional Inspectorate of the Ministry of Environment and Waters
SECEMEP	Stage of Education, Common Educational Minimum and Educational Plan
SG	State Gazette
SU	Sofia University “St. Kliment Ohridski”
UNDP	United Nations Development Program

Executive Summary

Formal school education has a key role in sustainable development because it has the potential to reach almost every child and instill values as for instance defining a nature protection behavior. Today's children are the future policy makers, enterprise managers, community leaders - decision makers who will be either destroying or protecting the environment while striving for human development. Thus nature conservation cannot be effective until people understand the value of natural components and become able to apply this understanding in their daily lives. This means cultivating a new way of thinking where there is a realization that, for example, the protection of species from extinction is an important component in any economic development. Achievement of such a task requires years of work and even generations to change during which no visible results may be counted. The development of a nature protection behavior also requires diverse communication efforts focused on the family, the general public, the professional community, and academia. One of the most important areas for change however is the need to develop a new type of school education. This is so because school begins the social experience of the individual and the potential of the mind to adopt new rules of behavior is very high. School experience is also continuous and long enough to be able to produce changes in the moral and ethical values, part of which is the attitude towards the environment

Since 1998 the educational system of Bulgaria has been undergoing major reform, supported currently by a World Bank loan. This reform process focuses on fulfilling the requirements for accession to the European Union directing the educational system towards:

- raising the quality of education in accordance with the European standards including reform of both the content and the development of a more student centered learning approach
- achievement of a higher level of autonomy and decentralization within the educational system
- sustaining the vital function of the Bulgarian school in society.

The World Bank reform project is being implemented in three stages from 2000-2010.

The first phase will establish the institutional conditions, organizational structures and projects required for implementing and sustaining the changes in the educational system. This involves the development of new educational programs for grades 1, 2, 5, 6, 9, 10, 11; the development of a demand-led system of in-service teacher training; pilot testing the matura examination and other reforms.

The second phase is designed to begin the implementation of the projects from the first phase and to prepare the institutional, organizational and technical conditions for introducing further changes in teacher training. This involves implementation of the new educational program in all school grades, provision of educational materials, teacher training, implementation of the changes in the system of in-service teacher training and other measures.

The third phase is designed to consolidate the changes promoted during the previous two phases and further advance the reform of teacher training. It incorporates assessment for grades 4 and 8, implementation of the system of delegated budgets, provision of in-service teacher training on new methods and pedagogical approaches.

In addition to this, the Bulgarian government, which has recognized the importance of environmental education as part of a strategy for environmental protection and sustainable development, commissioned a study through UNDP aimed at identifying how Nature Conservation

Education can also contribute to the educational reform. This study was performed by TIME Foundation with the experts assistance from UK.

Management structures

Currently the school education management is implemented at four levels each with different roles and responsibilities: central, regional, municipal and school.

The **Central level** is undertaken by the Ministry of Education and Science. The Ministry implements state educational policy in compliance with the state educational priorities and strategies for human resource development. The MES works for the improvement of the national educational system and achievement of a European level quality of education; creates an effective legislative framework supporting the process of educational reform; executes the management and coordination of activities for an optimal utilization and attraction of resources in the educational system.

The priorities of the MES for the period 1997-2000 were

- legislative provision for the educational reforms[1], aiming towards the achievement of a common educational minimum under grades, stages and levels of education;
- the development of new educational programs, textbooks and support materials;
- the decentralization of the management of the educational system and optimization of the school network;
- enlarging the cooperation and partnership between educational institutions, local authorities, public, parent's community, NGOs, business community and media.

The **Regional level** of management is realized through 28 Regional Education Inspectorates (EI) of the MES. They perform activities in compliance with the legislative documents of MES[2].

The structure of the EI of MES includes both general and specialized sections. General administration is situated in the department "Administrative-legal and financial services" with the purpose of legal servicing, human resource management, records and financial-economic activities.

Specialized administration is divided into two departments: "Organizational support for the system of the public education" and "Methodological support of the system of the public education". The Organizational support department implements activities related to the organization, coordination and control for the implementation of the major functions of the EI of MES in order to implement the state educational policy. This includes the execution of national and regional programs and projects; information provision; the coordination of the relationships among the institutions in the system of public education, territorial structures of the executive power, NGOs and other social partners and the control and monitoring of compliance with the Educational Standards.

The Methodological support department organizes the implementation of the state policy in the field of common education, professional education and training, controls the educational process on

[1] LSECEMEP, LPET**,** Regulation No 2/18.05.2000 on the educational contents, Regulation No 6/28.05.2001 on the distribution of the educational time

[2] Law on Public Education, LSECEMEP, Statute for the Composition and Activities of the Educational Inspectorates.

educational subjects of the educational plan, organizes in service training for teachers and provides methodological and information support for common and professional education.

Each of the Educational Inspectorates of MES employee around 15 - 20 people usually with one person for each subject and sometimes two for the primary level.

The **Municipal level** of management is organized by the department of "Education" at the Directorate "Education, youth activities and sports" of the municipal administration (MA)[3]. This department deals with the municipal educational policy and supports and controls the activities of the municipal schools in the field of organization and implementation of FSE included in the school educational plans. This control includes financing of subjects in the FSE.

The **School level** involves the planning, organization, coordination and control of educational activities at a school level as required by the MES. The planning requirement includes the development of the School educational plan. Included in this plan are the schools proposals for the decentralized components of the educational program - the compulsory selected and freely selected areas. This has to be submitted to the Municipal Authority for approval each year.

Activities for the achievement of a high quality education in school are oriented towards:

- optimization and introduction of innovative technologies, methods, means for organizing and conducting the educational process;
- socialization; building of human values through the activities of the school and extracurricular forms of education (clubs, interest groups, etc.);
- provision of in-service training forms in school;
- interrelations with the factors of the social environment (school boards, parent's community, etc.)

The Director of each School has the ultimate authority and responsibility to ensure that the school carries out the curricula and undertakes other legally required functions. It is his or her responsibility for example to ensure that the correct documentation is available, the FSE are developed and that assessment is undertaken.

Education materials

The content of the textbooks and additional materials should comply with the requirements of the Educational Standards and programs. New materials should match the educational goals of the respective subject, together with the educational contents including the main topics, problems, concepts, context and activities, interdisciplinary links, specific methods and forms for assessment of pupils' achievements. The requirements for the textbooks' content also relate to achieving compliance with up to date ideas in the subject, basic didactic principles, continuity and consistency of the educational content, and the age and cognitive abilities of the pupils. Of great importance for the content of the textbooks and additional materials are the inclusion of strategies for study, and the availability of exercises, experiments and tasks for the formation of basic practical skills. As a whole, the purpose of the textbooks and additional materials is to facilitate personal development of the pupil.

[3] The activities of this department are based on all legislative documents of the MES as well as on the Law on Local Self-government and Local Administration (changes and additions State Gazette (SG), 65/1995) and the Law on Administration (SG, 130/1998).

As there is a specific approval process by MES for text books and materials and it is possible to approve more than one text book for a specific subject in a given grade. Essentially therefore, there is a free market in textbooks with anyone who wishes being able to write and publish materials, however then size of the Bulgarian educational market may militate against this.

Introduction of NCE.

The introduction of NCE into the students learning is only possible if the structure and contents of the curriculum allows NCE to be integrated into different subjects. Opportunities for this appear in three ways. Firstly, there will be those standards and programs in the new curriculum that are directly related to the content of NCE, such as nature and ecology, biology or geography. Secondly, there will be those standards and programs in which NCE could be used as a context for the study of a subject. For example, nature focused poems could be used as a context for learning in the Bulgarian language, or environmental statistics could be used in mathematical calculations. Thirdly there will be opportunities in the way that schools are managed and the overall structure of the education system that give rise to NCE opportunities.

Most opportunities for the expansion of NCE exist in the primary level. This is a result of the fact that primary teachers have more opportunities to make interdisciplinary links and relationships and because at this level one teacher usually combines a number of subjects and hence can easily utilize the interdisciplinary links opportunity. There are fewer opportunities at the secondary level because the expansion of the educational contents towards new educational problems are not always related to NCE. There is also an emphasis on the deepening of the knowledge and skills of students in specific subject areas. Interdisciplinary links are also more difficult to realize, as different teachers are involved in teaching separate subjects. Such a process requires synchronization of the educational practice during planning, selection of educational forms and methods under the different subjects. This situation may be defined as a risk factor for NCE in the secondary level. Whether a student of high school has the opportunity for NCE will depend very much on their own choice of subjects at this level and the selection of a school. Students experience at this level will therefore be very varied.

Thus, the role of the educational programs in the school educational system is substantial. They practically define the entire educational contents in the CE and profiled education. Once approved the programs are interpreted through the textbooks and all teachers follow one and a same educational contents. The only variability available for changes exists at the level of methodology. That is why it is important to study to what extent NCE is already present in the already approved programs. On the other hand it is worth directing efforts towards the programs to be developed in the future. It should be made clear however that this process is based on tender procedures of the World Bank and intervention strategies are not easy to devise and implement. Attachment 6 presents the identified NCE elements in the programs of grades 1 and 5 as well as descriptions of the opportunities provided to NCE by the programs for grades 9, 01, 11. The overall conclusion is that NCE is presented in the educational programs and generally reflects the opportunities already revealed in the educational standards. It is also important to note that opportunities for NCE exist in all CEA with opportunities in areas such as Man and Nature, Geography and Economics, Biology and Health Education, Chemistry and Environmental Protection are higher then for the other programs.

SWOT Analysis

The analysis below is based on the opinion of 48 interviewed individuals from the stakeholder groups described in the Introduction. It should be pointed out, although it is not a large sample, the people interviewed were selected on the basis of their ability to represent the views of the different stakeholder groups and their expertise and knowledge about the general situation in NCE. The purpose of the questionnaire was to review the status of NCE as perceived by the different stakeholder groups and also to gain views about priorities for the development of NCE. As is often the case, some aspects of the current NCE in Bulgaria are both a strength and a weakness. Some characteristics therefore appear mentioned more than once.

Strengths	**Weaknesses**
The Education Tradition in Bulgaria. Bulgaria is a country with a strong nature education tradition. A significant body of people with NCE expertise There is a significant and growing body of people with a commitment to NCE at all levels of education including Universities, Teacher Training, schools and NGOs and also at a political decision making level. Nature Conservation in the curriculum Nature conservation and associated issues are clearly in the national curriculum in Bulgaria both in the education standards and education programs. Opportunities for professional development in NCE There are two strong Departments for Enhancing Teacher Qualifications that provide a range of courses focused on different aspects of environment and NCE and an institutional base for further development. A growing body of materials and resources There is a growing body of materials and resources related to NCE, especially developed by NGOs. A growing group of active NGOs. There are a number of very active NGOs that support aspects of environmental education, and NCE. Out of school structures There is a system of out of school provision of education and extra curricula activities available for pupils. The teaching profession There is a relatively stable and dedicated teaching profession that has an interest in Nature Conservation Education.	The lack of understanding of NCE and of any NCE strategy The most serious weakness is the lack of any NCE system in Bulgaria and especially the lack of a strategy for NCE. A lack of support from the MES. Although the MES has formally stated that NCE is important, it has not made any significant moves towards putting that statement into practice. A lack of understanding of student centered education. Effective environmental education and NCE relies on taking a student centered approach to learning. A lack of teachers qualified to teach NCE. Although biology teachers are competent to teach certain aspects of NCE, the knowledge and understanding components, there are few teachers in Bulgaria able to take a more broadly based approach to NCE. The structure and approach of the curriculum. The opportunities for NCE integration into in the current and reformed curricula are only scattered and fragmented is mentioned in Educational Standards and programs. Pre service teacher training. Although there is some emphasis on NCE in pre service teacher training those delivering teacher training have probably over estimated the proportion of time devoted to NCE and even if they haven't it is still by no means adequate. In service teacher training. There are also similar weaknesses in in-service training. Provision of Resources. It is generally agreed that there is a lack of effective teaching materials for NCE, especially those that take a student centered approach to learning. Access to Information and Support. There are also real difficulties in teachers getting hold of information on NCE. Lack of earmarked funding. Although financial support is not always the answer to a

	particular problem, in the case of NCE there are no clear sources of funding either provided by the MES, MEW or through other mechanisms such as an Environment Fund or sponsors. Lack of priority given to NCE by education officials and decision makers. Although the Research indicated that education officials at all levels consider that NCE is important, this is not translated into any action. A lack of coordination Although there is a relatively large number of NGOs, co-ordination between them is poor, and cooperation is rare at a national level.

Opportunities	**Threats**
Increasing school independence. The MES Reform process will, over time, give more and more authority to schools themselves. The interest of the MEW in environmental education and NCE. The fact that this study has been approved by the MEW is a sign of their increasing desire to see more EE and NCE in the curriculum. An interest from teachers and students in developing more NCE. The Research has highlighted a generally high level of interest in NCE and a willingness by teachers to have more emphasis on NCE in the curriculum. The new curriculum The possible development of a CSE and certainly an FSE for the Environment that could include NCE. The exploitation of interdisciplinary links between subjects through an NCE perspective The Education Standards emphasize a skills based approach to education as a whole. NCE can be suited to provide a meaningful context for the development of cross curricula skills. How the new curriculum is being developed. There are still areas of the new curriculum, including some of the programs that are in the process of development. The free market in the provision of textbooks. There is now a free market for the development of textbooks, which means that teams of authors could produce a series of books that exploit the NCE in different subjects areas. The autonomy of Higher Education The Universities are largely free to develop their own courses as long as the teachers' trained meet specified standards and can teach the required curriculum.	The current status of the education reform process. Firstly, at a Ministry and Institutional level, the process is taking place following strict World Bank guidelines, and there is a perception that these are inflexible when it comes to considering new ideas and that in any case it is too late to change anything. Secondly at a school level there could also be challenges. It is the experience of other countries, including the UK, that at a time of curriculum and education structure change, schools and teachers focus their energies on what are perceived as the core elements of change. Increasing school independence. In a centralized education system where change is through central edict, then the introduction of NCE is theoretically much easier - once it has been adopted at Ministry level. The lack of interest of the MES in environmental education and NCE. The staff of the MES is relatively small, and not likely to increase. The free market in the provision of textbooks. The only draw back is the small market for any educational materials in Bulgaria will mean that NCE publications will have to be sponsored in some way. The reform in the in service training system. Initially any reform in the in service training system might result in fewer training opportunities, or at least more costly ones as freedom will also probably mean that organizations will have to charge for in service provision. The conservatism of the University System. Universities, although relatively independent are also slow to make decisions related to courses. The NCE Community NCE tends to be dominated by scientists rather than educators.

The reform in the in service training system. The in service training provision is now going to be broadened beyond the current DETQs. Bulgaria and the EU – funding. Bulgaria is increasingly drawing towards the EU and there are opportunities for funding related to aspects of NCE, especially developing community related projects and educational projects focusing on new methodologies and information technology.	

Recommendations

The report makes the following fourteen key recommendations. For each recommendation there is a suggested timescale (A short timescale is within the next year. Medium terms are between one and five years and longer term, more than five years) and suggested funder/supporter.

Getting the right process

The process of implementing the recommendations below is critical if they are to be successful. The following process is recommended

- That this Report is widely circulated within Bulgaria to start a national debate on the nature of NCE and the integration of NCE into the curriculum.
- UNDP should work towards the endorsement of this Report and its recommendations by the MES and MEW.
- That a high level and broadly based National NCE Conference is held in Bulgaria to consider the issues raised in this report.
- That one of the outcomes of the Conference is to establish a joint MES/MEW Nature Conservation Education Committee. The committee should have a fixed life and an agreed remit of tasks. It should have a broadly based membership.

This process should be coordinated by the MES and MEW working together with UNDP. The committee should be in place before the end of 2001.

Exploiting NCE in the Reform Process.

One of the key roles of the Committee should be to review the current position of NCE in the Reform Process and if appropriate lobby for the further inclusion of NCE.

Developing a strategy.

The joint NCE Committee should have the remit to develop a strategy for NCE.

Developing Guidance for the Implementation of NCE.

The MES should commission the development of NCE Guidance publication for Schools.

Developing a cadre of NCE experts.

A course should be provided for between 5 and 10 people from Bulgaria who are currently involved in pre and in service teacher training and the development of resources materials.

The development of a specific CSE and a framework for FSC in NCE.

It is recommended that specific CSE and FSC courses be developed for each stage of education that take an NCE approach.

Establishing a network of Pilot and Demonstration Schools
The MES/MEW should consider establishing Pilot and Demonstration Schools in each region of Bulgaria.

Professional development for decision makers
Officers in the MES, the EI of the MES, Local Administration and Head Teachers all need different training in terms of NCE and it is recommended that the MES contracts different training providers to develop appropriate courses for each group.

That a network of advisers in each region is established who could support NCE.
Related to Recommendation 8 is the need to support NCE at a regional and local level.

That high quality textbook and other resources are developed
In many countries, including Bulgaria, much of what happens in the classroom is determined by educational materials and especially textbooks. If a high quality textbook covering the programs in a number of specific areas of the CEA was available then it is highly likely that it would be purchased by school.

An NCE teacher training module is developed .

One of the Universities should be encouraged to develop a specific short NCE course that could be delivered to all students training to be teachers in agreed NCE related subjects.

The development of an in service training program.
In service training providers should be encouraged to develop a more appropriate program of training courses for teachers and head teachers on NCE.

Establish a National Environmental Education Center
The remit of the Center would have to be agreed by the MES/MEW but there is a need for an organization to coordinate the provision of information about NC in particular and disseminate good practice and new ideas to all those involved in NCE.

That a specific environmental education fund is established.
There is a need to provide more secure funding for NGOs and school based initiatives.

Introduction

1. The problems related to environment appear to be of only limited concern to people yet it is people who have changed the ecological system so substantially that they become the major cause of the disturbed natural equilibrium. It therefore seems unreasonable that environmental policy, scientific research and even education are all currently largely focused explicitly on the damage to environment and the possibilities to overcome the problems rather than on a more detailed consideration of the human behavior that causes the problems. Emphasis appears to be on technical solutions to problems rather than effective education to prevent problems in the future.

2. Since the Tbilisi Conference in 1977 organized by the United Nations through to the Rio Earth Summit of 1992, the critical role of environmental education has been emphasized at an International level. Agenda 21 itself stresses that if there is to be a globally ecologically fit society following the principles of sustainable development, then new thinking is required. Only a more effective approach to environmental education can develop creative solutions to our current challenges.

3. This Report provides a review of the current status of Nature Conservation Education (NCE) in Bulgaria and makes recommendations for the improvement of NCE in the formal education sector. As NCE is part of environmental education the conclusions of this Report will inform the development of a more effective approach to sustainable development and education in Bulgaria. There have been a number of initiatives in this direction over the last few years, but they have not had any strategic impact on a national scale. The time is now right for these developments to happen.

4. Formal school education has a key role in sustainable development because it has the potential to reach almost every child and instill values defining a nature protection behavior. Today's children are the future policy makers, enterprise managers, community leaders - decision makers who will be either destroying or protecting the environment while striving for human development. Nature conservation cannot be effective until people understand the value of natural components and become able to apply this understanding in their daily lives. This means cultivating a new way of thinking where there is a realization that, for example, the protection of species from extinction is an important component in any economic development. Achievement of such a task requires years of work and even generations to change during which no visible results may be counted. The development of a nature protection behavior also requires diverse communication efforts focused on the family, the general public, the professional community, and academia. One of the most important areas for change however is the need to develop a new type of school education. This is so because school begins the social experience of the individual and the potential of the mind to adopt new rules of behavior is very high. School experience is also continuous and long enough to be able to produce changes in the moral and ethical values, part of which is the attitude towards the environment

5. Through a series of policy documents Bulgaria has recognized the importance of environmental education as part of a strategy for environmental protection and sustainable development.

6. Having one of the richest biodiversities in Europe, Bulgaria was among the first in the world to adopt a National Biological Diversity Conservation Strategy in 1994. The strategy recognizes environmental education as one of the priorities for immediate action and support. In 2001 the

Bulgarian government adopted its new National Environmental Strategy in which the protection of the rich biodiversity of the country tops the list of priorities. Another key objective in the NES is raising public awareness on environmental issues in order to achieve better participation in the alleviation of environmental problems.

7. In 1998 Bulgaria requested GEF assistance for the preparation of a National Biodiversity Conservation Plan (NBCP) as an instrument for the implementation of the strategy. This United Nations Development Program (UNDP) managed project takes an interactive and intensive process of consultation and discussion between the government and stakeholders on the priority actions towards NBCP implementation.

8. The NBCP recommends three areas where needs assessments should be carried out before further policies and actions are developed. One of them is identification of capacity building needs within the primary and secondary education system for Nature Conservation Education. Since 1998 the educational system of Bulgaria has been undergoing major reform, supported currently by a World Bank loan. In response to this the Bulgarian government commissioned a study through UNDP aimed at identifying how Nature Conservation Education can also contribute to the educational reform. UNDP contracted TIME Foundation, a Bulgarian non-governmental organization active in the field of sustainable development and environmental education, to undertake this task. TIME Foundation requested the involvement of a UK expert in order to ensure that the study will present not only country-based views on capacity building needs for NCE, but also set them in a wider European and global context. The Terms of Reference for the Research are set out in Attachment 3.

9. The research study was designed in 5 stages:

a. Development of a study concept
b. Identification of the stakeholders and representatives for interviews
c. Design of a specialized questionnaire and interviewing of stakeholders
d. Writing draft report
e. Development of final report

10. Each stage involved consultations and coordination with UNDP and the UK expert. The study was conducted during the period March 10 – August 15, 2001. The data in the study are collected for the last educational years - 1998/99, 1999/2000, 2000/2001.

11. The research consisted of two aspects. Firstly questionnaire surveys of the major stakeholders in the education and nature conservation education process were undertaken to assess the current status of human, material, informational and financial resources available for NCE. Those interviewed were in a position to provide a representative opinion of the current situation in these areas.

12. Secondly, desk research was also undertaken on policy statements and other educational documents to assess the opportunities that are available for the integration of more effective NCE in the curriculum. The education system in Bulgaria is presently undergoing an extensive reform, which is both an opportunity and a threat for NCE, and these have been reviewed in detail through this Research process. However, because the Reform process is only partially implemented a full analysis was not possible in all areas. For example, the assessment system is still being developed. However, this does not pose a serious risk to the validity of the conclusions.

13. The major stakeholders interviewed are listed below together with the numbers questionnaired from each group. Representatives of all these groups (except the MEW that commissioned the study) were interviewed through a questionnaire (Attachment 2) developed for the purposes of the study. In addition, as requested by the terms of reference, school and University students from the different age groups were interviewed in order to verify the perceptions of providers and recipients of education on the current state and the future of NCE.

14. As a result 48[4] interviews were conducted.

- School representatives – 20 people. Made up of 6 schoolchildren (1 primary level, 1 secondary stage and 4 high school stage), 12 teachers (3 primary school teachers, 6 secondary school teachers and 3 high school teachers), 2 school principals (1 of a kindergarten and 1 of a secondary school)
- Representatives of pre-service teacher training higher education institutions – 9 people. Made up of 6 professors and 3 students.
- Representatives of DETQ/DIETQ – 8 people.
- Representatives of the MES – 2 people.
- Representatives of the EI of MES – 3 people.
- NGO representatives 3 people.
- Representatives of other institutions – 4 people. Made up of 1 representative of local government in charge of the educational process; 1 representative of local government in charge of environmental protection; 1 representative of a private company and the Academy of Science involved in NCE and 1 representative of an international project working in the field of nature conservation.

15. It should be noted that this sample is not statistically representative of people from each stakeholder group. It was considered that for the purposes of this study, capacity-building needs could be reliably identified on the basis of the opinions of people who have specific experience or interests in NCE. TIME Foundation therefore used it's network of people who are qualified to provide the specialized and widely representative opinions required for this study. Members of that network were also able to recommend the school students who would have a representative opinion on the study issues.

16. Through the research process it became obvious that there is still no clear understanding among the stakeholders on what exactly NCE is and what it should result in. In order to avoid discrepancies in the presented information the study team developed its own understanding on NCE that guided the analysis. This assumes that NCE is part of environmental education and includes a knowledge and understanding of

- The Natural environment
- Relationships among the organisms in the natural environment
- The Impact of the human activity on the ecosystems
- Possibilities for sustainable utilization of natural resources
- Mechanisms for nature conservation

17. The Research report that follows is presented in four sections.

[4] The list of interviewes with the respective codes is presented in Attachement 7

Part I. A description of the educational system in Bulgaria,

Part II. An analysis of the opportunities for organizing NCE in the common education of schoolchildren,

Part III. An analysis of available resources for NCE and the needs for additional resource provision,

Part IV. Strengths, weaknesses and recommendations for actions.

Part I. The school educational system in Bulgaria

1. The Background

18. Any review and resulting recommendations for the enhancement of nature conservation education in Bulgaria must take account of the current educational systems and structures. These are undergoing a period of change at present in Bulgaria. The purpose of this section is to describe the current system to provide a context for the research and recommendations made later in the Report.

19. The period 1998-2001 has laid the foundations for important changes to the Bulgarian school education system. During this period the efforts of Bulgaria began to be focused on fulfilling the requirements for accession to the European Union. . These changes are directed towards

- raising the quality of education in accordance with the European standards including reform of both the content and the development of a more student centered learning approach
- achievement of a higher level of autonomy and decentralization within the educational system
- sustaining the vital function of the Bulgarian school in society.

20. These changes are implemented through a "Modernization of Education" program funded initially by the Open Society Foundation and since August 2000 through a large loan from the World Bank. The World Bank reform project is being implemented in three stages from 2000-2010.

21. The first phase will establish the institutional conditions, organizational structures and projects required for implementing and sustaining the changes in the educational system. This involves the development of new educational programs for grades 1, 2, 5, 6, 9, 10, 11; the development of a demand-led system of in-service teacher training; pilot testing the matura examination and other reforms.

22. The second phase is designed to begin the implementation of the projects from the first phase and to prepare the institutional, organizational and technical conditions for introducing further changes in teacher training. This involves implementation of the new educational programs in all school grades, provision of educational materials, teacher training, implementation of the changes in the system of in-service teacher training and other measures.

23. The third phase is designed to consolidate the changes promoted during the previous two phases and further advance the reform of teacher training. It incorporates assessment for grades 4 and 8, implementation of the system of delegated budgets, provision of in-service teacher training on new methods and pedagogical approaches.

24. These dynamic changes in the education system obviously pose some problems for this Research Study, although these should not be overestimated. For example, the identification of opportunities for NCE in the new educational documentation of the MES only covers the new educational programs for the compulsory and profiled education of grades 1, 5, 9, 10, 11. For the rest of the educational programs (grades 2, 3, 4, 6, 7, 8) the didactic concept is still under development. Analysis of the assessment system is based only on the Framework requirements of the MES as no detailed system is yet in place. In addition, the programmes for professional education and special schools (see below) are currently being developed and are not yet available.

25. However, despite the lack of full documentation, the authors of the Report consider that enough information is known both about the aspects of the Reforms that are already in the process of implementation and the proposed changes, to ensure that the conclusions in Section IV are valid.

2. The Structure of the School Education System.

26. The educational institutions (schools) in the Republic of Bulgaria are defined as state, municipal and private with the majority being municipally managed. There are fewer than 50 private schools in Bulgaria at the present time. The different types of schools are listed in the Table below. The budget for the state schools is largely covered directly by the Ministry of Education.

