

Ministry of Education and Research of the Republic of Estonia  
Ministry of the Environment of the Republic of Estonia

**ENVIRONMENTAL EDUCATION CONCEPT  
FOR THE REPUBLIC OF ESTONIA**

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## TABLE OF CONTENTS

FOREWORD.....	4
1 INTRODUCTION.....	5
1.1 Need and initiative for drawing up the concept.....	5
1.2 National organisation of environmental education.....	7
1.2.1 Formal education and curricula.....	10
2 OBJECTIVES.....	12
3 OPPORTUNITIES TO BE CREATED BY THE STATE AND LOCAL GOVERNMENTS.....	13
4 STRATEGIC OBJECTIVES OF ENVIRONMENTAL EDUCATION IN EDUCATIONAL SYSTEM.....	14
4.1 Premises to be created by national general education study programmes.....	14
4.2 Pre-school education.....	15
4.3 Basic education.....	15
4.4 Upper secondary education.....	16
4.4.1 General secondary education.....	16
4.4.2 Secondary vocational education.....	16
4.5 Higher education and research.....	17
4.6 Youth work and hobby education.....	17
4.7 Training and in-service training of teachers and others who shape environmental awareness.....	18
4.8 Study materials and aids.....	18
5 MEASURES.....	19

## FOREWORD

By signing agreements concerning human development and environmental protection and by joining the European Union, Estonia has taken on several international obligations in the field of sustainable development and education. Estonia participates in the implementation of the UN Decade for Education for Sustainable Development (2005–2014) and the Convention on Biological Diversity, both of which include drawing up national documents supporting the promotion of environmental education and awareness.

The progress of the years of independence (political stability, economy, science, education, development of information society, etc.) are the prerequisites as well as the motive for paying more attention to sustainable development in Estonia. The successful Tiger Leap programme launched in the 1990s, and following international programmes and projects (such as the PHARE programme Information Systems in Education) brought along an increase in the skill of using information and communication technologies, had a significant effect on the quality of life, development opportunities and the set of values of schoolchildren and students, and changed the society as a whole during less than ten years. According to the World Bank statistics, in four years since 2000, Estonian gross domestic product has doubled. Data by the Tax Board say that in 2005, declared profits were 50 billion kroons; accrued taxes were over 10 billion, growing one fourth in a year (i.e., more than 2.5 billion kroons). These trends are similar in all the Baltic states: economic and communicative premises for rapid human development have been established. Estonian 8th-grade pupils' ability in solving mathematical and logical problems was outstanding in the world pursuant to an international comparative study TIMSS conducted in 2003.<sup>1</sup> Thus, if Estonia chooses its priorities well, it has great opportunity for planning knowledge-based, sustainable development improving the quality of life.

Despite the mentioned progress, scientific studies<sup>2</sup> show that **environment-friendly, sustainable way of life** is not rooted in the value system of people shaping life in Estonia; only exceptions are the representatives of older generations who carry traditional values. Fast economic development makes us face new problems connected with sustainable development, environmental awareness, and the personal responsibility of each member of the society, on which their and their fellow countrymen's safety, well-being and quality of life depend. **Sustainable way of life** means the responsibility of all members of the society and environment-friendly set of values. The state's sustainability, security and dignity depend on its citizens' skills to behave in the natural environment, and readiness to manage in extreme situations, e.g., natural disasters both home and abroad.

This forms the basis for a conclusion that in addition to project-based research and development activities and third sector initiative, it is necessary to plan national measures and investments in the field of environmental education. A joint activity plan signed by the Ministers of the Environment, and of Education and Research on 10 March, 2005 gave a boost for drawing up this concept. On the basis of feedback from the ministries, we concentrated on the **concept for environmental education**, which would include specific goals for carrying out the ministries' common priorities and would form a nucleus for the education for sustainable development.

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<sup>1</sup> <http://timss.bc.edu/timss2003.html>

<sup>2</sup> Kalmus, Lauristin, Pruulmann-Vengerfeldt (ed.), 2004. Eesti elavik 21. sajandi algul. Ülevaade uurimuse "Mina. Maailm. Meedia." tulemustest. Tartu, Tartu Ülikooli Kirjastus, 400 pp.

# 1 INTRODUCTION

## 1.1 *Need and initiative for drawing up the concept*

**Education for sustainable development (ESD)** is a system of knowledge, skills, attitudes, and values, which enables us to become aware of the links between natural, economical and socio-cultural environments by focusing on the idea of sustainable development.

**Environmental education** is directed at shaping environmental awareness in local and global contexts.

**Nature education**, which focuses on discovering connections between natural phenomena and natural processes on different levels, forms the nucleus for both environmental education and ESD.

The list of fields in ESD includes all the important aspects of human development. During consultations with the Ministry of the Environment and the Ministry of Education and Research it became apparent that the strategy Sustainable Estonia 21, and other similar general strategies need a compact **environmental education concept**, which would focus on environmental awareness, would allow to set deadlines for reaching the goals, and would be a source document for planning activity plans and investments in the field. The aspects of education for sustainable development have been more widely covered in the part of study programmes, where in addition to investments, organisatory possibilities may offer several solutions.

The present relatively good condition of nature and the quality of life connected with it make Estonia attractive for investors, tourists and cooperation partners in the fields of economy, research and education. The biggest threat to the condition of nature is low environmental awareness in making strategic decisions affecting wide areas. Citizens' awareness and values are also important.

**On the basis of the Estonians' present level of environmental awareness, the axis of the concept is the awareness of local and global aspects of the sustainability of life-support systems needed for the preservation of nature and human existence.**

This approach was reflected in the starting points for the international strategy for sustainable development, which form the basis for Agenda 21 initiated in Rio de Janeiro and for the following, more specific regional documents, and has been worded in the joint document by IUCN, UNEP and WWF.<sup>3</sup> The following short introduction is a summary of excerpts from the document's fourth chapter *Conserving the Earth's vitality and diversity*.

The central idea in sustainable development is to direct the development towards nature conservation as well as humans. Development can be successful only in case the productivity, renewal capacity and diversity of biosphere are preserved. On the other hand, nature conservation ensures a long-term result only in case it has been integrated with properly planned development. As the Earth keeps changing, nature conservation has to guarantee the self-renewal of ecosystems and everything needed for the existence of human associations dependent on these. One of the prerequisites for sustainable development is the sense of responsibility, which presumes sufficient

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<sup>3</sup> Munro, D.A. & Holdgate, M.W. 1991. *Caring for the Earth. A Strategy for Sustainable Living*. Gland, Switzerland, 1991, 228 pp.

awareness of life-support systems and conditions, which guarantee the sustainability of the systems, among decision-makers as well as among citizens. Life-support systems have been defined in the abovementioned document as follows:

(1) **Natural systems** – ecosystems, in which, since the industrial revolution of the 18th century, human influence has not exceeded the influence of some other local species, and in which industrial development has not affected the structure of the ecosystem (except climate change). So-called ‘wild nature’. (Necessary for protecting diversity and environment.)

(2) **Semi-natural systems** – ecosystems, in which human influence is stronger than that of other species but the flora is not cultivated. Most of the landscape has been changed by now, including land and sea areas, which are considered natural; e.g., semi-natural plant communities in Estonia. (Necessary for protecting diversity and environment and for the sustainable production of natural resources.)

(3) **Cultivated systems** – ecosystems, in which human influence is stronger than that of other species and in which most of the components are cultivated; e.g., agricultural land, plantations, fish ponds. (Necessary for producing food and other natural resources; efficient use enables to preserve the balance.)

(4) **Constructed systems** – ecosystems, which mostly consist of buildings, roads, airfields, harbours, dams, mines, and other structures built by man. (Inevitable part of civilisation. Sustainable development of cities and consideration for the community needed.)

(5) **Degraded systems** – ecosystems, in which the diversity, productivity and its value as a habitat have decreased considerably. E.g., land ecosystems that have lost the flora and soil, polluted waterbodies, mining landscape. (In the long term or in the short term, these areas are unsuitable or dangerous for life, but some of them can be made usable by restoring the naturalness.)

Arising from the abovementioned, practical measures ensuring sustainable development are:

- (1) protection of natural (and semi-natural) life-support systems;
- (2) protection of biological diversity;
- (3) sustainable use of resources.

Both in global and local prospects, the implementation of these measures is absolutely necessary for the preservation of living environment and quality of life. From all the citizens it requires awareness of the condition of ecosystems and factors affecting these, as well as motivation stemming from values, and social competence, which would make it possible to take responsibility for the sustainable behaviour of the community.