27. Schools provide education according to the published Educational Standards for the appropriate educational level or stage. The education is compulsory up to Grade 8 when children can leave school or progress to further education.

Table: Types of Schools in Bulgaria

1	- primary schools	grades 1-4
2	- secondary schools	grades 5-8
3	- basic schools	grades 1-8
4	- high schools	grades 9-12
5	- profiled high schools	grades 8-13
6	- middle common educational schools	grades 1-12
7	- special schools including: health, support, upbringing schools and boarding-schools, social-pedagogical boarding-school, schools for children with hearing difficulties, schools for children with sight difficulties	grades 1-8
8	- homes for children and youth	grades 1-12
9	- middle professional-technical schools (MPTS)	course 1-4
10	- technical schools	course 1-5
11	- professional high schools	grades 8/9-12

28. The table above shows there is a diversity of schools providing both compulsory education until Grade 8 and also education from grades 9-12. This represents a flexible model of educational institutions that is applied according to the demographic and socio-economic characteristics of different regions.

29. The numbers of educational institutions, teachers and students for the last four years according to the Statistical Yearbook 2001 is presented in Attachment 8. The number of schools providing education up to grade 8 is decreasing together with the numbers of teachers and students in them. This is basically a result of demographic factors - a low birth rate and high emigration - resulting in lower student numbers. This has resulted in the closure of Basic Schools in some areas. The number of technical schools and professional high schools however is increasing whilst the number of middle professional technical schools is decreasing. The trend is the same regarding the numbers of teachers and students in those schools and this indicates that more students are seeking a higher level of education after graduation from Grade 8. The number of special education schools remains constant.

3. The content of education

3.1 Common education

30. **Common education** in Bulgaria consists of

Compulsory education (CE)
As its name suggests these are subjects a pupil has to study and a school has to offer. The programs for these subjects are provided by the MES.
Compulsory selected education (CSE)
These are a range of subjects from which students MUST select a prescribed number. The programs for these subjects are developed by the teacher and are approved by EI of MES.
Freely selected education (FSE)
Programs for these are developed by the teacher and are approved by the school principal.

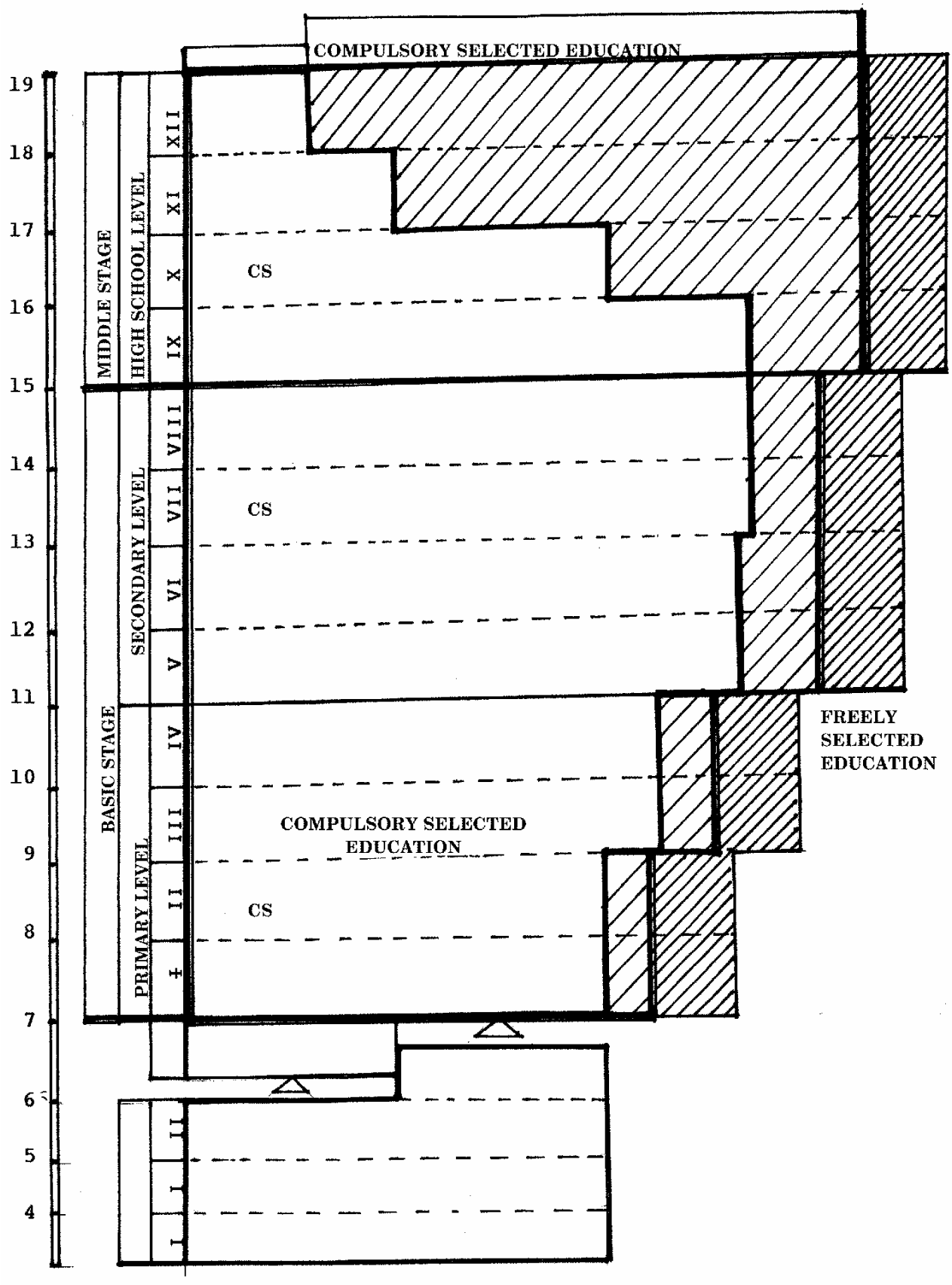
31. They form accordingly the sections A, B and C of the new educational plan and provide a flexible curriculum model mixing centrally prescribed and school based elements. The diagram below indicates the relationship between these three elements at the different education stages and grades. Compulsory education takes up about 80% of teaching time up until grade 8 but the proportion declines greatly through grades 9 to 12.

32. **Compulsory** Education in schools is delivered through educational subjects grouped into 8 cultural-educational areas (CEA). These are

- Bulgarian language and literature
- Foreign languages
- Mathematics, Informatics and Information technologies
- Public science and civil education
- Nature sciences and ecology
- Arts
- Lifestyle and technology
- Physical culture and sports.

33. The detailed content of each cultural educational area is presented in Attachment 1 and in more detail in Section II. The basis for the **compulsory education** in each CEA are the Education Standards. These standards describe the compulsory set of knowledge, skills and attitudes required from the Basic to the Middle stages of education for each cultural-education area. It is intended that 80% of students reach the required standards at the end of each level. The Standards are actually delivered in schools through detailed programs for each educational subject, and it is on the basis of these programs that teacher develop their teaching programs, and text books and other educational materials are written.

Structure of the School Common Education



34. The **Compulsory selected education** element of the program gives students the opportunities for further learning in certain subject areas selected by the school from a common framework. CSE takes up to 10% of teaching time in Grades 1 to 8 and between 10% and 70% in Grades 9 to 12.

35. The **Freely selected element** of the curriculum gives teachers the opportunities to develop their own programs according the needs and interests of the students. Schools have complete freedom to develop their own programs and this FSE curriculum element take up 10% of teaching time in basic and middle stages of education.

36. An important organizing concept in the curriculum is that of integration of themes across the cultural education areas. The program encourages integration and the cross curricular delivery of topics to take place.

3.5 Professional education

37. Specialist professional education is provided for students from grades 7 or 8 and is delivered through professional high schools, technical schools and middle professional-technical schools. The period for education can be four or five years depending on the level of professional qualification achieved. The contents and the organization of the educational program for the professional education follow the legislative documents of the MES[5].

3.6 Special Education

38. Special education is aimed at school children with specific educational needs. This type of education is provided in boarding schools, schools for children with hearing difficulties, schools for children with sight difficulties, hospital schools, support schools, and social-pedagogical boarding schools. The education of the students with specific educational needs is implemented within the framework of the compulsory education up to grade 8 but follows a specially designed program.

4. Management of the school education in Bulgaria

39. School education management is implemented at four levels each with different roles and responsibilities: central, regional, municipal and school.

40. The **Central level** is undertaken by the Ministry of Education and Science. The Ministry implements state educational policy in compliance with the state educational priorities and strategies for human resource development. The MES works for the improvement of the national educational system and achievement of a European level quality of education; creates an effective legislative framework supporting the process of educational reform; executes the management and coordination of activities for an optimal utilization and attraction of resources in the educational system.

41. The priorities of the MES for the period 1997-2000 were

[5] LPE, Law on the Professional Education and Training (LPET), LSECEMEP, Regulation No 4 on SECEMEP.

- legislative provision for the educational reforms[6], aiming towards the achievement of a common educational minimum under grades, stages and levels of education;
- the development of new educational programs, textbooks and support materials;
- the decentralization of the management of the educational system and optimization of the school network;
- enlarging the cooperation and partnership between educational institutions, local authorities, public, parent's community, NGOs, business community and media.

42. The **Regional level** of management is realized through 28 Regional Education Inspectorates (EI) of the MES. They perform activities in compliance with the legislative documents of MES[7].

43. The structure of the EI of MES includes both general and specialized sections. General administration is situated in the department "Administrative-legal and financial services" with the purpose of legal servicing, human resource management, records and financial-economic activities.

44. Specialized administration is divided into two departments: "Organizational support for the system of the public education" and "Methodological support of the system of the public education". The Organizational support department implements activities related to the organization, coordination and control for the implementation of the major functions of the EI of MES in order to implement the state educational policy. This includes the execution of national and regional programs and projects; information provision; the coordination of the relationships among the institutions in the system of public education, territorial structures of the executive power, NGOs and other social partners and the control and monitoring of compliance with the Educational Standards.

45. The Methodological support department organizes the implementation of the state policy in the field of common education, professional education and training, controls the educational process on educational subjects of the educational plan, organizes in service training for teachers and provides methodological and information support for common and professional education.

46. Each of the Educational Inspectorates of MES employee around 12-15 people usually with one person for each subject and sometimes two for the primary level.

47. **The Municipal level** of management is organized by the department of "Education" at the Directorate "Education, youth activities and sports" of the municipal administration (MA)[8]. This department deals with the municipal educational policy and supports and controls the activities of the municipal schools in the field of organization and implementation of FSE included in the school educational plans. MA activities include also financing of subjects in the FSE.

48. **The School level** involves the planning, organization, coordination and control of educational activities at a school level as required by the MES. The planning requirement includes the development of the School educational plan. Included in this plan are the schools proposals for

[6] LSECEMEP, LPET**,** Regulation No 2/18.05.2000 on the educational contents, Regulation No 6/28.05.2001 on the distribution of the educational time

[7] Law on Public Education, LSECEMEP, Statute for the Composition and Activities of the Educational Inspectorates.

[8] The activities of this department are based on all legislative documents of the MES as well as on the Law on Local Self-government and Local Administration (changes and additions State Gazette (SG), 65/1995) and the Law on Administration (SG, 130/1998).

the decentralized components of the educational program - the compulsory selected and freely selected areas. This has to be submitted each year to the Municipal Authority for consultation and to the EI of MES for approval.

49. Activities for the achievement of a high quality education in school are oriented towards:

- optimization and introduction of innovative technologies, methods, means for organizing and conducting the educational process;
- socialization; building of human values through the activities of the school and extracurricular forms of education (clubs, interest groups, etc.);
- provision of in-service training forms in school;
- interrelations with the factors of the social environment (school boards, parent's community, etc.)

50. The Director of each School has the ultimate authority and responsibility to ensure that the school carries out the curricula and undertakes other legally required functions. It is his or her responsibility for example to ensure the development of the school educational plan, the development of educational programs for FSE and that assessment is undertaken.

51. Under the educational reform program schools are being given greater independence in a number of areas. These include autonomy in some areas of the curriculum, and also in some pilot regions, a delegated approach to budget management. It must be said however, the authority of the MES is still strong, and that Bulgaria will continue to have an essentially centralized education system

52. Schools establish a School Board[9] made up of parents and other community representatives willing to assist the school, mainly through financial support. It is a public structure that undertakes a range of functions such as care of the good image of the school, supporting high achieving students, and conducting fundraising activities. Many of the Boards recently started to register as NGOs and thus qualify to receive and spend funds for the school. The Director prepares a plan for the activities of the School Board, which is signed by the Board's Chair.

5. Relationships between the school and the social environment

53. The relationship between the school and the social environment such as public organizations, parents, the business community, NGOs and the media focuses on

- the development of projects to support the education reform process,
- providing opportunities for activities out of school time to simulate the interests and creativity of students,
- provision of specialized assistance for children at risk or those with behavioral problems,
- the prevention of problems related to drug addiction or AIDs and so on.

54. The school develops its own programs and where appropriate co-ordinates them with the EI. Projects of national and regional scale are organized and coordinated with the support of MES and EI. There are also various opportunities for extra curricular activities in the free time of students. The EI of MES, National Palace of Children, and MES perform their management, coordination

[9] Statute for the organization and functioning of the school boards SG 111/95

and control. Youth Centers established as extra school institutions organize different courses and activities in the free time of students.

6. Educational materials

55. As described in paragraph 33 the contents of education are regulated by the Educational Standards that are further developed through the Educational Programs. Although in theory teachers will have the autonomy to develop actual teaching programs for themselves the practical delivery of these standards and programs in schools in most cases will be structured on the basis of textbooks and learning support materials.

56. Textbooks and other educational materials have to meet specific criteria to be approved before publication. Educational materials are divided into two categories that have slightly different regulations. Textbooks are designed to cover the whole educational program for a specific subject for a particular grade and should cover all the knowledge, skills and attitudes determined by the standards and programs. Additional materials are those that support just one element of a program related to a particular grade.

57. Standards have been set for textbooks and additional materials that relate to both content and graphic design. The content of the textbooks and additional materials should comply with the requirements of the Educational Standards and programs. New materials should match the educational goals of the respective subject, together with the educational contents including the main topics, problems, concepts, context and activities, interdisciplinary links, specific methods and forms for assessment of pupils' achievements. The requirements for the textbooks' content also relate to achieving compliance with up to date ideas in the subject, basic didactic principles, continuity and consistency of the educational content, and the age and cognitive abilities of the pupils. Of great importance for the content of the textbooks and additional materials are the inclusion of strategies for study, and the availability of exercises, experiments and tasks for the formation of basic practical skills. As a whole, the purpose of the textbooks and additional materials is to facilitate personal development of the pupil.

58. There are also strict requirements to the graphic design of the textbooks and additional materials relating to aspects such as using contemporary forms of graphic design and ensuring the materials are readable and look interesting for pupils.

59. There is a specific approval process by MES for text books and materials and it is possible to approve more than one text book for a specific subject in a given grade. Essentially therefore, there is a free market in textbooks with anyone who wishes being able to write and publish materials, however then size of the Bulgarian educational market may militate against this.

7. Institutional support for NCE

60. This section describes some of the most important initiatives that have taken place or are taking place and have some relation to NCE in Bulgaria. Many of the projects are based on the premise that there is very little institutional coordination of support for NCE at present in Bulgaria. Most of the projects have focused on environmental education.

61. Over the past three years there have been several initiatives that have focused on different aspects of the environmental education.

1. TIME has developed a successful project that led to the publication of two books for teaching environmental education at primary level (grades 1-4) and that offer guidance on integration of environmental education in the compulsory curriculum applicable in 1996, as well as a compendium of developed and tested lessons to provide such education in school. The materials have been sold for a small fee to a large number of schools throughout the country.
2. In 1997 the MES developed a project for Basic and Middle Schools that proposed a structure for the integration of environmental education and outlined seven thematic areas. A copy of this program was sent to all schools, but little follow-up activity undertaken.
3. A GEF Biodiversity Project has produced a series of nature conservation education materials for the basic school stage (grades 1-8). These materials were designed especially for the two national parks "Central Balkan" and "Rila".
4. The Greener Bourgas project funded by MATRA Programme of the Netherlands government provided support to local environmental education initiatives, which has resulted in a number of good quality materials for teachers and students.
5. Ameco company from the Netherlands has worked with EnEffect, Bulgaria and the district heating company of Pleven to develop educational material for schools on energy efficiency.
6. Two other successful projects on environmental education with schools have been delivered with UK DFID support, one in the Pirin region working with NGOs and another in the Silistra working with the Local Authority.
7. With support from the MATRA/KAP program, Centre '21 in Varna works on the establishment of a regional network promoting environmental education, in the region of Varna, Dobrich and Silistra which aims to develop local capacity for education on environment and sustainable development.
8. UNDP "Capacity 21" Program has produced a manual on Sustainable Development Education.

62. These projects have had different degrees of impact but have resulted in a growing body of educators in Bulgaria who have a good understanding of environmental education and sustainable development, and are skilled in using student centered learning. The projects have also contributed towards an increasing number of good environmental education materials available for teachers.

63. It should also be noted that DFID recently supported the development of a Terms of Reference for a project to integrate environmental education into the school system in Bulgaria. For a variety of reasons these terms of reference were not adopted as a project to be supported by DFID. One reason was a view that the Bulgarian MES did not fully support such a project and that hence institutional support for any outcomes would be limited. Secondly there was a change of priorities in terms of DFID support for Bulgaria. The new priorities do not include education. The project however has been taken up by Ameco who have made an application to the Dutch MATRA program. At the time of writing this Report a decision on funding is awaited.

64. Current and previous projects display a number of weaknesses

(a) Although materials have been produced, they are largely for teachers. This means that before the ideas can be implemented, teachers still have to develop their own classroom resources for children. They often lack the capacity to do this.

(b) Some of the materials are not always directly applicable to the school curriculum, as they often focus more on supporting informal environmental education and out of classroom activities.

(c) The materials have often been produced in relatively small numbers and therefore have had a limited circulation and impact. Although some projects have had a high impact locally (such as the DFID funded project in Silistra) more strategic and national impact has not been achieved.

(d) Although there have been some projects that have established support mechanisms (the teachers in the Pirin project for example have established their own Teachers group that continues to meet two years after the end of the project and a NGO has been established as a result of the TIME project in Blagoevgrad), many projects have relied too heavily on a small number of training events to produce change and have not built on going support into the project.

65. Overall therefore the best projects have had a high local impact and the worst little long lasting impact. None of the projects has had a national or strategic impact.

8. Pre-service and in-service teacher training

66. **Pre-service teacher training** takes place in higher education institutions – universities and specialized higher education schools (scientific-research institutions providing training in one of the main areas of the science, arts, physical culture or military affairs). Higher education institutions in Bulgaria are both state and private and operate in an environment of academic autonomy. The role of the state is in the development of national policy on the development of higher education; opening, transformation and closure of the institutions; subsidizing state higher education institutions; definition of the conditions for state recognition of a teaching qualification; adoption of a state registry of the specialties by educational-qualification stages; adoption of unified state requirements for obtaining educational degrees; the definition of the number of students per year, and for the state institutions, per specialty. The Ministry of Education and Science implements the national higher education policy through the specialized state institution for assessment and accreditation of the quality of activities of the higher education institutions - the National Assessment and Accreditation Agency.

67. Until the adoption of the Law on Higher Education (1997) the pre-service training of teachers was also taking place in the so-called "semi-higher institutes". By the power of this law these institutes have been transformed into pedagogical colleges either as autonomous bodies or as part of a university. They provide an educational-qualification degree called, "specialist on…" for a 3-year education course. College education does not provide teacher qualification but the graduates have the right to practice the profession "teacher".

68. A teaching qualification follows a traditional University pattern with a bachelors degree taking four years, and a Masters degree five years, both of which are graduated with a state exam and defense of a thesis. The examination system for becoming a teacher includes a practical and theoretical part that includes pedagogical practice in school, delivering a lesson in front of a state commission and theoretical examinations.

69. A Teacher's qualification can be obtained also after the graduation of a stage in the higher education and passage of additional exams on pedagogy, psychology and methodology of the education in the respective specialty.

70. Pedagogical practice includes an observation and analysis of teaching for the subject being studied in school and pedagogical practice including visits, observation and teaching in school, and

pedagogical practice before defense of the thesis. The students also have possibilities of following optional modules.

71. In 2000 there were 41 Universities and specialized higher education institutions in Bulgaria. Of them 37 were state institutions and 4 private. The number of colleges was 47 of which 41 state owned and 6 private. Ten of the Universities and five of the colleges offer teacher training qualifications (for more information see Attachment 9).

72. Pre-service teacher training occupies a sizable niche in higher education. Of all students enrolled in 1999/2000 those in teacher specialties represent 10,7% (of 48785 students, 5208 were in pedagogy) with the distribution of number of students in each pedagogical speciality reflecting the needs of the education system. Compulsory subject teachers are trained in the greatest numbers followed closely by primary teachers who usually combine most of the primary level subjects. Currently, the Teacher Training Institutes have the capacity to train the number of teachers required by the education system, especially in the light of declining student numbers.

73. **In-service teacher training** is a basic component of the project "Modernization of Education", in which important changes in the current system of in-service teacher training are proposed. At present MES is preparing the Framework requirements for the new system of in-service teacher training. Under the reform process it is likely that the Institutes described below will continue to provide a large proportion of in-service training, but that other organizations will also be able to provide courses for teachers.

74. The provision of in service teacher training is very varied and a wide variety of those involved in education are able to attend courses including MES officials as well as teachers (for more information see Attachment 10). A large number of different lengths and complexity of courses are offered. Teachers have the opportunity to obtain professional-qualification degree the procedure for which consists of 5 levels first being the highest. At present the enhancing of teacher qualification is seen as a stage in the continuous training of teachers and the subjects courses offered are guided by the MES priorities.

75. Currently, in-service training of teachers is conducted by a number of faculties of the higher education institutions for pre-service teacher training, but the main providers are the three institutes for enhancing teacher qualification in Sofia, Varna and Stara Zagora. Since 2000 they have been transformed into Departments for Enhancing Teacher Qualification (DETQ). The major priorities for training in the period 1999 – 2001 are obviously focused on supporting the reform process of the middle education and the new legislative documents of the MES including the Educational Standards, educational programs, diagnostics and assessment of the results of the educational process. A detailed description of the work of two of the DETQ is in Attachments 11 and 12.

76. In terms of the numbers of teachers attending courses at the DETQs they have remained almost constant over the last five years. However, shorter courses are becoming relatively more important and the number of teachers on long term courses sharply decreasing. In addition, the courses offered at the Municipal level have become more popular reflecting the preference of teachers to be trained on the job and nearer home.

77. In addition to in service teacher training the DETQs also undertake educational research focused of teaching methodology and the staff is involved in the publication of school textbooks and educational journals.

78. Information on the current state of the in-service teacher training shows that it is highly concentrated in 2 institutions. These obviously cannot provide the necessary volume of training for a large number of teachers. The two Institutions can offer training courses to a maximum of 13 % of teachers per year. It is because of this situation that the reform of in service training is a major element in the education reform process.

Part II. Nature Conservation Education in the formal education content

1. Introduction

79. The introduction of NCE into the students learning is only possible if the structure and contents of the curriculum allows NCE to be integrated into different subjects. The previous section looked at the overall structure of the Bulgarian Education system. The purpose of this section is to analyze the different elements of the new Bulgarian curriculum to assess the opportunities for the integration of NCE.

80. These opportunities appear in three ways. Firstly, there will be those standards and programs in the new curriculum that are directly related to the content of NCE, such as nature and ecology, biology or geography. Secondly, there will be those standards and programs in which NCE could be used as a context for the study of a subject. For example, nature focused poems could be used as a context for learning in the Bulgarian language, or environmental statistics could be used in mathematical calculations. Thirdly there will be opportunities in the way that schools are managed and the overall structure of the education system that give rise to NCE opportunities.

81. This section of the Report therefore analyses these opportunities for the different elements of the reformed curriculum, namely, the position of NCE in

- the educational plan, - this outlines the overall time allocation for each CEA
- the educational standards - these outline the overall standards to be achieved
- the educational programs - these outline the detailed teaching content
- interdisciplinary links and
- the assessment system.

82. From a teachers point of view it is the educational programs that are the most important, as these are the basis for the development of text books and lesson plans.

83. In the Table below this Report presents a number of measurable indicators for each of these elements. These indicators have been used to audit the current situation of NCE and can be used to assess the improvement of the position of NCE over a period of time.

Table: Indicators of the opportunities for NCE

Characteristic	Indicators	Purpose
1	**2**	**3**
1. NCE position in the educational plan.	• Number of educational hours on NCE in CE; • Number of educational hours on NCE in CSE • Number of educational hours on NCE in FSE • Number of educational hours on NCE in extracurricular forms of education	This set of indicators reveals the trend in dedication of educational time on NCE in the CE, CSE, FSE of the new educational plan.
2. NCE position in the educational standards.	• Number of problem-thematic nuclei • Number of standards on NCE	These indicators can demonstrate the trend in building NCE requirements in the most basic educational contents requirements
3. NCE position in the educational programs	• Number of educational problems/themes on NCE in the new educational programs • Number of new concepts and terms on NCE in the new educational programs	These indicators can help monitoring to what extent NCE gets developed from the level of educational standards towards the level of educational programs that serve as the basis for textbook development.
4. NCE opportunities through interdisciplinary links	• Number of educational problems/themes with interdisciplinary character on NCE • Number of concepts and terms with interdisciplinary character on NCE • Number of context/activities with interdisciplinary character on NCE	This set of indicators may reveal the progress in identification and application of interdisciplinary links for NCE. Thus it will be justified as interdisciplinary problem.
5. NCE position in the assessment system	• Number of scores (results) on NCE from external assessment • Number of scores (results) on NCE from internal assessment	These indicators may help monitor the real achievements of students on NCE through the official assessment procedures.

2. NCE position in the educational plan

84. At the most basic level, the opportunities for the implementation of NCE in the Compulsory Education of students has to follow the distribution of the educational time by educational subjects grouped in Cultural Education Areas (CEA). Distribution of the educational time for the CE is shown below.

Table: Distribution of the educational time in educational hours throughout the CEA and levels and stages of the education system.

№	Cultural-educational area	Educational stages Number of Hours				Total
A.	**Compulsory education (CE)**	**Basic**			**Middle**	
		Primary level	Secondary level	Total	High school level	
1.	Bulgarian language and literature	889	680	1 569	386	1 955
2.	Foreign languages	256	578	834	286	1 122
3.	Mathematics, Informatics and IT	476	544	1 020	360	1 380
4.	Public sciences and civil education	111	408	519	530	1 049
5.	Natural sciences and ecology	112	510	622	324	946
6.	Arts	444	476	920	72	992
7.	Home technology	127	170	297	-	297
8.	Sports	286	305	592	278	870
	Total:	**2 701**	**3 672**	**6 373**	**2 238**	**8 611**

85. Most opportunities for NCE are in the "Natural sciences and ecology" CEA and this CEA is delivered throughout the whole period of compulsory education (1-12 grades). Overall it takes up 11% of the educational time of all CEA of the compulsory education. At the primary level "Natural sciences and ecology" takes up 4,1% of the educational time, at secondary level it is 13,9% and for the high school level it is 14,5%.