For planning exact necessary national measures and investments both at the level of formal education and informal education, the compilation of this concept was initiated on 10 March, 2005 by signing a joint activity plan of the Minister of the Environment and the Minister of Education and Research. According to a preliminary task, the drafting of the concept was assigned by the Minister of Education and Research to the work group for the promotion of environmental education, formed on 6 April, 2004.

This concept gives an overview of the situation, analyses possible development scenarios, and suggests measures that would enable to fulfill the abovementioned obligations and to draw up specific action plans for environmental education.

## **1.2 National organisation of environmental education**

At the national level, the principles of sustainable development and education for sustainable development are reflected in several strategic documents and action plans. Sustainable development activities are based on the general framework of the Sustainable Development Act (RT I 1995,31,384; 1997,48, 772; 1999,29,398; 2000,54,348; 2005,15,87) and Estonian National Strategy on Sustainable Development called Sustainable Estonia 21 (RT I 27.09.2005,50,396), which determines Estonia's goals until the year 2030 – viability of Estonian cultural space; increase in people's well-being; socially integrated society and ecological balance.

National strategies, in turn, stem from international conventions and cooperation agreements, which Estonia has signed as a member state of the European Union and which bind us with several obligations in the field of sustainable development and education for sustainable development. In 1992 United Nations Conference on Environment and Development in Rio de Janeiro, among other things, the countries were given a task to reorganise their formal education system. The national curriculum for basic schools and upper secondary schools, which took effect on 1996, obligated all general education schools to integrate the topic of environment into all the subjects in all the stages of study. The same principles were included in the 2002 national curriculum. The remaining parts of the educational system unfortunately still do not have this kind of obligation, although it is required by agreements (such as Agenda 21, Baltic Agenda 21 E, UNECE strategy for education for sustainable development).

National documents completed this year are the national development plan for nature protection until 2035, and the strategy for research and development – Knowledge-based Estonia – for the years 2007-2013. These documents also refer to the solutions and measures offered in this concept. The concept has a direct outlet concerning the measures dealing with study programme development in the field of natural sciences – to ensure the sustainability of the country, these have to be taken into account in compiling the new national curriculum.

Environmental education in Estonia is mainly in the sphere of responsibility of two ministries – the Ministry of the Environment, and the Ministry of Education and Research. To a lesser extent, other ministries might be involved in the projects as well; for instance, the Ministry of Economic Affairs and Communication as the head of resource management; the Ministry of Internal Affairs as the coordinator of the INTERREG programme; the Ministry of Culture and the Ministry of Social Affairs via the Gambling Tax Board, etc.

**The Ministry of the Environment (ME)** sphere of responsibility includes the ensurance of aspects of sustainable development mentioned earlier: (1) protection of natural life-support systems; (2) conservation of biological diversity, and (3) sustainable use of renewable resources.

To fulfill all these tasks, we need to ensure the citizens' education and awareness on the level that enables them to understand the surrounding life and to behave responsibly as an individual as well as a member of the society. The Ministry of the Environment and the Ministry of Education and Research have planned some funds in the state budget for financing the said field. For a systematic approach and for the inclusion of know-how, cooperation between the mentioned ministries as well as with other ministries and institutions is needed.

**The protection of biological diversity** is guaranteed by a nature conservation system, which has the task of ensuring the protection of biological diversity, valuable landscapes and inanimate objects of nature, and the awareness-raising of Estonian local people and visitors. The connection of nature conservation with sustainable development has been provided for in the objectives of the Nature Conservation Act (§ 1) passed on 21 April, 2004 (RT, 30.04.2004, 38,258).

**Development plan for nature conservation** until the year 2035 has been drawn up. The generalised results by the nature education and awareness work group refer to several solutions from this concept.

**The management system of ecological reserves has been reformed**, as the result of this the State Nature Conservation Centre (<http://www.lk.ee>) was opened in January 2006; the Centre manages all manned and unmanned conservation units in Estonia. Over ten nature education specialists work in the Centre, which is responsible for nature education in the conservation units and draws up necessary thematic programmes.

**Environmental Investment Centre** (<http://www.kik.ee>) distributes funds accrued from different environmental taxes according to the Distribution of Funds Accrued from the Use of Environment Act. More than 500 million kroons of this money is used to support investments and projects related to the environment; over 40 million of the sum is given to the environmental awareness programme.