86. There are also NCE opportunities in the other CEA although these are greater in grades 1-4 than at the secondary and high school levels. At primary level these opportunities counterbalance the relatively small share of "Natural Sciences and Ecology" in the CEA in grades 1-4.

87. However, as the analysis below shows, not the entire CEA "Natural Sciences and Ecology" can be dedicated to NCE and so the estimated share of NCE possibilities in the compulsory education is around 13% for each of the educational levels. This means a maximum of 2 hours per week. For the overall educational time of students (CE, CSE, FSE) this would represent 10% for primary level, 10% for the secondary level and 6% of the high school level.

88. However, time for NCE can be increased if opportunities in the FSE and CSE are counted. Time allocations for these curriculum areas are shown in the Table below.

Table: Distribution of the educational time for CSE and FSE in the educational plan

Part B. (CSE)	**Basic stage**											**Middle stage**					**Total**
Levels	***Primary level***				**Total**	***Secondary level***				**Total**	**Total**	***High school level***				**Total**	
Grades	I	II	III	IV		V	VI	VII	VIII			IV	V	VI	VII		
Weekly hours	3	2	2	2	**9**	3	3	3	3	**12**	**19**	5	12	22	26	**65**	84
Year norm	93	64	64	64	**285**	102	102	102	102	**408**	**693**	180	432	792	806	**2210**	2903
Part C. (FSE)	**Basic stage**											**Middle stage**					**Total**
Levels	***Primary level***				**Total**	***Secondary level***				**Total**	**Total**	***High school level***				**Total**	
Grades	I	II	III	IV		V	VI	VII	VIII			IV	V	VI	VII		
Weekly hours	4	4	4	4	**16**	4	4	4	4	**16**	**32**	4	4	4	4	**16**	**48**
Year norm	124	128	128	128	**508**	136	136	136	136	**544**	**1052**	144	144	144	124	**556**	**1608**

89. Although the number of hours might indicate that the opportunities for NCE in the CSE are relatively high this is probably actually not the case. At the primary level this time will tend to be used for the additional study of "important" subjects such as Bulgarian language and Mathematics and in some regions of the country with a complex ethnic structure, such as Turkish and Roma groups, the CSE will be used for education in the mother tongue. At the secondary level the maximum theoretical possibility for NCE in the CSE increases to 1-2 hours per week or about 1-2% of the overall time. The largest possibility for NCE is at the high school level. NCE education can take place as non-profiled or profiled education and the maximum possibility for NCE is around 20%, or about 6% of the overall educational time.

90. The Freely Selected education component may be used for education beyond the CEA including religion – and 4 educational hours per week are allocated for FSE at all grades. This form of education is implemented outside the compulsory educational time and the possibilities for organizing FSE are limited by the number of classes in the school, the number of staff and the municipal budgets. Opportunities for NCE in FSE therefore exist in all levels. However, to what extent they will be utilized depends on the school policy and municipal approval of the FSE funding. It is therefore difficult to estimate possible NCE time in the FSE, however making an assumption of 1 hour per week would mean an additional 3,6 % of the overall educational time for primary level, 3% for the secondary level and 2,8% of the high school level.

91. There are also opportunities to organize NCE in extracurricular activities that take place outside the classroom and outside the school time. Most extra curricular activities are delivered by a network of extra school units coordinated by the Educational Inspectorates of the MES.

92. The distribution of the educational time for extracurricular activities is according to the directions and profiles of MES educational plan and opportunities for organizing NCE appear in the profiles listed in the Table below and especially in the “Ecology and environmental protection”, “Tourism and knowledge of the surrounding environment”; and “Visual and Applied Arts” profiles.

Table: Distribution of the educational time under directions and profiles for NCE in the extracurricular forms of education.

Code	**Direction/profile**	**Permanent groups**					
		I–IV grades	Total	V-VIII grades	Total	IX-XII grades	
01	“Scientific and applied-technical activities”	Number of educational weeks					
		32		34		36	
01102	“Ecology and environmental protection”	Weekly hours					
		-	-	4	136	4	144
02	Direction “Sports-tourist”	I level		II level		III level	
		31		32		34	
0203	Profile “Tourism and knowledge of the surrounding environment”	3	33	4	128	6	204
03	Direction “Arts”	I level		II level		III level	
		Number of educational weeks					
		30		32		34	
0305	Profile “Applied Arts”	Weekly hours					
		4	120	4	128	4	136

93. **Conclusion**

In theory opportunities for NCE appear in around 15% of teaching time at schools. At a primary level most opportunities are in the Compulsory element of the curriculum whereas at high school most opportunities are in the CSE. However, it should be stressed that the opportunities in a decentralized structure of education heavily depends on a schools educational policy and priorities, as well as on the motivation of the responsible institutions at municipal and regional level in approving the school educational plan. The implementation of NCE in the decentralized components of the educational plan is also dependent on the interests and needs of the students, on the level of professional capabilities and qualifications of the teachers, on the informational and material-technical provision for NCE in school.

3. The position of NCE in the educational standards

94. The section above examined the opportunities for NCE in the educational system on the basis of educational time allocated generally in the educational plan. A more precise analysis of the opportunities in CE and CSE would look into the provision of the educational standards. Such an analysis would provide the exact elements of the educational standards that may be developed though NCE.

95. The Educational Standards set the goals of the education at the end of each level or stage (grades 4, 8, 12). They define the knowledge, skills and attitudes to be achieved by the students under each educational subject. Depending on the specifics of the educational subjects Educational Standards include the following groups of key skills:

- Language literacy
- Mathematical literacy
- Dealing with information
- Communication skills
- Critical thinking and problem solving
- Learning strategies.

Identification of the opportunities for NCE in the Educational Standards includes consideration of the above-mentioned key skills. Among them critical thinking and problem solving are the most important.

96. Educational Standards have two components. The first component stipulates the nuclei of the educational contents. These may be described as the overall themes/issues covered by the subject. For example the educational subject "Mathematics" in the primary level contains the following nuclei: numbers, surface figures, measuring, modeling. The second component called "standards" presents the detailed knowledge, skills and attitudes to be covered under each subject under each nucleus. For example in the primary level subject "Mathematics" within the nuclei "numbers" the child should be able to read and write natural numbers up to a million and know the decimal system; sum and deduct natural numbers, etc. The format of the Educational Standards is presented in Attachment 13.

97. The opportunities for NCE are presented in the Table below. The detailed description of the problem-thematic nuclei and standards with NCE opportunities in the educational subjects of CEA are presented in Attachment 4. The table reveals the following opportunities for NCE in the problem-thematic nuclei and standards of all CEA:

- primary level – 97% in the nuclei and 55% in the standards

- secondary level – 73% in the nuclei and 42% in the standards
- high school level – 79% in the nuclei and 39% in the standards of which 43% for level I and 34% for level II of the Educational Standards.

98. Clearly most opportunities for NCE in CE exist in the primary level. To this contributes also the fact that primary teachers have more opportunities to make interdisciplinary links and relationships and because at this level one teacher usually combines a number of subjects and hence can easily utilize the interdisciplinary links opportunity. There are fewer opportunities at the secondary level because the expansion of the educational contents towards new educational problems are not always related to NCE. There is also an emphasis on the deepening of the knowledge and skills of students in specific subject areas. Interdisciplinary links are also more difficult to realize, as different teachers are involved in teaching separate subjects. Such a process requires synchronization of the educational practice during planning, selection of educational forms and methods under the different subjects. This situation may be defined as a risk factor for NCE in the secondary level. Whether a student of high school has the opportunity for NCE will depend very much on their own choice of subjects at this level and the selection of a school. Students experience at this level will therefore be very varied.

99. The table also shows that the most opportunities for NCE within the Educational Standards exist in the CEA Natural Sciences and Ecology, Foreign Languages, Lifestyle and technology, and Public Sciences and Civil Education.

Table: NCE opportunities in the educational standards

№	CEA/Educational subjects	Basic stage								Middle stage						NCE %	
		Primary level				Secondary level				High school level							
		Total number		With NCE chance		Total number		With NCE chance		Total number			With NCE chance				
		nuclei	stand	nuclei	stand	nuclei	stand	nuclei	stand	nuclei	I lev.	II lev.	nuclei	I lev.	II lev.	nuclei	**stand**
1.	**Bulgarian Language and literature**	8	34	8	20	8	18	5	1	8	33	18	5	7	2	**87**	**29**
	Bulgarian Language and literature	8	34	8	20	8	18	5	1	8	33	18	5	7	2		
2.	**Foreign languages**	8	23	7	11	8	25	7	12	8	25	29	8	15	15	**92**	**52**
	I	4	11	3	4	4	11	4	6	4	13	13/16	4	8	8/7		
	II	4	12	4	7	4	14	3	6	4	12	-	4	7	-		
3.	**Mathematics, Informatics, Information technologies**	4	19	4	7	6	27	4	11	16	66	70	13	27	16	**80**	**34**
	Mathematics	4	19	4	7	6	27	4	11	6	20	23	4	6	5		
	Informatics	-	-	-	-	-	-	-	-	5	25	23	5	11	1		
	Information technologies	-	-	-	-	-	-	-	-	5	21	24	4	10	10		
4.	**Public sciences and civil education**	22	93	22	50	15	74	12	31	21	111	62	19	62	30	**91**	**51**
	The home (native) region	6	28	6	13												
	The environment	6	28	6	13												
	The man and the society	5	21	5	13												
	History and civilization	-	-	-	-	4	20	2	4	4	21	11	2	8	2		
	Geography and economics	-	-	-	-	5	29	4	12	6	30	27	6	25	17		
	Subject group	-	-	-	-												
	"Philosophy"					-	-	-	-	5	29	24	5	14	11		
	Civil education	5	16	5	11	6	25	6	15	6	31	-	6	15			
5.	**Natural sciences and ecology**	10	73	10	43	15	66	13	37	16	84	68	15	29	25	**92**	**46**
	The home (native) region	3	28	3	13												
	The environment	3	28	3	13												
	The man and the nature	4	18	4	17												
	Biology and health education	-	-	-	-	4	18	4	15	5	19	22	5	10	16		
	Physics and astronomy	-	-	-	-	6	28	6	14	6	23	26	5	7	3		
	Chemistry and environmental protection	-	-	-	-	5	20	3	8	5	23	20	5	12	6		
6.	**Arts**	9	36	8	17	9	36	6	13	9	22	23	6	10	7	**74**	**54**
	Music	4	19	4	7	5	21	2	3	6	14	15	3	3	2		
	Visual arts	5	17	4	10	4	15	4	10	3	8	8	3	7	5		
7.	**Lifestyle and technology**	6	24	6	16	6	30	5	14							**91**	**55**
	Domestic lifestyle and technology	6	24	6	6												
	Technologies	-	-	-	-	6	30	5	14								
8.	**Physical education and sports**	6	9	6	8	8	14	3	4	8	15	3	2	2		**50**	**34**
	Physical education and sports	6	9	6	8	8	14	3	4	8	3/12	3	2	2			
		73	**311**	**71**	**172**	**75**	**290**	**55**	**123**	**86**	**352**	**273**	**68**	**152**	**95**	**82**	**44**

4. NCE position in the educational programs

100. The Educational programs (EP) determine the detailed structure, volume and contents of each subject at each grade. The educational programs for the compulsory minimum (CE) and for the profiled education (I^{st} and II^{nd} level of Educational Standards for grades 9-12) are based on MES framework requirements for development of educational Program. They determine the uniform structure, philosophy and format; compliance with Educational Standards; facilitate the selection, structuring and allocation of educational content in grades and levels of Educational standards and establish opportunities for interdisciplinary links in and between Cultural Educational Areas (CEA).

101. EP for CE and for profiled education in grades 9-12 are developed according to Educational Standards and are approved by the Minister of Education and Science. EP for CSE are developed according to Educational Standards and are approved by the Head of EI of MES. EP for FSE are developed for areas and activities that can be outside of CEA, offered by the school and chosen by the students. The Head of the school approves EP for FSE. The procedure for approval of EP for CE, CSE and FSE is determined in the Law on the Stage of Education, Common Educational Minimum and the Educational Plan.

102. The Structure of each educational program is

I. EP general introduction;

II. Aims of the education in the subject for the respective grade/level;

III. Expected results of the education in the subject for the respective grade/level;

IV. Educational contents (expected results by themes, concepts, context and activities, interdisciplinary relations);

V. Specific methods and forms for assessing students' achievements in the subject in the respective grade/level;

VI. Methodological instructions about implementation of the educational program intended for teachers. The format of the educational programs is presented in Attachment 14.

103. The common philosophy and structure of EP for CE as well as for profiled education are a prerequisite for organizing NCE as an interdisciplinary problem of the educational contents in the CEA subjects in grades in the respective stage and educational level.

104. At present new educational programs for compulsory education (CE) are in place for grades 1, 5, 9, 10, 11 and 12. Educational programs for profiled education are developed for grades 9, 10, 11 and 12. Of these grades 9 and 10 are implemented in the 2000/2001 The development of EP for grades 2, 3, 4, 6, 7 and 8 is currently taking place.

105. Clearly the role of the educational programs in the school educational system is substantial. They practically define the entire educational contents in the CE and profiled education. Once approved the programs are interpreted through the textbooks and all teachers follow one and a same educational contents. The only variability available for changes exists at the level of methodology. That is why it is important to study to what extent NCE is already present in the already approved programs. On the other hand it is worth directing efforts towards the programs to be developed in the future. It should be made clear however that this process is based on tender procedures of the World Bank and intervention strategies are not easy to devise and implement. Attachment 6 presents the identified NCE elements in the programs of grades 1 and 5 as well as descriptions of the opportunities provided to NCE by the programs for grades 9, 01, 11. The overall conclusion is that NCE is presented in the educational programs and generally reflects the opportunities already

revealed in the educational standards. It is also important to note that opportunities for NCE exist in all CEA with opportunities in areas such as Man and Nature, Geography and Economics, Biology and Health Education, Chemistry and Environmental Protection are higher then for the other programs.

5. NCE opportunities through interdisciplinary links

106. The Educational Standards include special provisions for the realization of interdisciplinary links among the subjects and CEA. For example some of the listed under the CEA "Natural Sciences and Ecology" elements with interdisciplinary and integral character are molecules, atoms, substance, energy, simple mathematical models and their application, chemical and physical processes, factors of the environment and life conditions.

107. This means that if a given theme is not of a great importance for NCE it may be integrated and be useful for the education on NCE under other themes and subjects. For example the Educational Standard for "Bulgarian language" provides an NCE opportunity under the nucleus "Socio-cultural competences" and the standard "The student asks questions and provides answers on themes selected by others or him/herself". The importance of this standard grows when integrated with the nucleus "Energy" and the standard "The student differentiates the mechanical from internal energy" (under Physics for secondary level). It is because of this kind of consideration the number of the nuclei and standards with NCE opportunities are relatively high in the table above. This however does not result into the increase of the educational time.

108. Exactly how the utilization of the interdisciplinary links opportunity will happen is not clear as it is not really taken into consideration when the standards, programs and textbooks are being developed. The experience of other countries is that when a new curriculum is being introduced most effort is placed on what is perceived as the mainstream curriculum, and therefore although in theory NCE could be an excellent vehicle for the delivery of integration, this rarely happens. Over a period of time when any reforms have become more embedded, teachers and schools turn their attention to other areas of curriculum organization and therefore integrative themes might become more important after a few years of experience.

6. NCE position in the assessment system

109. This characteristic can not be fully analyzed due to the fact that the Assessment System (AS) is not in place yet and currently only the Framework requirements of MES have been adopted. They aim to guarantee a uniform approach for the general assessment system and the assessment system for the different subjects.

110. The framework proposes that assessment will be both internal, undertaken by the school, and external. The assessment system will obviously reflect the content of the educational standards and programs and therefore the emphasis given to NCE in the assessment process will be reflected by the emphasis given in the standards and programs.

111. It should also be questioned whether some aspects of NCE actually need to be assessed, and the point of that assessment. The processes for the assessment of knowledge and skills are well developed but it is difficult, and possibly not appropriate to assess students' values in any formal way.

Part III. Analysis of available resources for NCE and the needs for additional resource provision

1. Introduction and summary

112. The analysis below is based on the opinion of 48 interviewed individuals from the stakeholder groups described in the Introduction. As already pointed out, although it is not a large sample, the people interviewed were selected on the basis of their ability to represent the views of the different stakeholder groups and their expertise and knowledge about the general situation in NCE. The purpose of the questionnaire was to review the status of NCE as perceived by the different stakeholder groups and also to gain views about priorities for the development of NCE. Each interview was conducted according to a specifically developed questionnaire presented in Attachment 2.

113. In summary those interviewed consider that

- there is agreement over the main target groups for NCE
- there is agreement that some of the key pre requisites for effective NCE are not yet in place
- NCE is currently found mainly in Biology but
- NCE should be more widely integrated in other subjects
- NCE is currently traditionally taught - and should be taught in a more interesting way.
- There should be more NCE in pre service and in service teacher training and that there should be more emphasis on interactive teaching skills.
- That there is an interest amongst teachers, especially biology teachers, and students in NCE
- But that capacity needs to be improved at all levels from teachers up to higher education
- That networking and coordination between the NCE stakeholders is weak, and that links with the MES and MA especially need strengthening.
- There is a severe need for more effective educational materials for NCE
- That access to up to date information about NC is especially poor.

2. Nature Conservation Education in Bulgaria

2.1 Target Groups for Nature Conservation Education

114. The Table below shows that according to the interviewees, the most important target group for NCE is the group of pupils at the age of 7-10 years old at the primary level of education in Bulgaria. The group of young people – students at secondary and high school, follow this group and the next important group comprises children at the age of up to 6 years old – children who attend kindergarten.

115. The table also shows that those interviewed consider that school students have the best access to NCE at the moment and that the priority target groups identified are generally matched by the current provision although they did consider that more emphasis and provision is needed for primary aged and kindergarten children than is currently provided.

Ranking of the i**mportance** of the target groups for NCE	Ranking of the **current access** to NCE of the target groups
Pupils (from 7 to 10 years old)	Young people (from 11 up to 19 years old)
Young people (from 11 up to 19 years old)	Pupils (from 7 to 10 years old)
Children (up to 6 years old)	Students
The General public	Children (up to 6 years old)
Students	The General public
Politicians	Politicians
Professional groups (such as business people)	Professional groups (such as business people)
Retired	Retired

2.2. Pre requisites for Nature Conservation Education

116. According to the interviewees the most important pre requisites in the educational system for development of high quality and effective NCE in Bulgaria are:

- Integration of NCE in the Educational Standards
- Development of joint strategy for NCE between the two ministries – Ministry of Education and Science and Ministry of Environment and Waters
- Integration of NCE in the educational programs

117. The other pre requisites, although having quite less priority than the above-mentioned, are ranked as follows:

- Integration of NCE in the textbooks
- Development of NCE in service training forms
- Development of NCE strategy only for MES
- Introduction of NCE as a separate subject in schools
- Establishment of a separate NCE department in the universities

118. It is worth mentioning that some people, including some teachers and education inspectors think that the introduction of a separate subject on NCE is an important pre requisite. However many more interviewees, including the MES experts felt that NCE should be integrated into other subjects - and mainly in Nature studies, homeland, environment, man and Nature, man and society (for the primary level), biology, chemistry, geography and physics. Some stated that NCE has some place in all cultural educational areas of the educational plan.

119. Regarding other pre requisites outside of the educational system that are important for the delivery of high quality NCE in Bulgaria financial support is the most important followed by

- An effective MES
- Establishment of a National NCE Coordination Center, and Regional Centers
- An effective MEW
- A good partnership between institutions and organizations working in NCE.

120. Except in one area, there is almost a total lack of correlation between the pre requisites that the interviewees considered important for NCE and those that are currently in place. The most important difference is that the interviewees considered that an NCE strategy is an important pre requisite for NCE, but that this does not exist at present. The one area in which interviewees felt that the pre requisites were match is the integration of NCE into the educational programs. They considered that financial support for NCE is poor, that current textbooks integrate NCE at an

average level that the qualification forms integrate NCE and that cooperation between different stakeholders also is on an average level.

121. It is therefore obvious that from the point of view of those interviewed that nearly all pre requisites for NCE need strengthening in some way, and in some cases establishing. The priorities identified are shown in the Table below. The biggest efforts should be invested in the establishment of a National NCE Coordination Center and Regional Centers. Financial support for NCE also needs strengthening together with the development of a joint strategy of the two ministries or at least for the MES. More NCE integration is needed into textbooks and other resources.

Priority	**Action**
1.	A National NCE Coordination Center, and Regional Centers
2.	Financial support for NCE
3.	NCE strategy from MES and MEW
4.	Effective MES
5.	NCE strategy from MES
6.	NCE issues covered regularly in the media
7.	Regular publication of NCE Journal
8.	A NCE department in the universities
9.	NCE is integrated into the State Educational Standards
10.	NCE is integrated in the textbooks
11.	Bulgarian accession to EU
12.	NCE is integrated in the educational programs
13.	NCE as a separate subject in the educational program
14.	NCE qualification forms
15.	An effective MEW
16.	Effective NGOs
17.	National parks and protected areas
18.	Bulgaria as a signatory of International Conventions

3. Nature Conservation Education in Bulgarian Schools

3.1. NCE position in the educational contents

122. Section II of this Report analyzed the position of NCE in the new school curriculum. This section examines the perception of the importance of NCE by the different groups interviewed. It should be noted that most of these groups are not aware of the requirements of the new standards and programs and so their perceptions are based on the current curriculum. This in itself is an interesting situation, and suggests that a great deal of effort will have to be put into basic information and training about the new Educational Standards.

123. In terms of **pupils experience** NCE is found only in direct subjects such as Nature Studies at primary level and biology and geography at secondary level. Most pupils do not perceive any NCE in other subjects. **Teachers** also stress that NCE is found most strongly in subjects such as Biology and geography, though they also consider that NCE is integrated much more widely and is included in other subjects such as chemistry and physics, arts and ethics. However it is not always

clear from the responses whether the teachers' understanding is based on what is possible in theory or what actually happens in teaching.

124. The other stakeholder groups share the same opinion as the teachers and pupils in terms of the priority of subjects integrating NCE though there are some differences of emphasis. For example, the **university professors and professors at the DETQs** consider that the subjects domestic lifestyle, home technology and technologies also need a substantial NCE integration – something that has not been recognized by the teachers. NGOs on the other hand also stress the importance of visual arts, philosophy and ethics for NCE.

125. The table below shows the total group ranking in terms of the perception of the place of NCE.

in today's educational plan NCE takes place in	in the new educational plan NCE should take place in
Biology	Man and Nature
Nature studies	Biology and health education
Geography	Chemistry and environmental protection
Chemistry	Environment
Homeland knowledge	Homeland
Physics and astronomy	Man and society
Visual arts	Geography and economics
Hand labor	Physics and astronomy
Labor and technology	Domestic lifestyle and technology
Physical education and sports	World and personality
History	Home technology and economics
Bulgarian Language and literature	Technologies
Foreign languages	Visual arts
Music	Physical education and sports
Mathematics	History and civilization
	Ethics and law
	Philosophy
	Psychology and logics
	Information technologies
	Bulgarian Language and literature
	Foreign languages
	Music
	Mathematics
	Informatics

126. In terms of where NCE should be in the curriculum, all groups strongly support NCE integration in almost all subjects. Even in the subjects where NCE is already integrated, the view is that its presence should be increased. It should be integrated most strongly in Man and Nature[10], biology, chemistry, environment, and geography and least attention should be paid to NCE in foreign languages, music, informatics and mathematics.

3.2. **NCE in the educational plan.**

[10] The complete names of educational subjects are contained in Attachement 1.

127. According to the **pupils**, between 1 and 4 lessons a week integrate NCE but there are few NCE related extra curricular activities. The NCE activities mentioned by pupils included visits to Natural areas and camps. No pupil felt that they had no experience in nature conservation education at all. And nearly all of them felt that there should at least a little more NCE in their learning.

128. In terms of teaching methods there is a lot of variation from "mainly the teacher talking, mainly using textbook exercises" to "discussions and activities and lots of other materials, including videos and slides". This might to some degree explain the fact that most of the pupils do not like the way in which NCE has been taught. They stress the need for more practical knowledge and less theory.

129. **Teachers** think that from grades 1 to 8 NCE outdoor activities are organized on an average of once per month whilst at secondary level the frequency decreases to once per term. Obviously, this is not enough to satisfy the pupils' interests to the practical NCE activities.

130. The interviewees consider that at the moment NCE is found most strongly in extra curriculum activities followed by Freely Selected Education (FSE) with least NCE integrated in Compulsory Selected Education (CSE). This reality does not overlap at all with the desire to see more NCE integrated in compulsory education with FSE being the least important area.

131. There is an obvious necessity for significant changes regarding the NCE integration in the curriculum. NCE integration in the compulsory education means equal access for all pupils whereas NCE integration in FSE or even CSE means only some pupils will receive NCE. The importance of the extra curriculum activities is mainly connected with the necessity of outdoor practical activities, which are an essential component of NCE.

132. In summary, students are interested in NCE and are willing to have more of it in school. This however should take more interactive forms. NCE should also find a better place for itself in the compulsory education in order to have access to all schoolchildren.

3.3. NCE contribution to educational standards achievement.

133. According to the opinions of MES and EI experts, current NCE focuses on knowledge about the environment, and places less stress on skills and awareness of nature and of environmental issues.

3.4. Strengths and weaknesses of NCE in school.

134. In addition to the points given in response to the questions above, interviewees were also asked about the strengths and weaknesses of the NCE in their school. This question gave the following results.

Strengths:

- NCE is present in educational content although only in some of the subjects
- There is good organization of specific Nature Conservation activities such as exhibitions, happenings, theater performances, etc.
- Teachers' and pupils' enthusiasm to do NCE

- Good teachers' teams
- A possibility for "green schools"

Weaknesses:

- Lack of clarity on how NCE contributes to the achievement of the educational standards
- NCE position in the educational contents is not satisfactory and needs deepening and extension to subjects that do not contain NCE at present
- Educational time for NCE is not sufficient
- Sporadic NCE lessons, which are not enough and partially cover the scope of children
- Integration of NCE is in the less important educational forms rather then in the compulsory education
- A lack of practical activities
- A lack of funding for the NCE activities
- A lack of NCE visual aids

4. Nature Conservation Education in Pre-Service Teacher Training

135. According to university students NCE is integrated in less than one lecture a week. The students in primary pedagogy consider that they have a greater input of NCE of between 1 and 4 lectures a week in disciplines such as ecology, botany, zoology, geography and chemistry. The students in the Faculty of Biology recognize NCE in disciplines such as ecological education, ecology and environmental protection, soil science, hydrobiology, and analytical chemistry.

136. Students listed only a few extra curricula activities, both in Primary Pedagogy and subject based studies such as Geography or Biology. Extra curricula activities tend to take the form of excursions to natural areas or work in the University grounds. Some students have participated in activities such as Earth Day or other national and international events.

137. Teaching methods are almost universally lecture and note taking based and this naturally leads to a lack of satisfaction with the way the NCE has been taught in the universities. Like school pupils there is a desire for more practice and less theory, together with higher quality and up to date information on the environment.

138. According to the university teachers NCE comprises less than 25% of the university courses content, dependent on the subject. Practical activities are organized on average once per semester, and for the higher courses –it goes down to once a year. In some Faculties such as Biology in the first and second years outdoor lessons are organized about once a month although this contrasts with the view of the students who claim to have fewer practical study opportunities.