**State Forest Management Centre (RMK)** used funds in the amount of 20 million kroons a year to organise visits into the state forest; part of the sum was also used for environmental education. In 2005, RMK planned to use 1,203,700 kroons in total to promote nature awareness and for other kinds of programmes in seven nature centres and RMK Sagadi nature school; in addition, the recreation department of RMK planned several events promoting nature awareness (national competitions, 'forest mission' or forest study days in general education schools, etc.) in the amount of 277,200 kroons.

**European funds** can be used to carry out and co-finance international projects. At present, one of the major projects in preparation (to be launched in 2007 or 2008) is a Cohesion Fund project for the development of nature conservation infrastructure in the total amount of 150-200 million kroons. The project is coordinated by the Ministry of the Environment.

Smaller-scale European projects with environment-educational content (Estonian contribution up to 7 million kroons) include some Interreg projects, such as the nature schools project in the Baltic Sea region BSR EAGLE (<http://www.bsreagle.net>) and the BIRD project on the management, protection and nature tourism of wetlands (<http://www.eurowetlands.org>), Environmental Theatre on the coasts of the Gulf of Finland (<http://www.hared.ee>), and others. In 2006, an environmental education project was launched which introduces rural areas (<http://www.interreg-finest.net>).

**Limited monetary funds for specific purposes**, such as certain development projects, have been allocated to structural units and institutions administered by the ME, with the purpose of promoting environmental awareness and education (Environmental Education Bureau, Structural Funds Bureau, Bureau for Strategy, Nature Conservation Department, Information and Technology Centre, county environmental departments, and conservation units).

**The Ministry of Education and Research** sphere of responsibility also covers all the areas connected with sustainable development.

On all levels of education it is possible to treat environment and sustainable development on the basis of legislation and agreements; unfortunately, it has not been possible in every school due to the scarcity of means (information, skills, teaching aids, money, support systems).

**The cooperation between the MER and ME is particularly important in the field of applied research related to monitoring and nature conservation, and the promotion of environmental education.**

**Research** financing in Estonia in 2004 was getting close to 0.9% of gross domestic product (unlike the aspired 1.5% reflected in several development plans). The annual budget for research and development is nearly 1 billion; about 400-500 millions of the sum are finances for specific purposes distributed via the Research Competence Council of the MER, and as benefit via the Estonian Science Foundation, and about the same amount is for Enterprise Estonia.

An analysis conducted in the framework of *an initiative Estonian Bioplatform* (<http://eelis.ic.envir.ee/w1/default.asp?topic=bpl>) showed that in 2004, sixty-seven research grants and several research topics were connected with the scientific study of several aspects of biological diversity.

Yet, the analysis referred to the fact that although strong and competitive, theoretical science is not always in service of solving problems in Estonian biological diversity. The main principle in research financing is the quality of scientific work, assessed on the basis of international publications.

Although there are some work groups that are internationally competitive in publishing scientific articles and works on specifically Estonian topics, nothing motivates Estonian top scientists and their qualified work groups to study Estonian problems and publish their results.

**Therefore, one of the main issues is to find stimuli for involving Estonian scientists into solving important problems dealing with nature conservation and environmental education. One important step in achieving the goal is to prepare a respective state programme.**

One of the **state programmes**, which is indirectly related to activities supporting environmental awareness and education, is a programme coordinated by the Ministry of Education and Research – Humanities and Natural Sciences Collections (2004-2008; [http://www.riigikantselei.ee/failid/HTM\\_RP\\_Humanitaar\\_ja\\_loodusteaduslikud\\_kogud.doc](http://www.riigikantselei.ee/failid/HTM_RP_Humanitaar_ja_loodusteaduslikud_kogud.doc)), which also keeps in mind the convention on biological diversity and the MER cooperation with the Ministry of the Environment in the field of registers. The volume of the programme in 2004 was 4 million kroons, and in each following year it is 13 million kroons.

The target programme supports the arranging of museum collections and respective databases, and organising training for museum employees. It also helps the museums to contribute to scientific work and nature education.

**European funds** that are of help are mainly structural funds, which provide opportunities for the development of scientific infrastructure since 2005. The total amount Estonia applied for was over 250 million kroons (for three years); single applications were limited to 30-100 million kroons. In the field of natural sciences and technology, support was given to projects by Tartu University Institute of Technology, Estonian Biocentre, and Tallinn University of Technology.

As the total amount applied for equalled the annual budget of research financing, successful applications helped to improve significantly the laboratories supporting Estonian research, post-graduate training and higher education. Taking advantage of similar opportunities in other branches of science would be a substantial contribution to the development of natural sciences and environmental education based thereon in Estonia.

In addition to that, Estonian research and development institutions participate in many international research projects. For instance, Estonia has submitted 81 applications on the basis of the EU Sixth Framework Programme on sustainable development, 21 of which have been successful. (See [http://www.irc.ee/publikatsioonid/Estonia\\_in%20the\\_FP6\\_as\\_of\\_1st\\_January\\_2005.pdf](http://www.irc.ee/publikatsioonid/Estonia_in%20the_FP6_as_of_1st_January_2005.pdf))

**Archimedes Foundation** established by the Ministry of Education and Research intermediates European educational projects, several of which are related to environmental education, and it also coordinates the work of the Pupils Research Association. (Additional info: <http://www.archimedes.ee>)

Via **Foundation Innove** (<http://www.innove.ee>) and with the help of European structural funds, projects on study programme development and doctoral schools have been initiated (Measure 1.1). Finances for environmental education are also allocated thanks to lifelong learning measure, due to which a cooperation project Learn Outside was launched by Estonian Television, Tallinn University, and Tallinn Pedagogical Seminary. As a result of the project, 32 TV programmes will be made, an in-service training programme for teachers carried out, and a study aid on DVD distributed in 300 schools.

## **1.2.1 Formal education and curricula**

### **Higher education**

The foundation for proper environmental education is higher education, including the training of teachers and journalists, post-graduate training, and supporting science. Natural sciences, which are important for environmental education, are taught in several universities, primarily in the University of Tartu, Estonian University of Life Sciences, Tallinn University of Technology, and Tallinn University. Each school has its stronger and weaker sides in specific specialities – general sciences, applied sciences, learning and teacher training.

Higher education curricula are developed in the universities; its supported by measure 1.1 of European structural funds. One of the more significant innovations is the opening of doctoral schools in several specialities in 2005, among which are specialities important for environmental education.

<http://www.hm.ee/uus/hm/client/index.php?035262301336041845>  
[http://www.innove.ee/ee/files/Doktorikoolide\\_selgitused.doc](http://www.innove.ee/ee/files/Doktorikoolide_selgitused.doc)

### **Vocational education**

All institutions of vocational education should be dealing with environmental issues, as both the production and servicing have a strong effect on the environment. Until the

national curriculum for vocational education has been worked out, the level of environmental education in a particular school depends on the environmental awareness of its head and council. A couple of vocational schools are oriented towards environmental education. Some examples follow.

**Luua Forestry School** admitted 15 people (distance learning) in the study year 2005/2006 to the speciality of the leader of nature trips (<http://www.luua.edu.ee/index2.php?menu=lehed&id=67>). The study programme was developed and teachers trained with the help of international projects (PHARE and INTERREG BSR Eagle), co-financed by the Environmental Investment Centre and through Foundation Innove, measure 1.1 of European structural funds.

**Suuremõisa Technical School** offers a speciality of natural environment and landscape management on the basis of secondary education (2-year programme), which includes a selected module of country tourism ([http://www.smt.edu.ee/?menu\\_id=10](http://www.smt.edu.ee/?menu_id=10)).

**Räpina Gardening College** offers specialities of environment protection, garden economy, natural economy, and others (<http://www.ak.rapina.ee/erialad.htm>).

### **General education**

Objectives, principles and competences described in the general part of the national curriculum for basic and upper secondary schools (2002) are well linked to the principles of education for sustainable development. *Environment and sustainable development* are a recurring theme throughout the curriculum. Introduction to all the topics emphasises that the topic of *environment and sustainable education* is meant to make pupils conscious of the connections between natural, social and cultural environments, and to stress the importance of a sustainable attitude towards the living environment and sustainable development in general. The objective of the topic is to shape environmental awareness in schoolchildren, and to raise an environment-friendly consumer and producer. It attempts to form pupils' skills of living in a constantly changing world in a way that the following generations would also have the possibility of using the existing resources, and to develop children's social skills in coping with the changing society. The principles of the curriculum say that the principles of sustainable development have to be integrated into all the subjects. Not all the teachers are sufficiently prepared or have enough knowledge and skills for integrating environment and sustainable development into the subject taught; they may also lack teamwork skills to work out a systematical approach in a school. Study aids do not support the teachers either.