139. The professors consider that NCE should be integrated more actively into appropriate courses. This could be organized through offering selective modules to the students, integration in the existing curricula, introduction of additional disciplines into the bachelor's programs, new master's programs and modules and strengthening of the practical training of the students.

140. A summary of the strengths in the universities shows:

- Good potential for teaching NCE – good scientific background
- Enthusiasm on the part of the students to choose NCE modules

- Strong departments of Ecology and Nature Conservation at Sofia University

141. The weaknesses mentioned by university teachers are:
- A lack of necessary equipment for NCE
- Little practical work
- The small number of educational hours for the NCE related disciplines

142. University students and professors also made specific suggestions about the improvements they would like to see to enhance NCE in their courses
- Enrichment of the library
- Increased access to Internet
- Provision of contemporary software
- Improvement of the compulsory curricula
- More Field studies
- More practical Nature Conservation activities
- Improvement of the coordination between the institutions involved in NCE
- Participation of external lecturers
- Analysis of NCE in the country and building of an uniform system
- Equipment for practical work

5. Nature Conservation Education in In-Service Teacher Training

143. Most in service training is provided by the DETQ and the EI of the MES. NGOs and Universities also provide some courses. At present the DETQ have an almost monopoly of in service training, largely because they have the right to award certificates for their courses. This situation will change in the education reform process.

144. Opportunities to attend in service training are relatively few in the country as a whole, and even fewer when it comes to NCE. Only a few of all interviewed teachers have participated in training courses such as "Innovations in Biology" and specialized courses for primary teachers. And although they were satisfied with the courses and the quality of the training it should be remembered that these are active NCE teachers and hence were motivated to gain access to such training.

145. One recommendation made by most interviewees is that more courses are offered. They also recommend that these courses are more practically oriented and need to provide additional information and methodological materials, to include more effective work in groups, to give a chance for participation in authors' teams composing NCE teaching materials and to use flexible forms of training adjusted to the local conditions. The EI of MES experts, NGOs and local authorities also underline the necessity of training in new forms of teaching (interactive – individual research, observations, analysis, activities, experiments, situation games, and computer simulations) and the use of distance learning. It is important to develop skills for use of communication technologies such as Internet, so that teachers are able to find updated information on NCE. In terms of particular NCE contents NGOs recommend that scientific knowledge and information about NCE be improved in the teacher qualification courses. It is necessary that teachers are familiar with the Bulgarian and even international legislation in the sphere of Nature Conservation. They have to have access to current information regarding mechanisms for Nature Conservation. NGOs also support the necessity of training in interactive methods of teaching. As a whole the

teacher qualification should be grounded on a clear vision of NCE on the part of MES and MEW. The problem is that this clear vision has yet to be developed!

146. The need for change is also recognized by the professors at DETQs themselves and they share the view that the methods of training and content has to be reformed. The DETQ consider that their courses should be more practically based and especially should include more work outside the lecture room and encourage more creativity amongst teachers. They also consider that courses should be differentiated for different groups such as primary and secondary teachers. Finally, they consider that their courses should be more effectively publicized.

147. In terms of locations, teachers would prefer courses to take place in the municipalities rather than DETQs because they do not always have the chance to cover the expenses of participation.

148. Finally the DEQT professors recommend that NCE within their courses could be enhanced through

- The Establishment of Scientific and Informational NCE Center
- Qualification programs consisting of different modules
- Good informational service
- Educational partnership and cooperation between the institutions
- Development of new high quality and interesting programs
- Material provision
- Implementation of interactive methods of teaching
- Formation of teams of educators with different specialties

149. In summary therefore, the strengths of teacher qualification in NCE are:

- Interest in NCE on the part of the teachers
- Competent professors
- Existing educational cooperation with NGOs

150. The weaknesses are:

- A lack of funding
- Not enough information materials
- A lack of modern equipment
- NCE is not integrated in sufficient number of courses

6. Inter-institutional Cooperation for Nature Conservation Education

151. Nearly all groups consider that it is necessary to improve the inter-institutional cooperation related to NCE. Though the groups have different priorities nearly all consider that relationships with the Municipal Administration and the Ministry of Education should be strengthened.

152. At the present moment most of those interviewed think that **Municipal Administration** gives certain support and that they already have some links with them. Most are of the opinion that it does not provide enough. The main reason given for a greater MA involvement and understanding of NCE is that it is the MA that has the opportunity to provide financial support for NCE. Those interviewed also think that MA should provide organizational help in the implementation of the educational policy that integrates NCE, including cooperation in the organization of different NCE events. It is worth noting that none of those interviewed mentioned

the possibility of using people from other MA departments such as environment protection to support NCE. This implies a lack of understanding of the opportunities for support there might be in MAs

153. MA officers themselves are interested in providing more support for NCE and listed several possible areas. These included the provision of information materials, financial support for NCE projects, the organization of competitions, the provision of premises for green schools and the establishment of an award for the best NCE teacher.

154. This support matches some of the needs of teachers. Barriers to actual provision however are that not all the MA have a good understanding of NCE, and that in some areas the actual responsibilities and independence of the MA in terms of education have not yet been clarified. It is worth noting however that the Municipal Environmental Funds are fully under the control of the MA themselves.

155. The second institution that all the interviewees consider there should be stronger links with the **MES**. Once again nearly all the stakeholders agreed that support should be strengthened but differ slightly on where this support should be targeted. Around three quarters of those interviewed consider that the MES provides some or adequate support at present and one quarter that it provides little or no support. It should be of concern that most of the one-quarter of the respondents are teachers and teacher trainers, especially those in the regions! Teachers consider that MES support is especially required in terms of methodological and expert help including the provision of information, the development of NCE concepts and programs and the provision of additional resources materials. All the teachers suggest that it is vital that the MES begins to listen more to teachers in terms of their needs and that feedback mechanisms are created in relation to the current reforms. Those in Higher Education and teacher training consider that a priority of the MES should be to develop a coherent NCE policy and that there should be a more effective teacher qualification system established.

156. The EI of the MES consider that they need more support related to the changing educational regulations and suggest that the MES could stimulate more NCE related initiatives in schools. NGOs feel that the MES could offer more support for NGO projects. Finally the MES officers themselves see their role as supporting the integration of NCE into the Education Standards and the development of appropriate programs.

157. A third group of people with which there needs to be more cooperation are the **EI of MES experts**. At present they give support through the organization of specific Nature Conservation activities as well as methodological help - mainly at the primary level. They also provide some support for the organization of courses with the DETQ. It is obvious that to meet the expectations of the other participants in the NCE, the EI of MES experts should be better prepared themselves to provide such methodological and expert support for NCE at a local and regional level.

158. Cooperation with the **MEW** is the next priority after further links with the MES, demonstrating how important stakeholders see the role of the MEW in NCE. Nearly three quarters of teachers feel that links should be strengthened. The support falls into two groups - firstly, those interviewed feel that the MEW could provide more financial support as education is an important element in helping the MEW to achieve its conservation goals. Secondly, the respondents also considered that the MEW should be providing more NCE information to schools. Interestingly, the

officials of the MES and the EI of the MES also considered that stronger links with the MEW were important - and again this support should be in the area of finances and information.

159. All those interviewed consider that the relationships with **NGOs** have to be strengthened - and that NGOs also need to improve the cooperation between themselves. Teachers consider that more NGOs should be started, as there are not enough that work on NCE at the present. Those in Higher Education consider that NGOs have an important role to play in the provision of information. The NGOs view of their role matches these expectations. The NGOs interviewed stated that they are ready to provide NCE support through lecture and other NCE programs, the organization of practical activities with school students, provide access to information for students and develop additional materials such as posters, slide sets and the like. They also consider they have role to develop joint projects with schools and facilitate international links.

160. In addition to the key organizations listed above teaches, professors and NGOs work with other organizations

- Regional government – development of educational strategy
- Bulgarian Academy of Sciences and more precisely Institute of Botany and Institute of Zoology – consultancy services on NCE
- Theatrical formations ("Ako", "Sharkanitsi") – joint projects on NCE for kindergartens with NGOs/companies
- National Museum of Natural History - consultancy services
- International organizations – joint projects with NGOs
- The Parliamentary Commission on Environmental Protection - support for NCE
- Chitalishte
- Public order bodies – joint activities in schools
- Board of trustees in schools
- Private companies – financial, material and organizational support
- Institute of Education – exchange of scientific information with university professors
- Agricultural Academy – exchange of scientific information with university professors

161. The conclusion from the interviews is unambiguous. Although all the institutions that have some role in NCE provision somehow keep in contact with each other they consider the level of communication and coordination unsatisfactory. There is a serious need to create mechanisms that significantly improve these relationships and thus to increase the quality of NCE in the country. Priority should especially be given to better coordination with the municipal administrations, MES and MEW and for the latter two special attention should be paid to their regional bodies.

7. Human Resources for Nature Conservation Education

7.1. Understanding for Nature Conservation Education in Bulgaria.

(a) The philosophy of NCE

162. The majority of those interviewed were clear that NCE was part of a broader environmental education with the main difference between the two being that NCE concerns natural environment, the utilization of natural resources, human impact on Nature and measures for its conservation, but does not tackle such topics as the working environment, noise, impact of social relations and economic mechanisms on the natural environment.

163. Although less than a third of those interviewed gave a definition, most interviewees identified the key words that cover the main elements of the goals of NCE. There was a large element of agreement about these goals, though some groups emphasized some elements more than others. For example those involved in pre service teacher training emphasize the importance of knowledge about the environment and skills more than the lifestyle changes emphasized by NGOs.

164. The respondents consider that there are four key elements of NCE. Most importantly, the purpose of NCE is to provide an understanding of the impact of human behavior on the local and global environment. More precisely it means the development of knowledge, skills and attitudes for environmentally friendly lifestyle and an understanding of the connection between Man and Nature. A second major purpose is to provide scientific knowledge of Nature and how it works especially within the context of sustainable development. Thirdly, NCE should also stimulate and include Nature Conservation activities such as tree planting, biodiversity protection and so on so that NCE can be viewed as "the practical part of environmental education". Fourthly NCE should contribute towards raising awareness and developing values such as a love and respect for nature. The encouragement of protest activities for environmental protection is not considered to be one the goals of NCE.

165. The general opinion is that these desired goals of NCE have not yet been achieved effectively in schools. Any change in behavior has to be connected with a change in thinking not only of the pupils, but also of their parents and people around them. And such changes can only be effective if a systematic approach to NCE is taken. Currently, such a systematic approach is beyond teachers' capacity mainly due to the lack of skills to teach in ways that effect change linked with a lack of information, teaching materials and financial support for interactive methods of teaching and integration of practical activities.

(b) NCE compared with other interdisciplinary problems

166. Most of those interviewed stated that NCE should be considered as an important interdisciplinary theme as other themes that are already listed in official documentation, including health education and civil education.

(c) Pupils interest in NCE

167. All the school students interviewed state that they have a big or very big interest in NCE and consider that NCE should be of interest to all pupils. Those responding state that although not everyone has to be actively engaged in NC activities, they do consider that it is important that all pupils realize the importance of the natural environment and protecting this through environmentally responsible behavior. The students interviewed were most concerned about problems such as the pollution of natural sites, planting trees and awareness of the impact of people using polluting materials and products.

168. It should be remembered that these students were selected for the case study because of their interest in NCE and so their answers are not representative for the students at large. However, the evaluation of teachers and school principals regarding pupils' interest to NCE to a great degree overlaps with the opinion of the pupils themselves. The teachers considered that the majority of students are interested or very interested in NCE and that this is demonstrated through their participation in various activities such as clean up activities, visits to natural areas, membership of

NC Clubs and interest in NC materials. The most important reason given for the lack of interest of some pupils are given as the lack of enough interesting and stimulating materials for NCE.

169. The evaluation of pupils interests by the MES experts is much the same as that of the teachers, although the comment was made that interest tends to decline as the pupils get older.

(d) The Future of NCE

170. Different stakeholders have a number of different views regarding the future development of NCE in Bulgaria. The biology expert in MES considers that NCE should become a priority in its own right whilst the Geography expert considers that NCE should continue to develop as a part of civil education, which is already a priority in the state educational policy. The Ministry itself however has no clear policy on NCE.

171. Those involved in Higher Education consider that NCE should be further developed in Bulgaria through its integration in all school subjects and activities in schools and universities. This requires the development of a system for NCE at all levels to ensure continuity from level to level. The starting point for the development of such a system is a joint strategy of the two responsible ministries – of education and environment, followed by the integration of NCE in Educational Standards, educational plan and educational programs, with an emphasis on practical extra curriculum activities.

172. Critical to the success of such a system is an improvement of cooperation both within the country and with organizations abroad and a greater engagement on the part of different governmental institutions. It is also extremely important to build a body of well-qualified professors. Most answers stress the importance of a more secure financial provision for all these activities in order that NCE is integrated effectively in the educational process.

173. It is interesting that University professors do not limit their vision of NCE development only to the formal educational system. They consider that NCE should strive to educate and give information to the society at all levels and among all age groups - a life long learning in terms of NCE.

174. In conclusion all stakeholders envisage a further development of NCE in Bulgaria. The direction is towards its proper integration in the school system. However, a clear policy and vision on this issue is not in place at a strategic level and hence this should be the first step towards securing a better future for NCE.

7.2. Capacity for NCE of the main groups involved in the educational system

7.2.1. Capacity of Teachers for Nature Conservation Education.

175. This section of the report considers teachers knowledge and interest in NCE as evaluated by themselves and the different stakeholder groups, including their pupils.

Knowledge on NCE

176. Asking pupils to evaluate their teachers' knowledge of NCE obviously poses some risks as such an evaluation will depend on a range of factors including the relationship between teacher and pupil. However, the responses were generally positive. Most students felt that their teachers'

knowledge was high or very high, especially in the subjects that they associated most with NCE such as biology. Pupils considered that teachers in other subjects such as art or history were less knowledgeable about NC.

177. All the teachers evaluated their own knowledge as high. Again, this is not surprising given the fact that teachers involved in NCE were selected for the case study interviews. Teachers' evaluation of their colleagues' NCE knowledge does not differ significantly from the evaluation by the students. Again, biology teachers are among the ones considered to have the highest level of knowledge followed by Geography and Economics teachers. After this come other Science teachers such as Chemistry and Physics. Philosophy, ethics and law visual arts, and kindergarten teachers have been evaluated on the same "satisfactory" level, followed by the primary school teachers. The lowest are the evaluations are given of IT and domestic lifestyle and technology.

178. The evaluation of teachers by those in Higher Education, is much the same, with Biology teachers ranking as the most knowledgeable. However, those in higher education tend to be more critical of the NC knowledge of other groups of teachers. This evaluation is useful, but it should be stressed that it is not a rigorous scientific assessment. It also could be determined by the view of those in Higher Education that NCE should take a knowledge rather than lifestyle based approach.

179. The evaluation of teachers' knowledge by the MES and EI of MES experts follows a similar pattern, although they do have a higher opinion of teachers than those in Higher education. Biology teachers, not surprisingly rank the highest.

180. The evaluation by NGOs and the local government representative are the most critical. Although Biology teachers are again ranked with the highest level of knowledge, no subject teachers gain a "very high" or even "high" score. Most are ranked as satisfactory with Primary teachers and kindergarten teachers being credited with a similar level of knowledge as biology teachers. It appears that those stakeholders that are outside the education system have less confidence in teachers' abilities in terms of NCE than those inside the system. Further research is really needed to establish whether this different perception is justified but the fact that it exists as a perception is important in terms of the confidence in teachers and NC learning.

181. The general conclusion is that if NCE is to be integrated into the subjects successfully, and then teachers other than those of biology will need further training. It is possible that all teachers, including biology teachers, need further training if NCE is going to meet the expectations of the "customers" of the education system. Few teachers in Bulgaria are really aware of the skills needed to teach integrated topics and even biology teachers stress nature knowledge rather than a fuller awareness of nature conservation education.

Teacher qualification needs

182. The interview questionnaire asked teachers what they considered to be their most important training needs in relation to NCE. Their responses are listed below.

- Access to the NCE experience of their colleagues from Bulgaria and other countries.
- Adaptation of new teaching methods of training
- Opportunities for team work
- Familiarization with the NCE regulations – both of MEW and MES
- Development of NCE for FSE and CSE

- Access to updated information on this topic
- Access to NCE printed materials
- Familiarization with the new position of NCE in the new educational documentation
- Usage of the methods of laboratory research and analysis

183. According to those involved in teacher training the most important teachers' needs are:
    - More active integration of interactive methods of teaching, especially in outdoor activities.
    - Access to more resources, especially literature
    - Provision of more Nature Conservation related issues knowledge
    - Establishment of an NCE Information Center
    - Larger number of qualification courses at DETQ and higher quality courses
    - Provision of Internet access
    - Possibility to carry on outdoor activities with pupils (necessity to provide for transportation)

184. It is interesting to note that "a love of nature" and better payment are the two lowest ranked needs on the list!

185. Finally, when considering training needs, it should be noted that although teachers feel that they require further training they would not be willing to support this financially themselves.

186. The previous interview questions focused on teachers' **knowledge** of NCE. The different groups were also asked for an assessment of teachers' **interest** in NCE. Interest in NCE might be of greater importance than a knowledge of NCE in determining whether more integration takes place. With an increased decentralization of decision making there is likely to be greater variation in the provision of some subject areas such as NCE as part of compulsory education, and this variation will probably be based on motivation and interest.

187. Most of the stakeholders involved in education share a common viewpoint with a few variations in emphasis. Once again it is the biology teachers who are assessed to have the greatest interest in NCE followed by primary and kindergarten teachers and other science teachers. The interest of other subject teachers such as language and arts was difficult to assess.

188. Those involved in in-service teacher education tend to evaluate teachers interest as being higher than the other stakeholders. This is based on the increasing interest being shown in NCE courses offered by the DETQs and requests made by teachers seeking additional information and materials.

189. Teachers themselves consider that their colleagues' interest to NCE varies between 20% and 50%. with none of the interviewed assessing their colleagues interest as more than 80%. On the whole they consider that less than half of the teachers are interested in NCE. They quote a variety of evidence to support this view including the number of teachers who deliver NCE lessons, support for NCE activities in the school, discussion NCE issues and problems in the open lessons with their students lesson, and assigning NCE related tasks to students such as essays.

190. Most of the teachers are willing to change their job for better-paid work. This is not surprising for a profession that offers an average net salary of 200 BGN/month. Still it is worth

mentioning that almost half of the interviewed declare that they would not change their job even if they receive a better financially backed offer.

191. It is worth noting here that the current teaching profession has a relatively young average age of 35-40, and that except for foreign language teachers, teacher turnover is very low. Foreign language teachers can often find more highly paid jobs outside education. If these facts are linked to the relatively high level of interest in NCE, increasing demand for training and a high level of commitment to teaching in general, then investment in teacher training for NCE has the potential to have a long term sustainable impact on the integration of more NCE into the curriculum.

7.2.2. Capacity of University Professors for Pre-Service Teacher Training on Nature Conservation Education

192. On the whole the view of the different stakeholder groups falls into one of two categories. By and large, students, and MES officials all evaluate the knowledge of those directly involved in NCE in Higher Education as being high or very high. The views of NGOs, the local government representative and in this case, teachers themselves are different. They appear to be more critical and rank those in Higher Education as having a "satisfactory" knowledge. They comment that often the knowledge of those in Higher Education is out of date, and that they lack the experience of interactive methods of teaching or a real understanding of how to train teachers to teach in an integrated way. They suggest that those working in in-service training have a more relevant knowledge for the promotion of NCE than those in Universities. Specialized courses for those in Higher Education were recommended.

193. One conclusion from this response is that University teacher trainers need further training themselves, and to be fair, when asked, they recognized this need and would welcome the provision of training courses targeted specifically at their needs. The priorities they identified for their own training included -

- Courses for systematization and enrichment of their knowledge
- Different forms for exchange of experience (conferences, seminars, specialization)
- Access to literature and statistical information

194. As with the teaching profession, Higher Education staff are relatively young falling into the 40-55 age range, and highly stable. Training would therefore have a long lasting impact.

7.2.3. Capacity of the Professors at the DETQ for In-Service Teacher Training on NCE.

195. There is only slight variation in the opinions of the different stakeholders in relation to the knowledge of those providing in service teacher training. Most evaluate their knowledge as being high with the positive opinion of teachers being particularly important. The only disagreement comes from the MES experts who rank the knowledge of the in service providers as being less than that of teachers. NGOs consider them to be in middle - above teachers but below some other groups in their knowledge. NGOs views are quite diverse however and could be explained by the relative lack of interaction between NGOs and the DETQs.

196. Nearly all the stakeholder groups mentioned the same training needs for the in service providers, including the providers themselves. These needs covered two main areas: updating NCE knowledge, and new interactive and student centered methods of teaching and learning, with both of these being linked to access by the in service institutes to environmental information.

197. It is interesting and worrying to note that none of the interviewed in service providers had received any additional training in NCE since their graduation from University. Yet despite this lack of opportunity the quality of knowledge is still evaluated highly. In service providers also noted that they would value further training and in all cases would be willing to pay a proportion of the costs for this professional development themselves. The characteristics of in service providers in terms of age and stability are the same as in Universities.

198. **Summary**

The responses in these sections of the survey show slightly contradictory results. On the one hand teachers, university professors and teacher educators consider their own knowledge to be relatively high and also evaluate the knowledge of their colleagues also quite satisfactory. On the other hand the overall opinion is that all these groups need training on NCE. The evaluation of the level of knowledge is not surprising given the choice of interviewees, however this also has to be linked to the fact that most of those interviewed consider NCE mainly as biology or nature education. In this sense the teachers, professors and educators are well prepared in terms of a scientific background. NCE however is not limited to knowledge - new approaches to NCE demand an understanding of issues such as sustainable development together with different approach to teaching and learning and a realization of this has led to a demand for training from both pre service and in service teacher trainers.

7.2.4. Capacity of the Officers in the Systems of Ministry of Education[11] and Science and Ministry of Environment and Waters[12] for NCE.

199. There is a wide variety of opinion about the level of knowledge and interest in NCE of the MES experts at both national and regional level. On the whole most groups evaluate the national experts as having a higher level of knowledge and interest than the regional EI experts. The teachers evaluation of national MES experts is very variable, whilst those in higher education evaluate MES experts more positively. Surprisingly, compared with their evaluation of other groups, NGOs are more positive about MES experts than the other groups.

200. The role of experts from the MES in the development of national policies and programs is critical, and most teachers feel that MES experts need training in contemporary approaches to NCE to enable them to develop an effective strategic approach and create the right climate for the development of NCE. Teachers also consider that EI need training to enable them to be able to support the integration of NCE at a regional level. As with teacher trainers, the need for training focuses on both providing information and knowledge about NCE in terms of content, and also training in new methodologies and approaches to effective learning about NCE. NGOs suggest a third topic for MES training and that is in the areas of the development of support networks and mechanisms for the networking and information exchange.

201. To some extent the MES experts at national and regional level identify these themes as training needs themselves, which they list as

- Modern educational programs
- Contemporary methods including interactive forms and
- Updating of knowledge

[11] The system of MES includes MES and EI of MES
[12] The system of MEW includes MEW and Regional Inspectorates of MEW (RI of MEW)

202. Although MES experts have attended various conferences related to NCE, none of them have received any formal training as such. Despite recognizing the training needs, unlike teacher trainers however, they are unwilling to pay for this training themselves.

203. As with other education professionals, there is a high degree of stability in the MES experts and again the average age is around 40. This means that any training is likely to have a long-term impact on NCE and be sustainable.

204. The knowledge of MEW and RI of MEW officials is evaluated quite high. It should be noted however, that the evaluation appears to be a judgment about knowledge in Nature Conservation, rather than Nature Conservation Education.

7.2.5. Capacity of the School Principals in NCE.

205. All those questionnaired, except MES experts, considered that school principles have an average or lower than average knowledge of NCE and that they are in need of training if they are going to be able to support the integration of NCE into school programs. The principles themselves support the need for training in terms of content, methodology, and how to organize the delivery of NCE effectively as part of the overall school policy. NGOs in particular consider that school principles often lack an understanding of what NCE is and how it can be effectively delivered, and strongly recommend training for this group. As with the teachers group, school principles are most likely to attend courses offered by the DETQs.

7.2.6. Capacity of the Municipal Officers on NCE.

206. None of those questionnaired considered that the Municipal Officers with responsibility for education had any knowledge or awareness of NCE and this included the Municipal Officers themselves. In addition, training was not considered to be a priority for this group. This view is slight strange given that in previous questions the respondents considered that the MA had a significant role to play in the delivery of NCE. The Municipal Officers themselves felt that some training would be useful, but could not define what that training might cover.

207. This viewpoint indicates that the role of the Municipal Officer is not well defined or understood in Bulgaria amongst the education community. At present they are mainly concerned with the financial aspects of education rather than education itself, so there is no reason to expect these officers to have any NCE background. However, some information at the very least, if not formal training, would be useful so that these officers would have some understanding of NCE to enable them to make appropriate judgments when it comes to deciding on local funding priorities.

208. **Summary**

The table below presents the overall ranking of the level of knowledge of NCE in the different stakeholder groups. To some extent all these groups needs training, but priorities have to be identified to ensure that a maximum use is made of limited training resources.

1	NGOs, Associations for Nature Conservation
2	Biology teachers
3	MEW experts
4	Professors at DETQ of universities

5	Professors at the Universities
6	RI of MEW experts
7	MES experts
8	Geography and economy teachers
9	Chemistry teachers
10	Children teachers
11	Elementary school teachers (1-4 grade)
12	EI of MES experts
13	Physics teachers
14	School Principals
15	Visual Arts teachers
16	Representatives of local government in charge of the educational process
17	Mathematics teachers
18	Philosophy, ethics and law teachers
19	IT teachers
20	Bulgarian language and literature teachers
21	Home lifestyle and technology teachers
22	History teachers
23	Foreign languages teachers
24	Music teachers
25	Physical education and sports teachers

8. Informational Resources for Nature Conservation Education

209. Information is key resource for NCE and the need for more information has already been mentioned in this Report many times in previous sections.

210. Sources of information are ranked by importance in the following way:

Textbooks
Nature Conservation films/videos
Nature Conservation journals
Accessible Internet
Television
Reference Books
Computers
Newspapers and journals
Statistical data
Scientific journals
Radio
Electronic journals

211. Access to each of these sources is different and is summarized in the Table below though it should be noted that access will vary from group to group. Teachers for example find access to all but textbook and newspaper sources of information generally very difficult, whereas those in higher education have better opportunities.

Resource	**Ease of access**
Text Books	Easy - issued to each student.
Films and Videos	Quite difficult - only found in a few specialist libraries and resource centers.
Journals	Moderate - found in University and DEQT libraries.
Internet	Very difficult - especially for teachers, outside places of work if at all.
General reference materials	Easy to moderate - books available in local, regional and University libraries. Variable provision.
Statistical data	Difficult.
CDs and electronic journals	Very difficult, especially for teachers.

212. Teachers and those involved in teacher training have access to information through largely through printed materials. The problem with this source of information is that it quickly becomes out of date, especially in a textbook format. Textbooks often have a life of 7-10 years, and the information in them is frequently up to five years out of date on publication. In contemporary society access to up to date information is critical in all areas of life, including NCE, and this access is poor for teachers.

213. The government recognizes this and therefore is placing a high priority in putting more computers in schools and providing schools with internet access. The situation will therefore improve over the next three years. The national educational strategy of MES states that all schools will be equipped with computer laboratories by 2003 involving the installment of 3000 computers by the end of 2001 and 5000 more by the end of 2002. At the moment 500 primary schools have computers, or about 1 computer for 30-35 pupils. Internet access for all schools will be provided by 2005.

214. One of the goals of the current government is to develop technological skills amongst the younger generation to stimulate growth in higher technologies in the country. This will obviously provide opportunities for NCE.

215. However, it should be noted that the provision of computers and Internet access does not in itself guarantee the effective educational use of this new technology. There is still a dearth of easily accessible information in languages other than English on the internet, and certainly a lack of information in a format that can easily be used by pupils and teachers.

216. Those interviewed gave the following list of priorities for access to information resources for NCE -

Accessible Internet
Nature Conservation films/videos
Computers
Reference books
Electronic journals
Nature Conservation journals
Statistical data
Scientific journals
Textbooks
Television
Newspapers and journals
Radio

217. Various recommendations were made by those interviewed in terms of improving information provision. The most important ones are

1. Improvement of the relationships between institutions and organizations to enable more effective sharing of information
2. Improvement of the mechanisms for dissemination of information
    - Development of a national register for different sources of information
    - Establishment of coordination center for provision of information
    - Establishment of coordination center for development of best pedagogical practice (including disadvantaged children)
    - Development of NCE information catalogue
    - Development of sets of basic NCE information for different age groups
    - Establishment of a video collection for the in service training forms
    - Publication of specialized NCE journal at DETQ
3. Access to larger number and attractive additional educational materials
    - Production of well-illustrated informational materials for the schools
    - Informational materials to be written with simple words
4. Provision of Internet access in the schools
5. Access to recent statistical data for the schools
6. Supply for the school libraries of more and more updated information
7. Target groups to be used also for collection of information
8. NCE to become a priority for the media and to show more Nature Conservation films
9. Longer working time of the Information center of MEW
10. Building of network for NCE work

11. Popularization of environmental protection measures

218. Included in the list above is the dissemination of best practice to teachers. A great deal of experimental and innovative work is undertaken largely by those in the DETQ and NGOs, and this is disseminated as much as possible through courses, conferences, publications and in the case of Varna DETQ through a web site. However, this dissemination could be much more effective and is largely uncoordinated according the views of the EI of MES experts.

9. Material Resources for Nature Conservation Education

219. Resource provision, especially in schools, is at a very low level in Bulgaria for all subjects, not just NCE. Most teachers have access to basic resources such as textbooks and some equipment such as microscopes. However, few teachers have easy access to photocopiers, overhead projectors, computers or the Internet. Even posters are difficult to obtain and teachers often make their own.

220. The situation is almost the same for Universities and the DETQs. Books, both textbooks and reference materials are easily available, and some faculties such as the Faculty of Biology in Sofia University have access to more equipment, but overall the situation is in need of drastic improvement. One area that has declined in recent years has been access to sites and resources for work out of doors. Although there is a Botanical Garden in Sofia for University students, a specialist laboratory for plant study was closed in 1992 and there is a lack of basic fieldwork equipment. The situation is similar in the DETQs although Varna has a slightly better material base than Sofia where even the central telephone exchange is so old that easy communications are difficult, and much teaching equipment is obsolete.

221. One extremely important problem is the lack of up to date and stimulating textbook materials for higher education. The reason for this is that commercial publishers find it impossible to produce books at a price that students could afford. Students copy or share the current books, most of which are out of date.

10. Financial Resources for Nature Conservation Education

222. A recurrent theme through this report has been the lack of any dedicated funding for NCE. Although it should be acknowledged that improved funding will not automatically create more and better NCE, the situation is so poor that additional funding is a critical element in any NCE improvement for nearly all the recommendations listed above and in the following sections.

223. Most teachers are not aware of what proportion of their annual school budget is spent on NCE, and those that are more aware of budget issues stated that there was not specific budget line for NCE, and that spending probably amounted to between 1 and 5 percent. The lack of a budget line and a lack of information on how much money is spent on NCE are also characteristic of University level education, the DETQs and the MES.

224. NGOs are a different case because most are engaged in project-based activities that are usually almost wholly funded by external donors. Those interviewed spent between 1% and 20% of their total budgets on NCE, though there are others that spend much more dependent on the project.

225. The strong opinion amongst all those who were interviewed was that core NCE activities should be funded directly by the MES with additional support from the MEW and Ministry of

Agriculture and Forests. The funding should largely be from the MES because only in this way can NCE be strategically integrated into the educational policy. Some interviewees are of the opinion that NCE should also be funded at a local level by the Municipalities, however at the present time Municipality budgets are low and funded mainly from the central government budget. It is unrealistic to expect significant levels of local support. Other sources of funding were mentioned as well such as Trusts, Local Businesses, International donors and so on, but it was stressed that the majority of support should come from the Bulgarian government.

226. It was acknowledged that the level of funding required will be difficult to obtain as recent MES data suggests that the MES budget needs to be increased by up to 30% to enable it to meet its objectives - and this is before any integration of NCE! However the success of recent pilot projects in giving schools more control over their expenditure through delegated budgets offers more encouragement and has opened a niche for school based support of NCE. One aspect of delegated budgets is that schools can charge for the use of some of their facilities and use this income to improve aspects of the schools work. In this way a school can respond to locally identified priorities and needs. By 2003 at least 75 Municipalities should have a system of delegated budgets.

Part IV. Recommendations

227. This section brings together the analysis of the previous sections and summarizes what are seen as the strengths and weaknesses of the NCE in Bulgaria together with some of the opportunities and threats. As a result 14 recommendations are made.

1. Strengths and Weaknesses

228. As is often the case, some aspects of the current NCE in Bulgaria are both a strength and a weakness. Some characteristics therefore appear on both lists.

1.1. Strengths

(a) The Education Tradition in Bulgaria.

229. Bulgaria is a country with a strong nature education tradition. It is a country where the natural environment is very important in people's culture and traditions, and where a greater proportion of people are more closely attached to the land than in many other countries. Although this does not necessarily ensure that the environment is cared for any more than in countries without this tradition, at least there is both an emotional and practical basis for teaching about caring for nature. As a result a lot of good pedagogical experience is developed and a number of high quality materials towards NCE are at place that may be used as a basis for further enhancement of NCE in the school system.

(b) A significant body of people with NCE expertise

230. There is a significant and growing body of people with a commitment to NCE at all levels of education including Universities, Teacher Training, schools and NGOs and also at a political decision making level. Many of these people are experts in different aspects of nature and environment and a number also have an experience of the student-centered approaches to education and curriculum development for NCE.

(c) Nature Conservation in the curriculum

231. Nature conservation and associated issues are clearly in the national curriculum in Bulgaria both in the education standards and education programs. Schools have to teach some aspects of nature conservation and this provides a springboard for further development.

(d) Opportunities for professional development in NCE

232. There are two strong Departments for Enhancing Teacher Qualifications that provide a range of courses focused on different aspects of environment and NCE and an institutional base for further development. Some NGOs also provide training courses related to the development of specific projects.

(e) A growing body of materials and resources

233. There is a growing body of materials and resources related to NCE, especially developed by NGOs. Many of these materials put NCE within the context of sustainability and some take a

student centered approach. There are also a growing number of materials related to other aspects of NCE such as Citizenship and personal development.

(f) A growing group of active NGOs.

234. There are a number of very active NGOs that support aspects of environmental education, and NCE. TIME and Borrowed Nature are two national NGOs working in this area, and there are also a large number of local NGOs. The potential of these NGOs to support NCE both at a national scale in the MES and also local support to the Municipalities is large.

(g) Out of school structures

235. There is a system of out of school provision of education and extra curricula activities available for pupils. This provision is a mixture of State and NGO supported.

(h) The teaching profession

236. There is a relatively stable and dedicated teaching profession that has an interest in Nature Conservation Education.

1.2 Weaknesses

237. Despite these strengths there are a large number of weaknesses, which will need to be addressed in any action to develop NCE.

(a) The lack of understanding of NCE and of any NCE strategy

238. The most serious weakness is the lack of any NCE system in Bulgaria and especially the lack of a strategy for NCE. This lack of strategy is compounded by the fact that there is no clear concept stating exactly what NCE is and what it should achieve. The Research has indicated that NCE is largely perceived as providing knowledge and information about nature and protected areas. This is a very traditional approach and one that is not effective in terms of changing behavior or improving the environment. Any improvement in NCE in Bulgaria will have to start with a clear statement of what the goals of NCE are.

(b) A lack of support from the MES.

239. Although the MES has formally stated that NCE is important, it has not made any significant moves towards putting that statement into practice.

(c) A lack of understanding of student centered education.

240. Effective environmental education and NCE relies on taking a student centered approach to learning. At present there are few teachers who really structure learning in this way. The education reform has the introduction of this approach to learning as one of its goals, but this will be a long process.

(d) A lack of teachers qualified to teach NCE.

241. Although biology teachers are competent to teach certain aspects of NCE, the knowledge and understanding components, there are few teachers in Bulgaria able to take a more broadly based approach to NCE.

(e) The structure and approach of the curriculum.

242. There are opportunities for NCE in the current and reformed curricula as nature and nature conservation is mentioned in Educational Standards and programs. However, references are scattered and fragmented into different subject and CEA, which will make it difficult for a school to give pupils of coherent approach to and experience of NCE, despite the existence of interdisciplinary opportunities.

243. The current and reformed curricula also put a high emphasis on knowledge and information and although there is an increasing emphasis on skills and integration, for reasons described below, these are unlikely to be given prominence in the near future.

(f) Pre service teacher training.

244. Although there is some emphasis on NCE in pre service teacher training those delivering teacher training have probably over estimated the proportion of time devoted to NCE and even if they haven't it is still by no means adequate. Any content there tends to focus on nature knowledge rather than any systematic consideration of NCE and EE and includes little by the way of practical experience. Perhaps the biggest weakness though is the fact that the approach in pre service teacher training is nearly all lecture based and does not give students an adequate training in terms of student centered learning. Yet it is student centered learning that is an essential element in encouraging and developing behavioral change in students. The MES has recognized this weakness in teacher training and is incorporating changes in the system through the Education Reform.

(g) In service teacher training.

245. There are also similar weaknesses in in-service training. Where there are NCE courses provided they tend to focus on the didactic presentation of knowledge rather than a more active student centered approach. Another weakness is that it is provided by a small number of organizations, and therefore cannot meet the training needs of teachers, there are relatively few NCE based courses and finally it is also a costly system based largely on residential courses. As such it is currently not meeting or being particularly responsive to teachers needs. Again, the MES is planning a reform of this system.

(h) Provision of Resources.

246. It is generally agreed that there is a lack of effective teaching materials for NCE, especially those that take a student centered approach to learning. This is partly because NCE is not a subject as such, partly for financial reasons and partly because there is not a large body of authors capable of writing appropriate materials.

247. There is also a lack of other resources at a school level such as basic equipment for NCE, or facilities in school such as laboratories. The reasons for this deficiency are largely financial.

(i) Access to Information and Support.

248. There are also real difficulties in teachers getting hold of information on NCE. Access to printed information other than in textbooks is difficult and access to the Internet even more so.

249. Information flow is also disorganized at nearly all levels, and there are few formal mechanisms for access to or dissemination of information. For example, teachers wanting to find information about the environment in many countries have access to national bodies that can provide information and advice. There are also local information and support centers and networks of teachers. These do not really exist in Bulgaria although there are some good local examples.

(j) Lack of earmarked funding.

250. Although financial support is not always the answer to a particular problem, in the case of NCE there are no clear sources of funding either provided by the MES, MEW or through other mechanisms such as an Environment Fund or sponsors. This lack of earmarked funding is related to the lack of a strategy and hence status for NCE. For significant development in NCE to take place significant funding will be required.

(k) Lack of priority given to NCE by education officials and decision makers.

251. Although the Research indicated that education officials at all levels consider that NCE is important, this is not translated into any action. There is no structure of support for NCE at local or regional level, and although there might be a person employed to support, for example, biology teachers, this person is unlikely to have any NCE experience. There is no network of inspectors with NCE in their brief.

(l) A lack of coordination

252. Although there is a relatively large number of NGOs, co-ordination between them is poor, and cooperation is rare at a national level. Many smaller NGOs are financially insecure and national NGOs depend largely on funding from international sources for their work. NGOs are also poor at disseminating the results of their projects more widely and traditionally do not make a big impact on the school system as a whole, although in a small number of schools they do have a significant effect on the quality of education.

253. Perhaps more seriously there is a lack of any one networking or lobbying body that could unite the efforts of NGOs and other stakeholders, and hence efforts tend to be both diverse and divided, with decision makers being unsure whether any lobbying attempts reflect the minority views of one NGO or the views of a broader community.

254. A lobbying process for NCE is also not helped by the lack of coordination at Ministry, regional and local level, and especially by the lack of large scale and meaningful co-operation between the MES and MEW.

255. Finally, the lobby process is not helped because there is some disagreement about the best ways to integrate NCE into the education system amongst those committed to more NCE.

2. Opportunities and Threats

256. The opportunities and threats are largely related to the reform of the Education System. As with strengths and weaknesses, some of the issues appear in both the opportunities and threats sections.

2.1 Opportunities

(a) Increasing school independence.

257. The MES Reform process will, over time, give more and more authority to schools themselves. This is an opportunity for NCE as schools can chose whether to develop their own NCE policies, Freely Selected Education elements focused on Nature Conservation and so on. Although outside a centralized system it might be more difficult to persuade schools to take up these opportunities, when they do, their adoption will be more meaningful as it will be a result of local democracy and choice to reflect school and community needs. Schools for example will have much more freedom over the selection of textbooks and other materials and even in the structure of the curriculum.

(b) The interest of the MEW in environmental education and NCE.

258. The fact that this study has been approved by the MEW is a sign of their increasing desire to see more EE and NCE in the curriculum. These desire has been repeated on a number of occasions during the research process and should increase as a result of international developments and the Rio +10 summit in 2002.

(c) An interest from teachers and students in developing more NCE.

259. The Research has highlighted a generally high level of interest in NCE and a willingness by teachers to have more emphasis on NCE in the curriculum. It is also highlighted that pupils would also welcome more NCE, especially if it took an active approach and involved relevant topics and practical work outside the classroom.

(d) The new curriculum

260. Although there are threats, these are probably more balanced by the opportunities. Even if some of these are unlikely to be realized in the short term at least the structure of the new system will allow their development in the future. Opportunities include

(i) The possible development of a CSE and certainly an FSE for the Environment that could include NCE.

(ii) The exploitation of interdisciplinary links between subjects through an NCE perspective

(iii) The Education Standards emphasize a skills based approach to education as a whole. NCE can be suited to provide a meaningful context for the development of cross curricula skills.

(e) How the new curriculum is being developed.

261. There are still areas of the new curriculum, including some of the programs that are in the process of development. A well-organized EE or NCE lobby should be able to effectively influence the areas of the curriculum that are still to be developed.

(f) The free market in the provision of textbooks.

262. This is a real opportunity, though one with some drawbacks. There is now a free market for the development of textbooks, which means that teams of authors could produce a series of books that exploit the NCE in different subjects areas. There is a real shortage of good books for the reformed curriculum at present and so any high quality materials produced are likely to be successful.

(g) The autonomy of Higher Education

263. The Universities are largely free to develop their own courses as long as the teachers' trained meet specified standards and can teach the required curriculum. This means that there are opportunities for the development of courses focused on NCE. These courses only have to go through University approval process rather than any lengthy Ministry approval system.

(h) The reform in the in service training system.

264. The in service training provision is now going to be broadened beyond the current DETQs. This means that more training can be provided locally and through NGOs and other providers.

(i) Bulgaria and the EU – funding.

265. Bulgaria is increasingly drawing towards the EU and there are opportunities for funding related to aspects of NCE, especially developing community related projects and educational projects focusing on new methodologies and information technology.

2.2 Threats

266. Some of the opportunities described above are balanced by the threat below.

(a) The current status of the education reform process.

267. Firstly, at a Ministry and Institutional level, the process is taking place following strict World Bank guidelines, and there is a perception that these are inflexible when it comes to considering new ideas and that in any case it is too late to change anything. For example, the new programs are being developed by organizations that bid for and win a tender announced by the Ministry. The Ministry itself has little control over the tender process, and to effectively integrate NCE into new programs would require any organization wishing to do so to be a member of the team winning the tender. This obviously poses difficulties.

268. Secondly at a school level there could also be challenges. It is the experience of other countries, including the UK, that at a time of curriculum and education structure change, schools and teachers focus their energies on what are perceived as the core elements of change. Areas that are perceived at worst as option and at best as important but not core understandably tend to be

given less priority. Schools, especially when faced with structural challenges, are likely to focus on areas getting the changes to areas such as languages, mathematics and technology right.

(b) Increasing school independence.

269. In a centralized education system where change is through central edict, then the introduction of NCE is theoretically much easier - once it has been adopted at Ministry level. In a system of increasing independence, it is much harder to get NCE adopted an entitlement for all as schools have the right to emphasize NCE or not, depending on local priorities and interests. It also means that there has to be a much better organized NCE lobbying and support system in place. The approval of an FSE for example will involve persuading the school to develop an FSE in NCE, and then the Municipality to approve and fund it.

(c) The lack of interest of the MES in environmental education and NCE.

270. The staff of the MES is relatively small, and not likely to increase. Each officer has a number of responsibilities and therefore a high workload. The time and sometime motivation needed to support NCE might not always be there. In addition, if NCE is going to be an effective integrated theme, then this will require coordination at a Ministry level to achieve successfully.

(d) The free market in the provision of textbooks.

271. The only draw back is the small market for any educational materials in Bulgaria will mean that NCE publications will have to be sponsored in some way.

(e) The reform in the in service training system.

272. Initially any reform in the in service training system might result in fewer training opportunities, or at least more costly ones as freedom will also probably mean that organizations will have to charge for in service provision.

(f) The conservatism of the University System.

273. Universities, although relatively independent are also slow to make decisions related to courses. This might hamper any NCE course development unless an influential champion at a University level can be identified.

(g) The NCE Community

274. NCE tends to be dominated by scientists rather than educators. Scientists are often out of touch with what is really needed within the education system and what the real educational needs of children and young people are, focusing on aspects of NCE such as knowledge about nature, and giving children a love of nature, rather than the critical thinking, decision making and community aspects.

3. Some important questions

3.1 Should we lobby for NCE alone or as part of EE?

275. A question that was touched up on in the response to the questionnaire and in subsequent discussions was the relationship of NCE to Environmental Education. Before any action is taken in response to the recommendations there should be some discussion amongst those commissioning the Report as to whether there should be pressure for more Environmental Education with NCE as a component of this or whether there should simply be pressure for NCE. Obviously, NCE is probably an easier concept for decision makers to grasp and therefore might be more attractive in terms of integration, but care needs to be taken.

276. The Report has demonstrated that for most decision makers at nearly all levels, NCE is mainly about giving children more knowledge of nature and perhaps involving them in nature protection activities. However, experience in many other countries has shown that this kind of NCE is unlikely to produce any changes in behavior of the children either whilst they are at school or as older members of society. This is because EE and NCE are much broader than simply knowledge and although this fact is often recognized by decision makers in discussions, it is rarely reflected in practice. Research indicates that for NCE to be effective it will have to be placed in a larger context, and especially one that includes a great emphasis on sustainability.

3.2 Clarifying what kind of NCE is needed.

277. A recent UN review has expressed disappointment in terms of what EE has achieved over the last 25 years, and this has largely been because environmental education has been fragmented and expanded. It is also largely because the "wrong kind" of EE has been taught in schools. It is by and large a very superficial environmental education that focuses on knowledge and restricts activities to either scientific fieldwork activities or practical activities such as tree planting or collecting litter. This approach is acceptable and necessary but it is not the whole picture. EE and NCE should review the outcomes of the Tblisi Environmental Education Conference all those years ago in 1977 and regain the principles stated there in terms of behavior change, critical thinking and the role of NCE learning being to bring up independent environmentally minded members of society.

278. Those lobbying for NCE should recognize that it is the role of schools to provide a broadly based educational experience that gives children the competencies to take part in and create an active democratic society. NCE is only one aspects of this and must be seen to support this goal if more integration is going to be successful.

279. An answer to these two issues should be the starting point for any integration of NCE. If they are not answered satisfactorily, then whatever is integrated might not achieve any meaningful results, and just be "more of the same".

4. Recommendations

280. This report makes the following fourteen key recommendations. For each recommendation there is a suggested timescale and suggested funder/supporter. A short timescale is within the next year. Medium terms are between one and five years and longer term, more than five years.

4.1 Getting the right process

281. The process of implementing the recommendations below is critical if they are to be successful. The following process is recommended

(a) That this Report is widely circulated within Bulgaria to start a national debate on the nature of NCE and the integration of NCE into the curriculum.

(b) UNDP should work towards the endorsement of this Report and its recommendations by the MES and MEW.

(c) That a high level and broadly based National NCE Conference is held in Bulgaria to consider the issues raised in this report.

(d) That one of the outcomes of the Conference is to establish a joint MES/MEW Nature Conservation Education Committee. The committee should have a fixed life and an agreed remit of tasks. It should have a broadly based membership.

282. This process should be coordinated by the MES and MEW working together with UNDP. The committee should be in place before the end of 2001.

4.2 Exploiting NCE in the Reform Process.

283. One of the key roles of the Committee should be to review the current position of NCE in the Reform Process and if appropriate lobby for the further inclusion of NCE. The Committee should produce an urgent report before the end of April 2002 with recommendations for the MES and the Reform process.

4.3 Developing a strategy.

284. The joint NCE Committee should have the remit to develop a strategy for NCE. This should include a definition of what NCE is in a Bulgarian context and the strategy should be jointly adopted by the MES and MEW at a follow up Conference in 2002. The outcome of this process should be a strategy circulated to all schools together with recommendations for implementation.

285. This should be done by the MES and MEW and should be in place by September 2002.

4.4 Developing Guidance for the Implementation of NCE.

286. The MES should commission through a tender the development of NCE Guidance publication for Schools. This should be a short document that contains ideas and examples of good practice for the integration of more NCE into the curriculum.

287. It is recommended that the Guidance stresses the following opportunities for NCE and develops models for these

- Integration of NCE as a context in all subjects using NCE as a linking theme for different subjects
- The development of specific NCE related CSE and FSE for schools

288. The Guidance should contain models of different approaches to NCE that ensure that there is an NCE entitlement for all school pupils. The materials might also contain a list of NCE Indicators and these could form the basis for an ongoing review by the MES of the place of NCE in the curriculum and school life.

289. This should be funded by the MES/MEW and the materials should be available for schools by early 2003.

4.5 Developing a cadre of NCE experts.

290. A course should be provided for between 5 and 10 people from Bulgaria who are currently involved in pre and in service teacher training and the development of resources materials. This should be an intensive three-week course to bring key people and institutions up to date with latest thinking and methodologies in nature conservation education and equip them to be able to develop the courses, resources and programs below and act as NCE champions in Bulgaria.

291. UNDP should consider funding such a course, which could take place in Bulgaria or in another country. Ideally it should take place within this academic year.

4.6 The development of a specific CSE and a framework for FSC in NCE.

292. It is recommended that specific CSE and FSC courses be developed for each stage of education that take an NCE approach. These courses need not necessarily stress NCE knowledge but could use NCE as one of the contexts for the development of other skills such as IT, literacy, numeracy and citizenship. The courses once developed could serve for the basis for the production of teaching materials (see below)

293. These courses should be developed with the support of the MES in the short to medium term and offered as packages to schools.

4.7 Establishing a network of Pilot and Demonstration Schools

294. The MES/MEW should consider establishing Pilot and Demonstration Schools in each region of Bulgaria. These schools would be able to develop local programs related to NCE and school strategies, and also be able, with additional support, to demonstrate how NCE can be successfully implemented within a normal school structure. They could provide examples of good practice in terms of the implementation of the NCE strategy and the Guidance Document. Possible schools could be identified through a competition and provided with a small level of funding, together with support from the body of people. Support should be from the MES and MEW, and pilot schools.

4.8 Professional development for decision makers

295. Officers in the MES, the EI of the MES, Local Administration and Head Teachers all need different training in terms of NCE and it is recommended that the MES contracts different training providers to develop appropriate courses for each group. These courses should not necessarily be long, possibly no longer than one day in some cases, but should focus on the key elements of NCE that would enable decision makers to support the development of NCE in schools. Such training however is critical if these decision makers are going to be able to support the integration of more NCE in different parts of the curriculum and lead on some of the recommendations made in this Report.

296. The MES should contract a provider to develop these courses, and then pilot them in one region in Bulgaria to support the development of an NCE system in one region.

4.9 That a network of advisers in each region is established who could support NCE.

297. Related to Recommendation 8 is the need to support NCE at a regional and local level. One element of this support should be through access to NCE advisers who can visit schools and offer practical support and advice. It is recommended that each region and possibly Municipality appoints someone with this role. This need not be a formal local administration employee, but san be someone from an NGO, a school teacher from a Pilot School or lecturer at a one of DETQs. They should be given a part time responsibility at a local level to support NCE and should be funded locally through the Municipal Budget.

4.10 That high quality textbook and other resources are developed

298. In many countries, including Bulgaria, much of what happens in the classroom is determined by educational materials and especially textbooks. If a high quality textbook covering the programs in a number of specific areas of the CEA was available then it is highly likely that it would be recommended for purchase by the school. Some textbooks could be focused on any CSE or FSC developed for NCE.

299. UNDP should work with the MES/MEW and other funders to identify a funder that is willing to support the development a basic textbook or other materials for students that teachers could use to deliver specific aspects of the curriculum.

300. These should be developed by independently formed groups working with publishers who are supported by the MES.

4.11 An NCE teacher training module is developed .

301. One of the Universities should be encouraged to develop a specific short NCE course that could be delivered to all students training to be teachers in agreed NCE related subjects.

302. The development of such a course would firstly require a team of higher education lecturers to be trained in new approaches to NCE and education and then to develop a short course that ideally would be delivered to all students training to be teachers, but recognizing that this might be too ambitious a goal, at least to those training in certain subject areas.

303. This is the responsibility of the Universities, supported by the MEW and possibly externally funded through an EU grant program related to Socrates. A course should be in place by 2004 at the latest.

4.12 The development of an in service training program.

304. In service training providers should be encouraged to develop a more appropriate program of training courses for teachers and head teachers on NCE. Ideally these should be short methodology orientated courses.

305. The in service providers should develop these courses and offer them on a commercial basis. However the information in the previous sections demonstrates that the target groups are not willing to pay for training. This means that financial support from MES/MEW might be necessary.

4.13 Establish a National Environmental Education Center

306. The remit of the Center would have to be agreed by the MES/MEW but there is a need for an organization to coordinate the provision of information about NC in particular and disseminate good practice and new ideas to all those involved in NCE. Center's structure may include 1 or 2 regional centers in order to be effective throughout the country.

307. The Center could establish appropriate support mechanisms such as a regular environmental education newsletter and an EE web site for Bulgaria. The Center could also coordinate different conferences and professional development possibilities. It could publish directories of information, lists of NCE trainers in different regions, an annual list of all training courses in Bulgaria and so on. At a later stage the Center could also manage the EE/NCE Fund.

308. The initial support should be from the MEW/MES with the Center having the remit to attract 50% funding over five years to become more sustainable. The Center should be established in the short to medium term.

4.14 That a specific environmental education fund is established.

309. There is a need to provide more secure funding for NGOs and school based initiatives. This could be through an environmental education fund that each year would have a fixed sum allocated by the MES, and perhaps matched by other sponsors such as Business. The Fund could allocate awards that focus on supporting schools and NGOs in the achievement of the EE/NCE strategy. The fund could be organized on an open basis or could set specific themes each year that projects had to consider depending on identified priorities. One year for example it could encourage the establishment of School Gardens to NCE teaching .

310. The fund should be established in the medium to long term with support from the MEW/MES with business funding.

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Attachment 1: Cultural-educational areas and the educational subjects in them according to the new educational plan

CEA: Bulgarian language and literature
- Bulgarian language and literature

CEA: Foreign languages
- English language
- Spanish language
- Italian language
- German language
- Russian language
- French language

CEA: Mathematics, Informatics and Information Technologies
- Mathematics
- Informatics
- Information Technologies

CEA: Public sciences and Civil education
- Homeland
- Man and society
- History and civilization
- Geography and economy
- *Educational sub-group "Philosophy"*
  - Psychology and logic
  - Ethics and law
  - Philosophy
  - World and individual

CEA: Natural sciences and ecology
- Environment
- Man and Nature
- Biology and health education
- Chemistry and environmental protection
- Physics and astronomy

CEA: Arts
- Music
- Visual arts

CEA: Lifestyle and technology
- Home lifestyle and technology
- Technologies

CEA: Physical culture and sports
- Physical education and sports

Attachment 2: Questionnaire for the interviews

Attachment 3: Terms of Reference

Attachment 4: Opportunities for NCE in the Educational Standards[13]

The identification of the NCE opportunities in the CEA **"Bulgarian Language and literature"** is related to the respective subject - Bulgarian Language and literature. Prerequisites for NCE may be identified in the area of communicative and sociocultural competence of students. Through the problem-thematic kernels: sociocultural competencies, language competencies, sociocultural and language competencies (oral communication) and sociocultural and language competencies (written communication) knowledge, skills and attitudes is being mastered on: application of the symbol means in the different communication situations; creation and absorbing texts, functioning in the communication practice; integration of common human values, forming a publicly responsible individual. This CEA has a specific place role in NCE towards orientation, searching and using of information in different information sources (textbooks, reference books, scientific journals, newspapers, incl. NCE magazines, etc.); creation of own texts with an analytical or interpretation purpose; texts of an argument character or describing type; usage of language means, adequate to the communication situation; presentation of own opinion; differentiation of own viewpoint; participation in a discussion or debate – individually or in a team.

NCE can and should start from grade 1 and to continue developing in a system. It has to start at the primary literacy level, education in reading, mastering the basics of the oral and written language through specific nature conservation activities. The specific education in literature, which starts in grade 3 and continues in grade 4 may be saturated with stories, poems, quizzes on nature and nature conservation activity. This eases the understanding of the meaning of the text read. It is easier for the students from the primary level to create stories under experiences they went through related to nature and its protection.

Preconditions for NCE in the CEA "**Foreign language**s" (I and II language) can be identified in regard to the possibilities to create communication competency for interaction in different situations in the environment; for the application of the knowledge, categories and concepts, formulated during the educational contents of other educational subjects; for usage of information from different information sources; for participation in conversations, discussions and defending own opinion and solutions based on good arguments. The major problem-thematic kernels with NCE opportunities in this CEA are: reading, speaking, writing, and listening. They are related to the educational standards for I and II foreign language. NCE in the primary level is implemented through the usage of textbooks illustrating natural landmarks that support the formation of oral and written abilities in a foreign language. This approach is successfully used for introducing the students to plants, animals and natural objects, etc.

Opportunities for NCE in the CEA **"Mathematics, Informatics and Informational Technologies"** are revealed in the educational contents of the educational subjects: Mathematics; Informatics and Informational Technologies. The two last subjects are taught in the high school. The basis for NCE in this CEA are related to the skills that students develop to deal with information – research and application of quantitative characteristics of the bodies and phenomena in the environment and creation of adequate mathematical models for solving tasks related to them. Mathematical knowledge and skills contribute to formation of logical thinking, logical presentation of arguments and formation of true conclusions. Knowledge and skills in the areas of Informatics and Informational Technologies are related to the utilization of computer versions of mathematical

[13] A copy of the Educational Standards will be presented additionally

models of the bodies and phenomena in the nature. Through the informational technologies are created accessible for the public methods and means for presentation, analysis, interpretation and transfer of data. The educational subjects in this CEA are in the center of the description, structuring and analyzing of data from different areas.

In the primary level this CEA includes the educational subject "Mathematics". Through NCE it is more accessible to model numeric statements using natural objects. It is also an element of this education to solve text tasks also built entirely on student's knowledge of natural objects. Data are being collected from the surrounding environment of the students and are then processed.

Educational standards of the CEA "**Public sciences and civil educatio**n" are aimed to prepare the students for a better adaptation and realization in the today's democratic society; develop their skills for an active citizen participation in the social life under the conditions of cultural variety and globalization of the social processes. This is achieved through mastering of the most important achievements of the social sciences (history, geography, economics, ethics, law, philosophy).

In the primary school level this CEA embraces the educational subjects "Homeland" and "Man and Society". Through NCE are built the primary knowledge of the students on the relationships man-nature. The basis for the CEA "Nature sciences and ecology" is being built through introduction to the natural objects in the homeland and the necessity of their preservation; definition of the importance of some natural elements such as water, soil, air; identification of the relationship among the peculiarities of the natural environment and the labor activity of the people.

Prerequisites for NCE are the most intensive in the CEA "**Natural sciences and ecology**" in the educational subjects: Environment, Man and Nature, Biology and health education, Physics and astronomy, Chemistry and environmental protection. Knowledge, skills and attitudes mastered through this CEA are related to nature, including the problems of NCE. Through the educational subjects understanding of the conditions and variety of the nature is being built. The major importance have the knowledge, skills and attitudes related to ecology, environmental protection, protection of human health and tolerance to all living creatures. These are being realized through: interactions, changes and evolution of natural bodies; work with different informational sources on bodies, processes, phenomena in the living and non living nature; formation of ecological culture and willingness to protect the environment.

The primary level includes the educational subjects "Environment" and "Man and Nature". Through these integrating educational subjects basic understanding is being built and concepts are being formed on bodies and phenomena in the living and non-living nature and its protection and rehabilitation.

The educational standards of CEA "**Arts**" have a defined position and meaning for NCE. Through the two educational subjects of this CEA – Music and Visual Arts pre-conditions are being built for forming an interest and creating skills for active personal and collective visual-creative presentation; for forming artistic behavior and imagination. Education on visual arts develops knowledge, skills and attitudes regarding the esthetic aspects of the bodies and phenomena in the environment. Visual symbolic systems in the means for visual information and communication have an underlined importance in the information systems and technologies, related to NCE. Through different types of visual image (figural, non-figural visual symbols and signs) the students are provided with the opportunity to express feelings towards different bodies and situations in the environment.

The subjects in the primary level are the same. NCE in these subjects is realized through learning of songs reflecting the beauty of the nature and creation of paintings on themes such as "For a clean environment", "My homeland – rich and beautiful", "Week of the forest", "Celebration of the water day", "Earth Day", Flower Day", "Day of the Rose", "International birds day", "Tourism Day, etc.

The identification of the opportunities for NCE in the CEA **"Lifestyle and technology"** is based on the educational subjects Domestic lifestyle and technology, Home technology and economics and Technologies. The educational subjects of this CEA are taught only in the basic stage (grades 1-8). Their aim is to form the basic technological literacy and competency. Through this CEA the students are able to re-discover the created by the humanity world, its connections with the environment and to comprehend the role of the scientific-technological progress. They have the chance to participate in different situation by making projects, constructing different products and technological systems, including those related to NCE.

The primary level involves only the educational subject "Lifestyle and technology". NCE is realized through studying the attributes of the materials, developing skills for work with natural and other materials, extracted from the natural resources. The production of food constructions and homes for animals, growing home flowers, preparation of sprouts and their planting, introducing the children to the way the fruits, vegetables, decorating plants and herbs are grown, care for home animals and protection of the wildlife, understanding the benefits of the ecological norms in growing of plants and animals.

The educational standards under the CEA "**Physical education and sports**" for the educational subject Physical education and sports contributes to the formation of a physical and sports culture as an important component of the common culture of the students in order to be able to maintain their vitality and to make them prepared for an active and healthy way of life. The sports-tourism activity in this CEA has a definite importance for NCE.

Detailed description of the NCE opportunities in the Educational Standards.

Problem - thematic nuclei and standards with possibilities for NCE of the educational subjects of the CEA in primary school level

[1]	**CEA/educational subjects**	**Basic stage** **Primary level**	
		Nuclei	**Standards**
1	**2**	**3**	**4**
1.	Bulgarian language and literature		
	Bulgarian language and literature	Socio-cultural competencies	1
		Language competencies	1
		Socio-cultural and language competencies (oral communication)	1.2.3.
		Socio-cultural and language competencies (written communication)	1.2.3.4.5
		Socio-cultural competencies	1.2
		Literature competencies	2.5
		Socio-cultural literature competencies; communication with a literature material	1.3.4
		Socio-cultural and literature competencies; creating expressions and written texts	1.2.3
2.	Foreign Languages	Listening	1.2
	Ist foreign language	Reading	2.
		Talking	5
		Writing	
	II foreign language	Listening	1.3
		Reading	1.4.
		Talking	1.3.
		Writing	2
3.	Mathematics, Informatics, Information technologies		
	Mathematics	Numbers	1.
		Surface figures	1.
		Measuring	1.
		Modeling	1.2.3.4
4.	Social sciences and civil education		
	Homeland		
		Homeland	3.5
		Man and living nature	1.5
		Substances, bodies and organisms	1.2.3.4
		Natural phenomena and processes	1.2
		Man and his health	3.4
		National and cultural heritage	5
	Environment	Homeland	3.5
		Man and his nature	1.5
		Substances, bodies and organisms	1.2.3.4
		Natural phenomena and processes	1.2
		Man and his health	3.4
		National and cultural heritage	5
	Man and society	Homeland	2
		Man and his nature	1.2.3.4
		National and cultural heritage	2.5
		Bulgaria - part of the world	1.2.3.4
		Sources of knowledge	1.3
	Civil education	Me and my world	2.3
		I a citizen of my country	2.3
		Me and the world	1.2
		Me and the world of grown ups	1.3
		Protecting the living creatures and reacting in critical situations	1.2.3
5.	Nature sciences and ecology		
	Homeland	Homeland	3.5
		Man and his nature	1.5
		Substances, bodies and organisms	1.2.3.4
		Natural phenomena and processes	1.2

		Man and his health	3.4
		National and cultural heritage	5
	Environment	Homeland	3.5
		Man and living nature	1.5
		Substances, bodies and organisms	1.2.3.4
		Natural phenomena and processes	1.2
		Man and his health	3.4
		National and cultural heritage	5
	Man and nature	Substances, bodies and organisms	1.2.3.4.5
		Natural phenomena and processes	1.2.3.4.5
		Man and his health	1.3.4
		Observation, experiments and investigation	1.2.3.4
6.	Arts		
	Music	Musical practice, making music, absorbing music	1.2.3
		Elements of the musical expressiveness	1.
		Music and games	1.3
		Functioning of the music, music and the society	3
	Visual arts		
		Object and environment	1.2.3.4
		Object and image	1.2.3
		Audience and arts	1.2
		Visual communication	3
		Materials and techniques	-
7.	Lifestyle and technologies		
	Home lifestyle and technology	Designing, planning and evaluating	1.2.4
		Equipment and maintenance of the equipment	3
		Equipment, assembling and combining of materials and modules	1.3.4
		Communication and control in labor processes	1.2
		Designing, planning and evaluation of technical processes and objects	2.3.4.5
	Home technology and economy; technologies	Equipment and maintenance of the equipment	1.2
		Equipment, assembling and combining of materials and modules	1.4
		Organizing the job and the economy	1.2.3.4
		Looking after animals and plants, health and safety	1.2.4
8.	Physical culture and sports		
	Physical education and sports	Athletics	1.2
		Gymnastics	1.2
		Sports games	1
		Water sports	1
		Tourism	1
		Dances	1

Note: The numerical indicators in the columns standards show the sequence of the standards (knowledge, skills and behavior) at the Educational Standards.

Problem-thematic nuclei and standards with NCE opportunities of the educational subjects under CEA in the secondary and high school levels

[1]	**SEA/Educational subjects**	**Basic stage Secondary level**		**Middle stage High school level**		
		Nuclei	**Stand.**	**Nuclei**	**Standards**	
					I level	**II level**
1	**2**	**3**	**4**	**5**	**6**	**7**
1.	Bulgarian language and literature					
	Bulgarian language and literature	Socio-cultural competencies	1.2	Socio-cultural and language competencies (oral communication)	1.2.3	-
		Language competencies	1.2	Socio-cultural and language competencies (written communication)	1.2	-
		Socio-cultural and language competencies (oral communication)	1			
		Socio-cultural and language competencies (written communication)	1.2.3.4			
				Socio-cultural competencies	4	-
				Socio-cultural and literature competencies Creation of statements and written texts	1.2.	1
2.	Foreign languages					
	I foreign language	Listening	3	Listening	1.3	2/1.2
		Reading	1.2	Reading	1.2.3	1.2/1
		Talking	1.2	Talking	1.2	1.2.3/1.
		Writing	2	Writing	1	2 1.2/2.3
	II foreign language	Listening	1.3	Listening	1.3	-
		Reading	1.2.3	Reading	1.3	-
		Talking	1.2	Talking	1	-
		Writing	-	Writing	1.2	-
3.	Mathematics, Informatics and Information Technologies					
	Mathematics	Functions. Measuring.	1.	Functions. Measuring.	3.4	-
		Logical knowledge	1.2.4	Logical knowledge	2.3	2.3.4
		Elements of probabilities and statistics	1.2.3.4	Probabilities and statistics	-	2.3
		Modeling	2.5.6	Modeling	2.3	-
	Informatics			Information and formal models	1.2.3.4	-
				Computer systems	2.4	-
				Operational systems	2.4.5	-
				Algorithms and structures of data	2	2
				Programming	5	-

	IT			IT in problem solving	1.3.5	1.2.4.5
				Communicating through IT	2.4	3.4
				Control and management of objects	2	-
				Integrating activities in IT	1.2.3.4	1.2.3.6
4.	<u>Public Sciences and Civil Education</u>					
	History and Civilization	The foundations of the modern world	3.1	The foundations of the modern world	1.2	-
		Man in history	1.3	Man in history	4.5.6	-
				History sources	1.4.5	2.3
	Geography and Economy	Earth as a planet and its natural image	3.4.5	Natural structure and resources of the Earth	1.2.3.4.5	1.2.3.4.5
		Geographical picture of the world	2.3.5	Geography of the population and settlements	2.4.5	2.4
		Bulgarian geography	1.2.3.5	Political and economic organization of the society	1.2.3.4.5	4.5
		Sources of information and working with them	1.3	Geographic regions of the world and the countries in them	1.2.5	-
				Bulgarian geography	2.3.4.5	2.3.4.5
				Sources of information and working with them	1.2.3.4.5	1.2.3.4
	Educational sub-group "Philosophy" (psychology and logic, ethics and law, philosophy)			Self understanding and mutuality	5	-
				Freedom and responsibility	4.5	1.2.3
				Freedom and law	1.2.5.6	2.5.6
				Critical thinking	2.3.5.6	2.3.4
				Man and his/her world	2.3.4	2.6
	Civil Education	Political and economic map of the world	3.4	Citizen, politics, democracy	2	-
		Diversity and identity of the individual	3	Citizen, power and the state	1.2.3.4.5.6	-
		Economy and its mechanisms	1.2	National identity and differences in the society	4	-
		Citizen and the power	1.2.4			
		Global problems of the modern world	1.2.3.4.5	Citizen, rights and obligations	3.4	-

				Bulgaria and the world	2.3.4	-
5.	Natural sciences and Ecology Biology and health education	Structure, living processes and classification of organisms Human organism (structure, living functions and hygiene) Organism - environment Observation, experiments, investigations	1.2.3.4.5 1.2.3.5 1.2.3.4 2.3.4	Biosphere (macrosystem structure and processes) Cells (macrosystem structure and processes) Multicellular organism (mesosystem structure and processes) Biological evolution Observation, experiments, investigations	1.2.5 3.4 2.3 1.3 3	1.2.3.4 3.5 3.4 1.2 1.2.3.4.5.6
	Physics and Astronomy	From the atom to the Space Electricity Light Movement and forces Energies Observation, experiment	1.2 2.3 1.4 2.4.5 2.5 2.4.5	Electricity and magnetism Vibrations and waves Light From the atom to the Space Observation, experiment	- - 1.2 2.3 3.4.5	4 4 - 1 -
	Chemistry and Environmental Protection	Composition and characteristics of the substances Application of the substances Experiment and investigation	4 1.2.3.4 2.3.5	Classification of substances Composition and characteristics of the substances Application of the substances Chemical processes Experiment and investigation	2.3.5 3 1.2.3.4 1 1.2.4	- - 1.2.3 - 1.3.5
6.	Arts Music	Music practice Functioning of the music, music and society	3.4 4	Music practice Functioning of the music, music and society Global and local tendencies in the modern music	2.4 2 -	2 - 3
	Visual arts	Visual absorption and fantasy Expression means of	1.2.4 1.3.4	Arts and society Creative process Situations and visual	2.3 1.2.3	4 1.2

		the visual image System of tools for visual information and communication Structure of the visual arts work	 1.2.3 1	communication	1.2	1.2
7.	<u>Lifestyle and technology</u> Home technology and economy; Technologies	Design, planning and evaluation of technical processes and objects Equipment and maintenance of equipment Equipment, assembling and combining of materials and modules Organization and economy Growing plants and animals, care for yourself and the others	 2.3.4.5 1.2 1.4 1 1.2.3.4.5			
8.	<u>Physical culture and sports</u> Physical education and sports (additional kernels of the educational contents)	Water sports Tourism Selected sport	 1 1 1.2	Water sports Fitness and body building Selected sport	1 1	- - 1.2.

Note: The numbers in the columns "standards" show the sequence of the standards (knowledge, skills, attitudes) of the Educational Standards.

Attachment 5: Information on some of the higher educational institutions providing pre-service teacher training

Sofia University "St. Kliment Ohridski"

The Faculty on Primary and Pre School Pedagogy (FPPSP) was founded in 1983. The faculty educates under the specialties pre school and primary pedagogy, primary pedagogy and foreign language, pre school pedagogy and foreign language, social pedagogy, pedagogy of the visual arts education, pedagogy of the music education. It provides Bachelor degrees. The Faculty also offers 16 Masters programs for masters on pedagogy - pre school pedagogy, primary school pedagogy, special pedagogy, visual arts pedagogy, music pedagogy and master on social activities.

The Faculty on Pedagogy is founded as a separate faculty in 1986. It educates students on the specialties pedagogy and social activities. It provides Bachelor degrees.

The Faculties: historical, philosophical, mathematical and informatics, physical, chemical, biological, geo-geographical, Slavonic philology and classical and new philology train teachers for the secondary and high school levels with Bachelors degrees.

The Pedagogical Faculty at the SU comprises 14 professors including the department "Didactics" - 7 people, department "Theory of the upbringing" - 3 people, department "History of pedagogy and management of education" - 3 people. The number of the students in the specialty pedagogy is as follows: regular education - 213 people (course 1-5), extramural studies 83 people (course 1-5). In the specialty pedagogy of the deviant behavior - regular education 127 people (course 3-5), extramural studies - 10 people (course 3-5) and in the specialty social activities: regular education - 123 people (course 1-2), extramural studies - 43 people (course 1-2). Separately from each of the other faculties graduate yearly about 45 people with pedagogical profile.

Veliko Tarnovo University "St.st. Kiril and Methodius"

In the Veliko Tarnovo University the number of professors in the specialty pedagogy is 8 people, in the specialty pre school pedagogy - 5 people and in the specialty primary pedagogy - 6 people. Every year from the Faculty "Pedagogy" graduate about 30-40 young specialists with pedagogical profile. Separately pedagogical staff graduates in the following specialties: mathematics and informatics - 40 people; primary and pre school pedagogy - 35 people; Bulgarian language and history - 35 people; history and geography - 30 people; visual arts pedagogy - 45 people; sports pedagogy - 40 people; music pedagogy - 20 people.

Plovdiv University "Paisii Hilendarski"

In the Faculty "Pedagogy" of the Plovdiv University, branch Smolyan the total number of professors is 31 plus another 55 professors on temporary basis. The total number of students in the faculty is 629 regular education, 128 extramural studies. Bachelor degree is obtained by 131 students.

Attachment 6: Opportunities for NCE in the Educational Programs[14]

The educational Programs for **grade 1** allow NCE to be realized through educational nuclei such as: "Man and his environment", "Substances, bodies and organisms", "Natural processes and phenomena", "Man and his health" and the accordingly developed themes, such as: "Nature in my homeland", "Man and his health", "Nature protection", "For a clean environment" etc. Mastered are concepts such as: seasons, trees, bushes, herbaceous plants, wild animals, domestic animals and so on. As a result of such an education the students name the country, the settlement, describe their location; name the geographical forms, such as mountain, field, river, lake; describe generally the changes occurring in nature with the change of seasons; name plants, popular in Bulgaria; distinguish the plants' organs on a picture; list typical representatives of the local fauna: distinguish wild from domestic animals; list rules for behavior in nature; formulate, based on specific examples and visual materials, rules for nature protection; know and take care of flowers and herbs; acquire the skills to water and clean flowers, collect and store, without destroying them, herbs and natural materials.

EP for CE in **grade 5** have key importance due to the specific position of this grade in the system of the common education of the students right after the end of the primary level (1-4 grades) and in the very beginning of the secondary level (grades 5-8) of the basic educational stage. Throughout the education in CEA subjects for 5 grade continues the process of building knowledge and forming skills and attitudes by crediting the achievements of the students at the end of the primary level. This characteristic of the education in CEA subjects in 5 grade is closely linked to NCE. The analysis of EP for CE in 5 grade in order to identify opportunities for NCE is concentrated in the following sections: I. General introduction of EP; II. Aims of EP; III. Expected results; IV. Educational content.

In the **Bulgarian Language and Literature** EP in 5 grade continues the formation of language and socio-cultural competencies and their application in various spheres of communication. Especially important for NCE are the skills of informing/reporting and reasoning/arguing, also formed as a specific accent of the language competencies. Parallel to that in the Bulgarian Language and Literature education in 5 grade a connection is realized between oral statements and written texts. In the Literature education in 5 grade through examples from literary works students are given the opportunity to comprehend the connection between man and nature.

In the **Foreign Languages** education (I and II foreign language) – English, Spanish, Italian, German, Russian and French languages in 5 grade are formed communicative skills for enriching students' general knowledge and information, for creating adapted models of social behavior in situations of inter-cultural communication. The Foreign languages education increases the possibilities for using information and the students' communication skills, which are very important for NCE.

In the **Mathematics** EP in 5 grade important for NCE is the included Educational content for absorption and application of basic mathematical knowledge, understanding the meaning and character of the main logical relations between the studied concepts and statements, connected with numbers and figures. In the Educational content there is a special place for the concept "percent" and percent-related problems. The educational content pays attention to the "graphic interpretation

[14] A hard copy of the Educational programs for 1st and 5th grade will be presented additionally

of data" aided by circle diagrams and histograms. This knowledge has practical application in the interdisciplinary relations and especially in NCE.

Through the **Man and Nature** EP in 5 grade continues the educational system from the primary level. EP for this subject is formed in three consecutive parts: I. – Physics phenomena; II – Substances and their properties; III – Structure and vital processes of organisms. EP of this subject supplies basic knowledge about the objects, processes and phenomena in living and non-living nature. Content accent in EP is knowledge about the constructive units of substances and organisms; about processes and phenomena in nature; about metabolism in multicellular organisms, incl. man. Of great importance for NCE are the opportunities the EP in this subject provides for the students to describe phenomena, processes and objects; to distinguish/identify objects and processes; to compare and look for links, dependencies and interrelations. The educational content is oriented towards formation of knowledge and practical skills, related to: observations in non-living and living nature, measurements and absorption of a system of rules for a healthy lifestyle and ecological behavior.

In the **History and Civilizations** EP in 5 grade the students are given the opportunity to study a whole course on history of the homeland - from the earliest trace of man on Bulgarian lands to the end of VVII century. Accent in the educational content is the period VII - VVII century, which has a relative historical entity and presents Bulgarian history up to the Industrial age. The opportunities for NCE in this subject are rather consequences of the Educational content. Through the homeland history education in 5 grade the students are given the opportunity for an improved awareness of contemporary dynamics of social development and the changes in socio-political, economical, technological and socio-cultural aspects of environment.

In the **Geography and Economics** EP in 5 grade an initial course of General geography is studied. Main content accent in it is geographical knowledge about nature and society. The general part of this course is the basis for studying Regional geography in the secondary school level. In EP in 5 grade starts the formation of students' geography culture through the initial study of general geography questions and their specification in examples from the African continent. During the Geography and economics education in 5 grade the students are given the opportunity to absorb scientific knowledge about: the planet Earth and its natural aspect; population, economy and contemporary political map of the world; geographical picture of the African continent (nature, population, economy, major countries and towns); and to acquire practical skills for: working with a geographical map; reading a climatogram and histogram; calculation of geographical population density and others. Importance for NCE have also the abilities for geographical characterization of a continent, plane, mountain, river, country/state and town. Through the EP is formed a contemporary attitude towards the world and an understanding of the necessity of nature conservation and rational use of natural resources.

The **Arts** EP in 5 grade is based on a didactic concept where the students' creative process is not to be determined strictly. Based on the Educational standards, the EP educational content is interpreted by the teacher, thus creating a model of a study process, oriented towards factors of nature and the socio-cultural environment. Arts EP in 5 grade creates conditions for development of visual thinking, investigating and analyzing some of the most popular visual means of information and communication and their application in various spheres of the environment, for discussing and visualizing aesthetic and ecological problems, objects and situations in environment. Main content accents of the educational content are knowledge and skills for building real and fantasy images by combining visual elements from real objects, space and situations; interpretation of images with

associations from different sources; combining and experimenting with materials and techniques; study of various types and genres of art. Great importance for NCE has the educational content of didactic complex, where landscape as a genre in art and in student art integrates aesthetic and ecological aspects of environment.

In the **Music** EP in 5 grade are developed musical abilities and comprehension of phenomena and processes in the musical art. By means of activities such as: performing, perception, composing and analyzing music, building responsiveness and privy towards national musical folklore, students' personal expression, taste, needs and interests are stimulated. In the educational content are included musical works and specific tasks, related to the emotional impact of natural objects and situations.

Through the **Home Technology and Economics** EP in 5 grade is established the basis of the students' technological literacy, including abilities to create organization and initiative in their work. Through the EP of this subject the students are given opportunity to absorb knowledge, skills, and attitudes, which are very important for building organizational, health, economic and ecological culture. For NCE Home Technology and Economics education provides opportunities for carrying out various operations using equipment and working with natural materials. The skills of growing and taking care of plants, animals, one's self and the others are very important for the EP.

Through the **Physical Education and Sports** EP in 5 grade are formed practical knowledge and skills for perfecting the natural movements and an initial introduction to main sports. Sports-technical and sports-tactical skills are the basis of the students' common sports education and preparation. Great importance for NCE has the educational content of the "Tourism" kernels. It is a means of reaching one of the main aims of this subject – to accustom a lasting interest towards the sports studied and the active rest in nature.

Distribution of the opportunities for NCE in the educational programs of grades 1 and 5 is presented in Attachment 6.

The common education of the school students in the high school level (grades 9-12) is implemented on Ist and IInd level of the Educational Standards. CE in the high school level in implemented on Ist level of the Educational Standards of the educational subjects of the CEA, included in Part A of the educational plan. CSE in the high school level is implemented as non-profiled education (IInd level of the Educational Standards), profiled education (CE and CSE respectively Ist and IInd level of the Educational Standards) and professional education (Article 11 of Regulation No 6/28.06.2001).

Non-profiled education is conducted during the educational time that is distributed among the educational subjects of the CEA in Part A of the educational plan and mother tongue respectively: up to 72 hours for grades 9-10, up to 108 hours for grade 11 and up to 93 hours for grade 12 per year.

Profiled education is conducted according to the distribution of the educational time among the educational subjects of Part A of the educational plan that are proposed by the school and selected by the students. The aim of the profiled education is to form sustainable knowledge, skills and competencies in specific scientific and applied areas of the educational contents. The profiles in this type of education are: humanitarian, nature-mathematical, foreign languages, technological, arts and

sports. The profiling educational subjects in grades 9-11 are studied for not less then 108 hours and in grade 12 - not less then 124 hours a year.

Professional education is used for the compulsory professional education and compulsory selected professional education in the professional schools and professional high schools (Article 17 of Regulation No 6/28.06.2001)

The education in the CE and CSE for the Ist and IInd level of the Educational standards in the high school level is implemented according to educational programs adopted by the Minister of Education and Science.

This peculiarity of the common education in the high school level provides opportunities for deepening and expanding the knowledge and practical skills of the students; for developing values and orientations; for completing the system of building language, socio-cultural, communication, nature-mathematical and technological competencies. Important meaning for NCE in them have the key knowledge and skills for critical thinking, problem solving, developing learning strategies and behavior in diverse situations of the environment.

Opportunities for NCE according to adopted educational programs for CE in grades 9-11.

The EP on Bulgarian Language and Literature for grades 9-11 of the CEA Bulgarian Language and Literature form the knowledge and skills for the development of language, socio-cultural and literature competencies of the students in regard to the functioning of the text in the different communication areas. Identification of NCE opportunities in this educational subject is regarding the role of the language for specifying and using information, for the text functioning in the main communication areas (grades 9-11), artistic communication (grade 11), media, institutional and civil areas of communication (grade 12).

The EP on Foreign Languages (Ist and IInd foreign language) **for grades 9-11** of the CEA Foreign Languages provides for the achievement of communication competence in foreign language and opportunities for its utilization in the diverse life, educational and professional situations. Language literacy and communication competence provide the students with possibilities to use information from different information sources, to participation in communication situations in oral and written forms, while selecting effective for the situation models of behavior. Through the education on foreign languages in grades 9-11 the foreign language culture and culture of communication in foreign language is being extended as well as the common language and socio-cultural competence. Important meaning for NCE has the intercultural communication and the change of the tolerance towards the differences and the formation of learning strategies through the utilization of traditional and contemporary forms for information provision and communication.

The educational accents of the **educational programs on Mathematics in grades 9-11** in regard to NCE are the strengthened utilization of cognitive methods: analysis, synthesis, comparison, summary, induction, deduction, analogue, disregard, concretization and specialization as well as the application of technological approaches: modeling, integration, prognosis, problem solving and algorithms for the processes. The deepening of the logical knowledge and skills of the students, the formation of logical culture and mastering the basic cognitive methods enlarge the possibilities for practical application including in the diverse situations in the environment when solving problems, analyzing and forecasting.

Through the **EP for CE in Informatics in grade 9** are studied the foundations of informatics, its place and role in the modern society. The main accents are the problems of the educational contents related to the typical peculiarities and presentation of information, information processes and algorithms for processing simple data sets. The students learn about the functional possibilities of the computer systems and the main areas for their utilization in combination with applied software. Through the education in Informatics in grade 9 culture is formed for working with information, knowledge and skills is mastered for usage of modern IT. In this regard the mastered knowledge and skills reflect the increased needs for information from different scientific and applied scientific areas including in the field of NCE.

The EP on Information technologies for grades 9-10 form knowledge and practical skills for work with the most frequently used applied products in the field of IT. Main accents in grade 9 are: work with computer systems, text processing, work with electronic tables and databases; in grade 10 - databases, presentations, and networks. Priority importance for NCE has the mastering of learning strategies that reveal the abilities for research, critical thinking and problem solving. Through the education on IT in relation to NCE the students master knowledge and skills to collect, evaluate, synthesize and present information from different sources as well as to apply the knowledge through the utilization of different problem solving strategies.

The educational subjects of the CEA Natural Sciences and Ecology that are studied in CE in the high school level are: Biology and health education, Physics and astronomy, Chemistry and environmental protection in grades 9 and 10.

Through the **EP on Biology and Health Education in grades 9 and 10** is formed a system of knowledge, skills and attitudes related to nature. They are the foundations for building of a long-term interest to the biological knowledge and its applied meaning in different situations of the environment. This educational subject has a special role for NCE both in regard to basic knowledge and skills and in regard to the activities for their mastering: identification, comparison and grouping of structures and processes on biosphere and cell levels; analysis and evaluation of the ecological state; discussing and forecasting the impact of different factors on the processes, taking place in the macrosystem and microsystem; solving tasks related to environmental protection and human health (grade 9); analyzing of links and interrelations; modeling of results from the interactions of the genes and evaluation of their practical meaning; solving tasks on genetic and evolution basis (grade 10).
Through the **EP on Physics and Astronomy in grades 9 and 10** are deepened and expanded the knowledge and skills of students both - on the studied physical phenomena and the new phenomena. The education in CE in grades 9 and 10 forms on an experimental basis scientific knowledge about the physical picture of the world and develops the knowledge and skills of the students to apply contemporary methods of learning. Accents that are of importance for NCE in this educational subject are: understanding the main regularities of electromagnetic and wave phenomena and their application in the technology, living nature and ecology. The education on physics and astronomy in the high school contributes to the formation of a scientific view, contemporary organizational and information culture, active citizen position to environmental problems that appear with the development of the modern technological and information society.

The education on **Chemistry and Environmental Protection in grade 9** forms the entire understanding on the chemical elements, substances and their transformations. The main accents of the educational contents under this educational subject in grade 9 are: composition of the substances, organic and non-organic chemistry. The areas of focus of the education in grade 10 are:

chemical processes, solutions and chemical technologies. As a result of the education on chemistry the students master knowledge and skills to: describe phenomena, processes and substances; understand their application in the practice; characterize the physiological state of the substances. Important meaning have the skills to analyze, compare and summarize; to discover links and dependencies; to plan and implement experiments; to analyze and forecast results. The mastered knowledge, skills and attitudes on chemistry and environmental protection have a clear role in NCE.

The educational subjects under the CEA **Public Sciences and Civil Education** are studied in the CE of the high school level according to the following distribution: History and Civilization in grades 9 and 10; Geography and Economy in grades 9 and 10. The educational subjects of the sub-group "Philosophy": Psychology and Logic - 9 grade; Ethics and Law - 10 grade; Philosophy - 11 grade; World and Individual - 12 grade.

The **educational programs on History and Civilization for CE of the grades 9-10** form the knowledge, skills and attitudes related to the spiritual and civil identity of the individual; contribute to the contemporary orientation, adaptation and realization in the modern democratic society; stimulate the civil participation in the social life in the conditions of cultural diversity and globalization. For NCE an important accent is the achievement of a balance between the different aspects of the historical contents (society, politics, economy, arts, daily life, way of thinking); orientation towards meaningful values of the modern life: human rights, superiority of the law, democratic values, national and European identity; civil society.

The EP on Geography and Economy in grades 9-10 form the knowledge, skills and attitudes building the foundations of the geographical culture of the students. The main accents of the educational contents are: natural structure of the Earth; natural resource potential; political and social-economic organization of the society; population; settlements; economy; major geographic regions in the world and countries in them. Important meaning for NCE have the educational problems revealing the diversity of the world, accompanied with acute problems and conflicts of local and global character. The educational contents in grades 9 and 10 also form some specific skills to work with regional geographical literature; adopted international and state legislative documents; creation, graphical design and analysis of pictures, statistical sources and other types of information materials on nature, population and global economy.

The EP for the educational sub-group "Philosophy" (Psychology and Logic, Ethics and Law and Philosophy) orient the student in his/her attitude to himself/herself, towards the other people and towards the world; assist for his/her self identification as an autonomous individuals and free member of the society.

The educational contents of the **EP on Psychology and Logic in grade 9** is oriented towards self understanding of the individual; towards abilities to communicate and live with a partner; towards understanding the other people and the world; towards formation of critical and creative thinking.

The **EP on Ethics and Law in grade 10** includes educational contents oriented towards the moral self-identification of the individual, towards development of skills for an autonomous and responsible moral choice. The education under this subject builds the foundation of the civil culture in which the main priorities are the human rights, values of the democracy, active participation in the civil society.

The **EP on Philosophy in grade 11** provides the opportunity to comprehend and identify view of life attitudes through the university of the man and the world, through introducing the students to a universal methodology. The education on Philosophy relying on the results of the application of the other EPs from the other educational subjects in the sub-group "Philosophy" integrates the achievements of the individual self understanding, critical and creative thinking and moral self identification. The importance of this subject for NCE is in regard to the possibilities for creation of methodological conditions for problem solving.

The **CEA Arts** in the high school level is realized through the CE of students in grade 9 of the educational subjects Music and Visual Arts.

The EP on Music contributes to the building of the musical culture; formation of interests and talents on the basis of diverse musical-social experience. The educational contents include different types of musical activity and a system of observations and analysis of music from different genres and styles. The musical art is seen as an important component of the culture as well as an integral element connected to the dynamics of the cultural processes and social life.

The EP on Visual Arts in grade 9 forms visual creative skills among the students; builds value system in the field of visual arts culture. Important meaning have the educational problems oriented towards the creative process; the contemporary means for visual information and communication; the differences and interrelations among the different styles, visual art directions and authors; relationships arts-society; tradition and modern life. In relation to NCE the education on visual arts forms critical attitude towards the environmental problems, reflected in the visual images (figurative, non-figurative, signs and symbols).-

The CEA Physical Education and Sports is represented by the educational subject **Physical Culture and Sports in the CE in grades 9-12**. Through this educational subject are built the foundations of the sports literacy and physical condition. Accents from the educational contents of the EP are: common physical education; main key groups of knowledge and skills on sports-technical and tactical education; knowledge of sports rules and physical education for the formation of special sports culture. In regard to NCE this subject provides the opportunities to apply the knowledge and skills of students in the usage of strategies for the achievement of specific results.

Description of NCE opportunities in the Educational Programs.

NCE opportunities in the educational programs for grade 1.

Nuclei	**Expected results on EP level**	**Educational problems/themes**	**Main concepts**	**Context and activities**	**Possibilities for interdisciplinary connections**
1	**2**	**3**	**4**	**5**	**6**
BULGARIAN LANGUAGE AND LITERATURE EP 1 grade					
Bulgarian language					
Socio-cultural competences	The student participates in simplified dialogues, appropriated to his/her everyday life, experience and knowledge	1.2.7 *Pre-lettering stage*	1-6 *Concepts are absorbed on a practical basis*	1-4 *Pre-lettering stage*	1.2/1-3 *Foreign language* *Mathematics* *Music*
Language competences	The student uses verbal etiquette The student composes communication and interrogative sentences	2.4.5. *Lettering stage* 7.8.10	*Lettering stage* 1.2.8.9	*Lettering stage* 1 – 5	*Homeland* 1.2.3
Socio-cultural and language competences (oral communication)	The student hears out his/her interlocutor in the process of communication READING The student reads aloud for the others and understands an short text	3.4.5 5.6	1-5 4.5	3.4 1-3	3.4.5 *Art* 3.4.5
Socio-cultural and language competences (written communication)	WRITING The student writes accurately and grammatically correctly Creation and understanding of written texts: the student creates a written text of 2-3 simple sentences, which are answers to a series of questions	- -	- -	- -	1-3 *Domestic lifestyle and technology* 1-3
1	2	3	4	5	
Literature					
Literary competencies	The student differentiates fairytales, poems, riddles	-	-	-	1-3
Socio-cultural and literary competences (communication with literature)	The student answers simple questions about the content of the literary work				

Creating statements and written texts	studied	-	-	-	1-3
FOREIGN LANGUAGES EP 1 grade					
Reading Speaking Writing Listening	Understands questions, directions and messages. Understands basic information from messages, cartoons, answers specific questions. Writes numbers, letters, words	1.2.3			*Bulgarian language* 1.2.3
MATHEMATICS EP 1 grade					
Numbers	The student is able to read and write the numbers from 0 to 20. Knows one-digit and two-digit numbers. Knows how to compare and put in order the numbers till 20, understands the rationale of building the row of numbers (till 20)	2.5.8. 11.13.14	1.3.4,5-9	1-5	1-3
Plane figures	Differentiates by shape the geometrical figures: square, circle, triangle, rectangle, line; can draw a line with a given length in centimeters	4.5.7	1-5	-	*Domestic lifestyle and technology* 1-3
Measurements	Knows the metric unit centimeter; knows the weight unit kilogram; knows the time unit hour; can measure line length in centimeters; can sum and subtract using the units studied	1.2, 7-10,14.16	1-4,8	-	-
Modeling	Is able to model situations with number expressions; can solve text problems with a single calculation	-	6.7.8	-	-
HOMELAND EP 1 grade					
Home land	Lists the family members and determines their roles and responsibilities; names the settlement where he/she lives and lists its main sights; names the school and determines the roles and responsibilities of the people working and studying there	1-3	1-4	1-3	*Bulgarian language and literature* 1.2
Man and his environment	Indicates the relation between the characteristics of the environment and man's work; lists the types of professions and determines their importance; lists the rules for safe movement on the street	1.2	1-6	4.5	1.2
Substances, bodies and organisms	Differentiates wild from domestic animals, trees on pictures, bushes, herbaceous plants; names the typical seasonal changes in nature	1-5	1-8	1-11	*Domestic lifestyle and technology* 1.2
Man and his	Lists the main hygienic rules; names				

health	man's activities leading to a disturbance in the natural balance; lists main rules for behaving in nature	1-4	1-4	1-8	*PE/Sports* 1.2
National and cultural heritage	Names the country where he/she lives and recognizes the flag of the Republic of Bulgaria; lists national holidays of the Republic of Bulgaria	1.3.4	-	-	*Domestic lifestyle and technology* 1-3
MUSIC EP 1 grade					
Music practice: making music, perception of music	Reproduces relatively accurately the intonation, metro-rhythmic and the fixed tempo; expresses his/her attitude towards the mood of the song performed Recognizes the sound of a national folk orchestra	1.2 1-4	1-4 1.	1.2 2.3	*Bulgarian language* 1 -
Elements of musical expression	Comprehends the concepts quick, slow and moderate and associates them with a certain performance; recognizes by timbre and appearance violin, contrabass, piano, trumpet, bagpipe, pipe, drum; recognizes and names low, high and repeating tones; differentiates ascending and descending movement and completeness and incompleteness. Determines short and long tone durations	1-8	1-8	1-3	*Art* 1.
Music and game	Connects the rites and customs studied with a specific calendar holiday or folk tradition; improvises dance moves, the meter and the overall mood of the music	1-5	1-4	1-5	*Domestic lifestyle and technology* 1-4
The functioning of music **Music and society**	Recognizes familiar and unfamiliar songs, instrumental works, march, waltz, horo, rachenitsa; connects the genres to their appearance in everyday life. Connects the names of the most popular children's songs to the names of their authors.	1-3	1-3	1-3	-
ART EP 1 grade					
Object and environment	Observes and differentiates natural and architectural environment. Perceives and analyses visual characteristics of objects and phenomena from the environment.				*Homeland*

	Understands main connections between object and environment and real and fantasy situations. Expresses emotional-aesthetical attitude towards the perceived objects and phenomena from the environment.	1 – 4	1-4, 6-10	1.4.5	1.2
Object and image	Creates real and fantasy images based on observation, imagination, memory and impression. Forms an overall notion for the most important visual characteristics of the objects; shape, color, general proportions. Builds visual images on the basis of associations from a literary work; displays selective attitude towards picturing various objects and situations	1.3.4	1-8	1-5	*Homeland* 1.2
A spectator and a work of art	Understands generally the content of a work of art. Depicts his/her feelings and impressions about the perceived works of art. Differentiates works of art by type and genre. Shares his/her emotional attitude upon perception a work of art	1.2	1.3.4.7.8	1-3	*Homeland* 1.2
Visual communication	Absorbs main concepts, related to contemporary visual information and communication media; is able to orient in the variety of visual information and communication media; knows the main rules for using visual information in the environment	2.3	1-5	1-3	*Homeland Domestic lifestyle and technology* 1.2/1-3
Materials and techniques	Understands generally the connection between materials and techniques; works alone and in a group and uses certain materials and techniques	1-3	4-9	1-4	*Homeland/ Domestic lifestyle and technology* 1.2/1.2
DOMESTIC LIFESTYLE AND TECHNOLOGY EP 1 grade					
Projecting, planning and evaluation	Understand and carries out instructions for work; is capable of evaluating work according to given criteria	2-4	2-4	2-4	*Bulgarian language and literature* 1.2.
Processing, putting together and combining materials and modules	Differentiates various materials good are made of; processes paper and textile by cutting, folding, sticking together and painting; braces two elements/modules	1.2.4.5	1-4	1.2.4	*Homeland* 1.3
Organization	Differentiates various materials good				

of work and economy	are made of; processes paper and textile by cutting, folding, sticking together and painting; braces two elements/modules	1	1.2	1-3	-
Equipment and equipment maintenance	Differentiates various materials good are made of; processes paper and textile by cutting, folding, sticking together and painting; braces two elements/modules	1-3	1-4	1-3	*Art* 1.2
Communication and control of the working processes	Differentiates various materials good are made of; processes paper and textile by cutting, folding, sticking together and painting; braces two elements/modules	1.2	1.2	3.	-
Growing plants and animals; health and safety	Differentiates various materials good are made of; processes paper and textile by cutting, folding, sticking together and painting; braces two elements/modules	1-3	1	1-4	-
PHYSICAL EDUCATION AND SPORTS EP 1 grade					
Track-and-field athletics	Performs natural motoric activities: running, jumping, throwing in various conditions and games; jumps high and far; throws big and small ball; reaches the level of physical skill, determined for 1st grade; accomplishes complexity in the development of his/her motoric skills (qualities); is able to perform exercises including crawling and climbing, climbing over, lifting, carrying and reaction, balancing elements, jumping and jumping over, rolling and rolling over	1-7	1-5	1-4,6.12. 13	*Homeland* 1-3
Gymnastics and tourism	To be able to move organized through a flat terrain; to be able to orient by the sun and to tell the main directions of the world	1-10	1-10	1-6	*Homeland*
Dance	To move rhythmically with and without musical accompaniment; to be able to use dynamic musical games	1.2	1.2	1-3	*Homeland*
Sports games	To apply the activities and games studied	1-3	1-5	1.2	1.2 *Domestic lifestyle and technology*

NCE opportunities in the educational programs for grade 5.

Nuclei	**Expected results on EP level**	**Educational**	**Main concepts**	**Context and**

		problems/themes		activities
1	**2**	**3**	**4**	**5**
BULGARIAN LANGUAGE AND LITERATURE EP 5th grade				
Socio-cultural competences	Application of students' knowledge and skills about situations of communication and text, for adequate absorption of texts from various sources of information and comprehension of scientific concepts.	1, 2	1 – 8	1 – 4
Language competences	Application of knowledge and skills about grammatical expressions of language and editing of own text while using information from various sources of information	1 – 11	1 – 3, 8 – 23, 26 – 30	1 – 2
Socio-cultural and language competences (oral communication)	Application of knowledge and skills about comprehension and creation of oral statements (acts of tolerance, expressing own opinion)	1 – 3	1 – 5	1 –2
Socio-cultural and language competences (written communication)	Application of knowledge and skills about main verbal activities in relation to searching and using information, creation of own texts	1 – 4	-	1 – 2
1	**2**	**3**	**4**	**5**
Literature				
Socio-cultural and literary competences (communication with literature)	Identification of moral principles and norms and their application in various situations in environment	1 – 2	1 – 2	1 –2
Socio-cultural and literary competences (expressions and written texts)	Taking part in situations of communication and creation of texts for comprehension, interpreting information and comprehension of scientific concepts	1 –2	1 – 6	1 – 4
FOREIGN LANGUAGES EP (I FOREIGN LANGUAGE) 5th grade				
Reading Speaking Writing Listening	Application of the acquired conceptual linguistic and socio-cultural knowledge and skills in different thematic areas of verbal communication (Personality and communication, Daily life, The world around us); activities for understanding and use of information from short texts; writing short texts with informational content	1 – 5	Word-building Main productive models Lexical minimum – 300 lex. units	3 – 11
FOREIGN LANGUAGES EP (II FOREIGN LANGUAGE) 5th grade				
1	**2**	**3**	**4**	**5**
Reading Speaking Writing Listening	Application of the acquired conceptual linguistic and socio-cultural knowledge and verbal skills in understanding, orientation and use of information from short texts, for communication in thematic	1 - 5	Word-building Main producti	1 – 11

	areas (My personality, My daily life, Personal preferences, The world around me)		ve models Lexical minimu m – 300 lex. units	
MATHEMATICS EP 5th grade				
Functions and measurement	Skills for measuring and calculating circumference, areas and volumes of figures and the expression in different units	1, 2 – 6	1 – 6	3 – 5
Logical knowledge	Skills for judging accuracy and rationality in a concrete situation	1 – 2	-	6
Elements of probabilities and statistics	Skills for transferring graphic information into numeric and vice versa	1 – 3	1 – 3	1 – 2
Modeling	Interpretation of the content of results achieved in mathematical modeling	1	-	1 – 2
HISTORY AND CIVILIZATIONS EP 5th grade				
Fundaments of contemporary world	Placing in chronological order important historical events and periods; synchronizing historical events; differentiating historical personalities from the same historical period	2	1 – 3	2 –5
Man in history	Realization and understanding of the interrelations between natural conditions and social life; clarifying the role of natural components in historical events (The Balkan mountain, the Danube river, the Black sea)	4	1 – 2	-
Sources of history	Differentiation of sources – written and material; using elementary information from historical documents (maps, tables, pictures); revealing the meaning of facts and events	5 – 6	1	-
GEOGRAPHY AND ECONOMICS EP 5th grade				
The planet Earth and its natural	Application of knowledge about the planet Earth (internal structure and outer cover); practical skills for working with geographical maps; revealing the connections between separate natural components; interrelation between the components of natural environment and realization of the necessity of rational use of natural resources	1 – 6	All for the nucleus	1 – 4
Population, economy, political map of the world	Knowledge about the core of the main economic branches; consideration of the ecological consequences of man's economic activity; skills for obtaining information from geographical maps and tables	1 – 3	3 – 8	1 – 3
Geographical picture of the world	Skills for using the various sources of geographical information	2	All for the nucleus	-
MAN AND NATURE EP 5th grade				
From atom to	Knowledge about the qualitative structure of the	1	1 – 6	1 – 4

Cosmos	Solar system			
Energy	Knowledge and skills for differentiating bodies and substances, for description of heat processes, for their application in daily life, equipment and nature; for the dangers of air and water pollution	4 – 5	15, 18, 19 – 22	5 – 6, 12 – 13
Application of substances	Knowledge about major air, water and soil pollutants, their functioning and impact	8 – 10	6, 10-11	3, 5-6
Human organism (structure, vital processes, hygiene)	Knowledge about the structure of systems and the processes taking place there; evaluation of the importance of hygiene for man's health.	13	-	-
Observation and experiments	Registering results of observations in natural environment and in laboratories; application of hygiene rules and norms for healthy lifestyle	13	-	-
ART EP 5th grade				
Visual perception and fantasy	Perception and visualization of objects and phenomena from the environment; knowledge of visual structures, characteristics of space and objects; expression of emotional-aesthetic attitude towards natural objects and phenomena through various types of visual images, signs and symbols	1 – 5	1 – 8	1 – 5
Means of expression of the visual image	Realization and application of variety in pictorial materials and techniques, according to the content and type of the image; applying possibilities for visual associations after various stimuli	3 – 4	1 – 2, 11	3 – 6
System of means of visual information and communication	Deciphering of signs and symbols in the visual information and communication media, according to their use in the environment	1 – 2	1 – 2	1, 4
MUSIC EP 5th grade				
Musical practice	Active participation in the study of themes from musical works in the listening repertoire; individual and collective performance of songs of different genres	1, 3	1	4,5/ст.2
Functioning of music (music and society)	Identification of typical folklore examples from various folklore areas (Rhodopi, Pirin, Thrace etc.) and various ethnic groups; main rites and customs	1/ст.1 1/ст.4	-	1 – 6
HOME TECHNOLOGY AND ECONOMICS EP 5th grade				
Processing, assembling and combination of materials and modules	Knowledge and skills for using basic tools and ways of work with products, textile, leather, wood and metal	3	1 – 2	1,3
Equipment and equipment maintenance	Knowledge and skills for different ways of storing and transporting heat	4	3 – 4	2 –3
Growing plants and animals; taking care of one's self and the others	Skills and knowledge about equipment and differences in care for animals in natural and artificial environment	6	1 – 3	1 – 3

PHYSICAL EDUCATION AND SPORTS EP 5th grade				
Tourism (additional nucleus)	Knowledge and skills for staying in the mountain and orientation in an unfamiliar place using compass and geographical map	1 – 2	1 – 4	1

Attachment 7: List of Interviewees

Code	Name	Institution	Group	Town	Possibility to use the name
IV01	Milen Marinov	Others - Private company/BAS	Other – private entrepreneur, scientist	Sofia	Yes
IP02	Milanka Troeva	MCES "Lyuben Karavelov"	Primary school teachers (1-4 grade)	Varna	Yes
IP03	Tatyana Ivanova	MCES "Geo Milev"	Secondary school teachers (5-8 grade)	Varna	Yes
IP04	Anna Stoikova	BS "Hadji Dimitar", Varna	Secondary school teachers (5-8 grade)	Varna	Yes
IG05	Tsetska Vulkova	Ist MCES "Pencho Slaveikov", Sofia	High school teachers (9-12 grade)	Sofia	Yes
IG06	Volga Neikova	Ist MCES "Pencho Slaveikov", Sofia	Primary school teachers (1-4 grade)	Sofia	NO
IL07	Yuliana Ganeva	19th MCES "Elin Pelin"	Primary school teachers (1-4 grade)	Sofia	Yes
IL08	Raina Alexandrova	BS "Evlogi Georgiev"	Secondary school teachers (5-8 grade)	Dupnitsa	NO
IL09	Ivanka Tsoneva	Kindergarten "Liliya", Stolipinovo	School (kindergarten) Principals	Plovdiv	Yes
IP10	Svetlana Koseva	BS "Chernorisets Hrabar"	Secondary school teachers (5-8 grade)	Varna	Yes
IL11	Stanka Vulkova	Private school "Doris Tenedi"	Secondary school teachers (5-8 grade)	Sofia	NO
IL12	D.P.I.	-	-	-	NO
IG13	Stoyan Goshev	Ist MCES "Pencho Slaveikov", Sofia	Pupils 1-4 grade	Sofia	Yes
IG14	Elitsa Arsova	Ist MCES "Pencho Slaveikov", Sofia	Pupils 5-8 grade	Sofia	Yes

IR15	Nina Koroliova	Language High School, Plovdiv	Pupils 9-12 grade 18 years	Plovdiv	NO
IR16	Natalia Zhivkova	Ist English Language High School, Sofia	Pupils 9-12 grade	Sofia	NO
IR17	Petya Ivanova	"Geothe" German Language High School, Burgas	Pupils 9-12 grade	Bourgas	Yes
IG18	Vanya Doncheva	Ist MCES "Pencho Slaveikov", Sofia	Pupils 9-12 grade	Sofia	Yes
IG19	Iva Gruncharova	Department of primary and pre-school pedagogy, Sofia University	Students Primary pedagogy	Sofia	Yes
IR20	Margarita Gospodinova	Sofia University	Students Biology	Sofia	Yes
IG21	Alexandar Daskalov	Sofia University	Students Geography	Sofia	Yes
IP23	Krassimir Koev	EI of MES	EI of MES experts	Silistra	Yes
IL24	Yordanka Teneva	EI of MES	EI of MES experts	Dobrich	Yes
IL28	Nevena Mateeva	DIETQ at Sofia University	DIETQ/DETQ professors	Sofia	Yes
IL29	Nina Georgieva	DIETQ at Sofia University	DIETQ/DETQ professors	Sofia	NO
IL30	Irina Koleva	DIETQ at Sofia University	DIETQ/DETQ professors	Sofia	Yes
IP31	Rashka Hristova	DETQ	DIETQ/DETQ professors	Varna	Yes
IP32	Elena Gancheva	DETQ	DIETQ/DETQ professors	Varna	Yes
IP33	Krassimira Kardjilova	DETQ	DIETQ/DETQ professors	Varna	Yes
IP34	Mara Torossova	DETQ	DIETQ/DETQ professors	Varna	Yes
IG35	Diana Yordanova	MES	MES experts	Sofia	Yes
IG36	Ivanka Nikolova	MES	MES experts	Sofia	Yes
IP38	Pavlina Mandadzhieva	BS "Stoyan Mihailovski"	School Principals	Varna	Yes
IG39	Petar Yankov	Bulgarian	NGO	Sofia	Yes

		Society for the Protection of Birds			
IV41	Assya Dobrudjalieva	Municipality of Kurdjali	Others	Kurdjali	NO
IG42	Tseko Tsekulov	Municipality of Sofia/ Region Oborishte	Representatives of local government in charge of the educational process	Sofia	NO
IG43	Iliana Mircheva	Sofia University/ Faculty of Primary and Pre-school Education	University professors	Sofia	NO
IG45	Plamen Patarchanov	Sofia University/ Faculty Geography	University professors	Sofia	Yes
IV46	Georgi Kimenov	Sofia University/ Faculty Biology	Professor Biology	Sofia	Yes
IL47	Neli Ivanova	Sofia University/ Faculty Pedagogy	University professors	Sofia	Yes
IR48	Kameliya Staikova	Sofia University/ Faculty Biology	University professors	Sofia	Yes
IR49	Kameliya Georgieva	ARD	Others	Sofia	NO
IR50	Pavel Pandarski	Ecoforum “For the Nature”	NGO	Plovdiv	NO
IG51	Lidiya Svetozarova	Ist MCES	Secondary school teachers (5-8 grade)	Sofia	Yes
IG52	Rositsa Popova	Ist MCES	Secondary school teachers (5-8 grade)	Sofia	Yes
IP53	Boryana Sevova	Technical College “John Atanasov”	University professors	Plovdiv	Yes
IP54	Gerassim Gerassimov	EI of MES	EI of MES experts	Dobrich	Yes
IL55	Svoboda	DIETQ at Sofia	DIETQ/DETQ	Sofia	Yes

	Beneva	University	professors		

Attachment 8: Number of educational institutions, teachers and students for the educational years 1997/98 – 2000/2001

	1997/1998	1998/1999	1999/2000	2000/2001
I. Total				
1. Educational institutions	3889	3837	3790	3585
2. Teachers	110541	111729	113009	107355
3. Students	1403892	1389513	1357068	1321952
II. Common educational schools including primary, basic, middle, secondary and high schools grades 5-13	**3137**	**3050**	**3011**	**2843**
1. Common educational schools including:	**3137**	**3050**	**3011**	**2843**
1.1.Primary schools	492	-	438	-
1.2.Secondary schools	26	-	23	-
1.3.Basic schools	2014	-	1947	-
1.4.High schools (5-13) and MCES (I-VII)	605	-	603	-
2. Teachers	**67659**	**66508**	**65885**	**63752**
3. Students	924247	905783	887213	867354
III. Special schools				
1. Schools	151	146	146	138
2. Teachers	2653	2560	2597	2268
3. Students	16547	16049	15984	16346
IV. MPTSs				
1. Schools	193	178	153	132
2. Teachers	4548	3999	3267	2935
3. Students	70895	62187	53512	47314
V. Technical schools, professional high schools and arts schools				
1. Schools	332	349	369	366
2. Teachers	13751	13893	14264	14779
3. Students	125492	127274	132240	138821

Attachment 9: Pre-service teacher training additional information

Registry of the higher educational institutions with possibilities for pre-service training of teachers[15].

№	Higher schools	Branch	College
1.	Sofia University "St. Kliment Ohridski"	-	
2.	Plovdiv University "Paisii Hilendarski"		
2.1.	Plovdiv University "Paisii Hilendarski"	Kurdjali	
2.2	Plovdiv University "Paisii Hilendarski"	Smolyan	
2.3	Plovdiv University "Paisii Hilendarski"		Pazardjik
3.	Veliko Tarnovo University "St.St. Kiril and Methodius"		
3.1	Veliko Tarnovo University "St.St. Kiril and Methodius"		Vratsa
3.2	Veliko Tarnovo University "St.St. Kiril and Methodius"		Pleven
4.	Schoumen University "Ep. Konstantin Preslavski"		
4.1.	Schoumen University "Ep. Konstantin Preslavski"		Dobrich
5.	South-West University "Neofit Rilski" – Blagoevgrad		
6.	Rousse University "Angel Kunchev"		

Registry of the major specialties in the higher education institutions with possibilities for pre-service teacher training.

Code	Specialty	Education-Qualification Degree		
		Bachelor/ Masters	Bachelor	College
1.	EDUCATION			
1.1.	Pedagogy			
1.1.1.	Pedagogy	x		
1.1.2.	Pre-school and primary Pedagogy	x		
1.1.3.	Primary Pedagogy and foreign language		x	
1.1.6.	Pre-school Pedagogy			x
1.1.7.	Pre-school Pedagogy and foreign language		x	
1.1.8.	Primary School Pedagogy			x
1.2.	Pedagogy of the education on:			
1.2.4.	History and Geography		x	
1.2.6.	Physics and Mathematics		x	
1.2.7.	Physics and Chemistry		x	
1.2.8	Biology and Chemistry		x	
1.2.9	Geography and Biology		x	
6.	MATHEMATICS AND NATURAL SCIENCES			
6.2.	Biology			

[15] *The institution included perform education on pedagogical specialties under a state order. The table does not reflect on private universities.*

6.2.1	Biology	x		
6.3.	Ecology			
6.3.1	Ecology and environmental protection	x		
6.4.	Chemistry			
6.4.1	Chemistry	x		
6.6.	Physics			
6.6.1.	Physics	x		
6.8.	Geography			
6.8.1.	Geography	x		

Note: *Specialties listed under item 6 may receive teacher qualification after the passage of exams on: Pedagogy, Psychology and Methodology of teaching. The data in the table are reflecting a unified registry for all higher education institutions.*

Number of students – enrolled and graduated pedagogical sciences by areas of education and professional directions for the educational year 1999/2000

Areas of education Professional directions	**Students**		**Enrolled**		**Graduated**	
	Total	**Regular education**	**Total**	**Regular education**	**Total**	**Regular education**
Training of teachers and pedagogical sciences	**26639**	**15481**	**5208**	**3984**	**5594**	**2725**
Pedagogical sciences	4037	1544	634	381	699	238
Pre-school pedagogy	667	370	143	143	389	109
Primary school pedagogy	8552	4071	1509	1036	2063	894
Teaching common education subjects	8808	6040	1806	1517	1508	798
Teaching common technical and special subjects	4575	3456	1116	907	935	686

Attachment 10: In-service teacher training additional information

The organization and the contents of the training aimed at enhancing teacher qualification is in compliance with:

- Law on public education (LPE)
- Law on the stage of education, common educational minimum and the educational plan (LSECEMEP)
- Educational Standards
- Regulation No 5/29.12.1996 of the MES on the conditions for enhancing qualification of the pedagogical staff from the system of public education and the procedure for obtaining Professional-Qualification Degree (PQD)
- Regulation on the common requirements for obtaining professional qualification "teacher" (Statute of the Council of Ministers No162/17.04.1997).

The enrollment of participants in qualification forms is regulated by:

- Regulation No 5/29.12.1996 of the MES on the conditions for enhancing qualification of the pedagogical staff from the system of public education and the procedure for obtaining Professional-Qualification Degree (PQD)
- Labor Code, Article 229
- Rules for the organization of the activities for in-service training of teachers at DETQ
- Year plan on qualification forms of DETQ approved by the Minster of Education and Science.

In the training provided by the DETQ participate:

- teachers from all types of schools and educational stages;
- school principals and directors of kindergarten;
- specialists, who hold pedagogical positions under the LPE;
- experts of the MES
- teachers from Bulgarian communities living abroad.

At present the enhancing of teacher qualification is a stage in the continuous training supporting the professional realization through different forms of post-graduate education[16]. The main organizational forms used for in-service teacher training are: complex course, thematic course, instruction course, professional-pedagogical specialization, specialization in a specific scientific area, training, seminar, problem group, conference.

According to the achieved level in their professional competence in their realization teachers may obtain the following PQSs:

V PQD – the candidates defend the mastered professional pedagogical skills in the organization and realization of the educational process or specific for the position activities; procedure: oral exam (interview) on a theme (from the announced program), selected through a lottery;

IV PQD – the candidates present their skills on scientific-pedagogical interpretation of a problem, related to the character and the specifics of their professional activities and the position hold by

[16] Article 2 Regulation No 5/29.12.1996

them. Procedure: anonymous written exam on a selected through a lottery theme from a preliminary announced program;

III PQD – the candidates graduate pedagogical specialization. Procedure: defense of a thesis;

II PQD – the candidates present a written product on a problem from their professional activities with a diagnostic investigation. Procedure: defense of a written material;

I PQD – the candidates present a written product on a theme with investigative and innovative character; attach their publications on the problem of the written product. Procedure: defense of a written material.

Attachment 11: Description of the Department for Information and Enhancing of Teacher Qualification, Sofia (DIETQ)

During the period 1995 – 2000 DIETQ focused its efforts on the stabilization of the institution as a department of the Sofia University "St. Kliment Ohridski". DIETQ specializes in the post-graduate training towards improvement of the qualification of the pedagogical staff. Under its management fall the cabinets and libraries of Goethe Institute and British Council.

In its activity as a department of the University the DIETQ is guided by the following legislative documents: Law on Higher Education, Law on the Scientific Degrees and Honors; Rules of the Sofia University, Temporary rules for the structure and activity of the Department of the Sofia University (Protocol of the Academic Council No 6 of 15/03/2000). As a result of these documents it became necessary to enlarge the departments at the DIETQ. All departments have a minimum of 7 staff members and are managed by an academic rank person**.** In total the DIETQ has about 75 staff members mainly female. The average monthly net salary is about BGN 240. The entire financing for the activities of DIETQ comes from the Sofia University.

The qualification forms in their contents and organization are oriented towards European dimensions of post-graduate education:

- international cooperation of European educational institutions involved in in-service teacher training through bilateral and multilateral pedagogical projects;
- introduction in the education of the new information, communication and education technologies;
- framing the aspects of NCE and civil education;
- formation of intercultural education and awareness for being part of the European community, European value of the national natural and cultural values;
- supporting the teacher in understanding and comprehending his/her new role as a partner of the student in the organization of the school educational process.

Review of the qualification forms implemented in DIETQ

Short-term qualification forms							**Long-term qualification forms**			
At DIETQ			**In municipalities**		**Total**		**Specialization**		**Courses for teacher qualification**	
Educational year	Number of courses	Number of participants	Number of courses	Number of participants	Number of courses	Number of participants	Number of specializations	Number of participants	Number of courses	Number of participants
1996/97	239	4978	203	4316	443	9294	36	895	5	109
1997/98	227	4378	473	4091	700	8469	1	34	5	103
1998/99	238	4971	174	3680	412	8651	1	22	5	94
1999/2000	247	4682	229	4605	476	9287	4	4	-	-
Plan 2000/2001	238	4700	272	5210	510	9910	2	27	1	23

The table reveals that the short-term qualification forms at DIETQ remain almost the same in terms of number for the last 5 years. These forms conducted in the municipalities however increase as

well as the participants in them. This trend demonstrates the preference of the teachers to be trained on the spot. It is clear from the table that long-term qualification forms sharply decrease.

Issues related to NCE are well presented at the DIETQ's qualification process.

Distribution of the qualification forms with NCE contents

Educational year	Number of qualification forms with NCE	Total number of courses	% qualification forms with NCE	Participants
1996/97	**40**	**443**	**11%**	**9294**
1997/98	**70**	**700**	**10%**	**8469**
1998/99	**40**	**412**	**11%**	**8651**
1999/2000	**48**	**476**	**11,2%**	**9287**
2000/2001	**100**	**510**	**20%**	**9910**

The figures include NCE qualification forms and qualification forms with one or more NCE modules. It may be said that in about 50% of the qualification forms different problems of the nature conservation are being treated during the delivery of the educational contents under the specifics of the course.

The largest proportion of NCE is incorporated in the qualification forms under the specialization on: pre-school education, primary school education, biology, chemistry, geography, physics, history, philology, arts.

According to Regulation No 5/29.12.1996 of the MES the obtained PQD are as follows:

EDUCATIONAL YEAR	QUALIFICATION DEGREE						
	II PQD	I PQD	V PQD	IV PQD	III PQD	II PQD	I PQD
1995/96	**259**	**208**					
1996/97	**419**	**272**					
1997/98			**386**		**944**	**107**	**10**
1998/99			**328**			**452**	**10**
1999/2000			**510**	**147**	**194**	**501**	**47**

Obtained PQD on themes related to NCE for the reporting period are (including 2001):
* III PQD - 25
* II PQD - 66
* I PQD - 20

Comparison with the above table shows that the largest interest to NCE is demonstrated by teachers aiming at I PQD. It is necessary to note that this degree is the most difficult one and a smaller number of teachers are pursuing it – only the most outstanding ones. The number of the developed written materials on NCE themes for III PQD for the year 2000/2001 is about 50, but these are still works that need to be defended.

DIETQ also conducts scientific activities. They are focused on the professional problems of the teacher labor, which are of importance for the successful realization of the teacher in its professional development. The contents of the scientific activities encompass the following themes:

- **direct scientific research**
- Innovations in the pedagogical practice
- Pedagogical experiment
- **indirect research** – development of educational programs for the middle school, concepts, prognosis, idea projects. Here are included the educational programs on NCE developed for the National Parks – Rila and Central Balkans.
- **Development of educational methodologies**. Here are included the compendiums of methodological essays for the National Parks.
- **Introduction into the practice work** – includes courses in municipalities from the region of the National Parks.
- **Scientific guidance of the pedagogical research** – pedagogical research in the area of NCE in municipalities with natural landmarks.
- **Organization of scientific conferences and seminars** – up coming is the organization of a scientific conference on NCE in October 2001, before which seminars in the region of the three National Parks will take place.
- **Scientific publications –** magazine "Education and Qualification" of the university publishing house.

Publication of the professors at the DIETQ, Sofia

Department	Monographs and books	Articles and studios	Textbooks	Support materials
Humanitarian disciplines and civil education – methodology of education	1	67	16	46
Nature-mathematical sciences and technological disciplines - methodology of education	11	68	7	48
Pre-school and primary education	9	33	16	31
Pedagogy, psychology and management of education	7	85	2	4
Total:	28	253	41	129

Among the research themes important place is allocated to the theme "Environmental Education" in which 7 academic rank persons participate and one chief assistant together with 59 teachers form the country. Here are included the developed under the GEF Biodiversity Project for Bulgaria 7 compendiums under the title "Program and Compendium of Methodological Essays on Curricular and Extracurricular Activities for NCE".

Priority areas in the research activities for the up-coming years are:
- new educational technologies in in-service teacher training
- enhancing the quality of the educational process in the middle school
- assessing the results of the education

The orientation is towards participation in international projects under the EU programs and competitions and projects announced by the Sofia University.

Attachment 12: Description of Department for improvement of teacher qualification "Dr. Petar Beron", Varna (DETQ)

DETQ, Varna implements educational activities in order to ensure continuous professional development of the pedagogical staff in the system of middle education; introduce the new educational documentation of the MES; develop skills for the implementation of innovative practices; provide information, summarize and multiply teaching experience. Educational plan of the DETQ is coordinated with the Law on Higher Education, LPE, LSECEMEP, Regulation No 5/29.12.1996 on the conditions for enhancing teacher qualification in the system of the public education. The DETQ, Varna has a staff of about 40 people. The average monthly net salary is about BGN 240. Its core activity is to run in service training courses for pedagogical staff. It also manages a number of "Centers". These include four language information centers, a Youth Center for IT, Bilinguistics Center (working with Roma population), Center for Information Resources and a Center for the Quality of Education. Funding for DETQ, Varna comes from the Shoumen University. For the period 1997/1998-2000 at the DETQ, Varna the following qualification forms have been conducted:

Review of the qualification forms implemented in DETQ

№	**Educational year**	**1997/98**		**1998/99**		**1999/2000**		**Total**	
	Specialty in the department	**Number of courses**	**Number of partici-pants**	**Number of courses**	**Number of partici-pants**	**Number of courses**	**Number of partici-pants**	**Number of courses**	**Number of partici-pants**
1.	Pedagogy	24	394	22	357	-	-	46	791
2.	Psychology	10	150	4	57	-	-	14	207
3.	Management of education	-	-	-	-	6	78	6	78
4.	General pedagogy and psychology	-	-	-	-	19	306	19	306
5.	Pre-school pedagogy	20	473	16	302	20	323	56	1 098
6.	Primary school pedagogy	38	682	35	500	20	272	93	1 454
7.	Sports	17	347	18	327	14	184	49	858
8.	Bulgarian language and literature	23	401	22	334	30	471	75	1 206
9.	English language	15	239	11	194	12	223	38	656
10.	German language	12	173	8	124	12	129	32	432
11.	French language	10	123	10	153	11	123	31	399
12.	Russian language	14	241	7	133	12	169	23	543
13.	History, philosophy, sociology, culture	34	469	21	313	19	205	74	987
14.	Music	40	509	24	448	26	362	90	1 319
15.	Arts	13	245	11	148	18	199	42	552
16.	Mathematics	14	198	15	364	12	180	41	742
17.	Informatics	16	146	12	127	10	111	38	384
18.	Physics	25	240	14	191	19	193	58	624
19.	Chemistry	11	112	8	86	9	131	28	329
20.	Biology	35	467	19	334	24	351	78	1 152
21.	Geography	11	172	7	83	8	124	26	379
22.	Home technology	8	128	10	142	10	129	28	399
	Total	**390**	**5909**	**294**	**4757**	**311**	**4263**	**995**	**14929**

The thematic contents of the qualification forms covers a wide range of issues such as contemporary educational strategies, management and information provision of the educational process, interdisciplinary approaches, diagnostics and result assessment, etc. The issues of NCE definitely find their place in the qualification forms of the different specialties and departments from the educational plan of the DETQ, Varna. Most of the NCE is contained in the educational programs of: physics, chemistry, biology, geography, pre-school and primary school pedagogy (modules, educational problems, themes). NCE problems are incorporated in the educational programs of other specialties – management of education, visual arts, foreign languages, labor, technologies, etc. as possibilities for interdisciplinary links and as problems with interdisciplinary character. These qualification forms form about 9% of the overall number of qualification forms in the reported period.

Distribution of the qualification forms with NCE contents

Educational year	**1998/99**	**1999/2000**	**2000/2001**	**Total**
Number of qualification forms related to NCE	27	26	23	76
Total number of qualification forms	294	311	No data	

The percentage of the NCE related educational problems in the educational programs of the qualification forms is defined as the proportion on these type of issues in educational hours from all other issues in the programs. The data in the table below are generated on the basis of the educational programs and timetable of all qualification forms at the DETQ, Varna for the reporting period.

Distribution of the NCE contents in the educational programs/timetable of the qualification forms.

Educational year	NCE contents in the educational programs of the qualification forms				
	More then 75%	**from 50 to 75%**	**from 25 to 50%**	**Less then 25%**	**Total**
1998/99	4	4	3	16	27
1999/2000	6	2	6	12	26
2000/2001	4	0	2	17	23
Total:	**14**	**6**	**9**	**45**	**66**

The analysis of the data shows that the number of qualification forms related to NCE is about 9% of the total number of the qualification forms in the educational plan. In them the most of the qualification forms contain about 25% NCE in the educational contents. This type of qualification forms is 70% of the included in the table total number.

Following the procedures of Regulation No 5 for obtaining PQD written materials with NCE contents are presented for the II and I PQD to DETQ, Varna. In the reporting period a tendency of increase of the teachers' interest to NCE problems is observed. Also evidence of the ability to conduct diagnostic research on these problems is shown. Distribution of the presented written materials for obtaining PQD with diagnostic research on NCE problems is as follows:

Defended written documents at the DETQ, Varna

Educational year	**1997/98**	**1998/1999 .**	**1999/2000**	**Total**

Number of defended written materials for II and I PQD related to NCE	7	6	31	44
Total number defended written materials for II and I PQD	164	252	368	784

In the DETQ, Varna the tendency shows continuous increase of the utilization of the qualification form – work in a problem group - in order to realize interdisciplinary links, diagnostics and assessment of integral knowledge and practical skills. The results from the qualification are presented for analysis and prognosis. They support the professional qualification of the teachers in a situation of educational changes.

Publications of the educators at the DETQ "Dr. Petar Beron", Varna by year 2000

Department	**Monograph Books**	**Articles**	**Textbooks**	**Auxiliary materials**
Pedagogy and psychology	21	115	5	12
Humanitarian disciplines	17	300	14	21
Natural-mathematical and technological disciplines	1	117	2	40
Total	**39**	**532**	**21**	**73**

Attachment 13: Format of the Educational Standards

STATE EDUCATIONAL REQUIREMENTS FOR EDUCATIONAL CONTENTS CULTURAL-EDUCATIONAL AREA EDUCATIONAL SUBJECTS:					
I.	General Characteristic of the Cultural-Educational Area				
II.	Specifics of the educational subjects from the Cultural-Educational Area, links and relationships among them				
III.	Themes, concepts and problems with integral and interdisciplinary character				
	E d u c a t i o n a l s u b j e c t				
	Educational Stage: Basic			Educational Stage: Middle	
	Level: Primary/Secondary			Level: High School	
	NUCLEI OF THE EDUCATIONAL CONTENTS	STANDARDS Knowledge, skills, attitudes (at the end of grades 4 and 8)		NUCLEI OF THE EDUCATIONAL CONTENTS	STANDARDS Knowledge, skills, attitudes (at the end of grade 12)
	First	1. 2. 3.		First	First level: 1. 2. Second level: 1. 2.
	Second	1. 2. 3.		Second	First level: 1. 2. Second level: 1. 2.

Attachment 14: Format of the educational programs

EDUCATIONAL PROGRAM ON /EDUCATIONAL SUBJECT/ FOR …. GRADE					
I.General presentation of an educational program					
II. Goals of the education under the educational subject for the respective grade/level					
III. Expected results from the education under the subject for the respective grade/level					
IV. Educational contents					
1	2	3	4	5	6
Nuclei of the educational contents	**expected results on the educational program level**	**expected results by educational problems (themes)**	**New concepts (by themes or problems of the educational contents)**	**Context and activities (for the entire nucleus or/and the entire program)**	**Interdisciplinary links possibilities**
By order and name Nucleus # x:	Standard No…… Expected result #1 Expected result # 2	1.Theme 1…. Expected result #1 Expected result #2	For each theme/problem 1……. 2…….	Students should be provided with the opportunity to: 1. ……. 2. …….	Having interdisciplinary character
Nucleus # y:	…….	…….	…….	…….	…….
V. Assessment of results – specific methods and forms					
VI. Methodological guidance on program implementation					

Attachment 15: Results of the consultation workshop, October 16, 2001

1. The report is complete and detailed.
2. The report points out that it is necessary to raise the quality of NCE while the reform in education is underway.
3. Usage of the SWOT analysis is a very good choice as the problems are clearly revealed. Strengths and weaknesses also show where prevention work should take place.
4. It is very good that NCE is searched for in all CEA. Teachers have difficulties with this.
5. It is good that the report looks into all teachers not only biology teachers.
6. It is clear from the report that the teachers will need additional training in order to implement the NCE as it is an interdisciplinary subject. Biology teachers also need to up-date their knowledge. Internet is not a source of information for everybody yet.
7. Teachers should be motivated to teach NCE through the provision of materials, possibilities for carrying out activities, organization of an award for a best student's project, support for specific NC measures proposed by teachers, teaching NCE in the Universities and training courses, etc. (not so much money).
8. Teachers have to develop a set of new skills due to the reform. Now they are confronted to develop programs for CSE and FSE as well as extracurricular activities. They have never done so before. All the programs were provided to them.
9. Teachers have to be trained to work in teams and into new methods of teaching.
10. Relationships between the teachers in different CEA and within the CEA should be strengthened. The schools should continuously become more open to other organizations.
11. The report looks into the NCE from a system point of view. This is very good as until now (and seems also now) NCE was sporadic. Analysis of the Educational Standards is very important.
12. The interviewed stakeholders represent a wide group of people involved in NCE. Although 48 interviews is not a big number in fact it is enough to extract the major characteristics.
13. It is very important to underline the integral character of NCE. This means that schools have to be forming teams of teachers for that purpose.
14. Wide information on NCE should be disseminated as otherwise the report will again reach only few people.
15. It is good that NCE is accepted as part of environmental education and education for sustainability.
16. As it is stated in the report the key needs are materials for teachers and students and funds for NCE.
17. Teacher in-service training should be financed.
18. NC should be made popular through an awareness campaign (this is aimed at the wide public and is not related to school education).
19. Some of the recommendations involve activities that have been started in some pilot regions. That experience should be used in the future activities.
20. The recommendations propose quite centralized system for future work while the educational reform aims at de-centralization. MES is listed almost everywhere. The capacity of local authorities should be raised in order to take over some of the MES activities. This will also provide the opportunity for NCE to be better orientated towards the local circumstances.