**Our work group has observed the preparation of the new national curriculum and has made several suggestions. From the viewpoint of the nature conservation development plan, the measures of this concept, as well as international cooperation in environmental education, it is important to teach nature as a separate subject in the first to third grades. One of the essential measures of the concept is based on this idea: to carry out practical nature programmes supporting the curriculum in nature centres, and to develop a cooperation network between schools and nature centres.**

**The strategy Knowledge-Based Estonia also considers it important to ensure, with the help of the national curriculum, the teaching of natural sciences, including physics, chemistry, biology, and geography, in all secondary schools and their fields of study to the extent that would allow all school leavers to pass national exams in these subjects.**

Regardless of their future choice of occupation, this would also ensure that graduates have enough knowledge to act in the society as environmentally aware citizens.

Although learning the bases of the 19th-century (natural) science plays an important role in understanding the development of scientific thought and civilization, it is just as important to provide pupils the skills of problem recognition and solving, so that they could adapt to rapid changes in science, technology and environmental problems in the 21st-century society. The work group thinks that curricula development should be sustainable process looking to the future, uniting the educational foundation with more than a century's tradition (19th century science, mathematics and languages), and modern natural sciences and scientific approaches.

### **Pre-school education**

A framework curriculum for pre-school education is currently being updated. The present programme does not mention nature as a separate field, although the list of topics to be covered contains many nature-related themes; and it also formulates objectives in correspondence with the idea of sustainable development. Nursery schools do not have many opportunities to participate in environmental projects (particularly international ones), although they are quite prepared and willing to do so. As a third sector initiative and with the help by the Netherlands Government, a project Garden Windmill was launched (2004-2006, see <http://www.hared.ee>), which has helped considerably to promote environmental education in Tallinn nursery schools, and to share experience with other Estonian kindergartens. Pre-school nature education needs more attention and support from state agencies and local governments.

### **Hobby education**

The role of hobby education in nature and science education is emphasised in the draft of the strategy Knowledge-Based Estonia (2007-2013), and is also treated thoroughly in the nature conservation development plan until the year 2035 (draft). Measure 1 of this concept deals with the possibilities for environmental education in hobby education and gives suggestions to carry these out.

## **2 OBJECTIVES**

- 1. Environmental education is valued in the society.**
- 2. Different points of focus in environmental education are modified when necessary with the help of legislation, strategical documents, and budgets.**
- 3. Estonia has organised its possibilities of acquiring environmental education in a way that is in accordance with international obligations, Estonian strategies and legislation.**
- 4. Each age group has a chance to be environmentally educated and to shape skills, attitudes and behavioural norms needed for the sustainable way of life.**
- 5. Environment and sustainable development are an obligatory part on all levels of education.**

### **3 OPPORTUNITIES TO BE CREATED BY THE STATE AND LOCAL GOVERNMENTS**

1. To establish a state programme (e.g., similar to Tiger Leap) for using funds from the state budget with better results, and to work out focus points and an action plan for the education for sustainable development based on scientific achievements and practice.
2. As a part of the programme, or as an independent bureau, to create interministerial fund, which would finance, on the basis of agreed principles, nature and environmental education and education for sustainable development. The fund would declare project competitions on priority topics, but would also support sustainable development and environmental education measures by the third sector and others; among other things, it would create a common framework for the assessment and co-financing of environment-educational EU projects initiated in Estonia. The fund could be based on the environmental awareness programme of the Environmental Investment Centre; but in addition to this, it could also manage respective finances from other ministries, especially from the MER.
3. The state obliges public sector institutions and organisations (local governments, educational institutions, nature conservation centres, state forest management centres) through legislation, strategic documents and state budget to deal with the education for sustainable development.
4. The state allows third sector organisations to participate in shaping children's, youth's and grown-ups' education for sustainable development through project work (for instance, through the interministerial environmental education programme and fund mentioned in section 1, which would set down rules for financing projects, including the creation and publication of methodology, study aids and materials).
5. The state creates suitable conditions for the private sector to help with the formation of environmental education (for instance, tax incentives for businesses that support environment-educational projects financially, etc.)
6. The state enhances domestic and international cooperation between the organisations and workers of the public and third sectors, and cooperation networks (by supporting projects).
7. The state and local government enhance educational workers' study trips and participation in conferences to share experience on education for sustainable development in Estonia and in the European Union.
8. The state provides opportunities for regional nature conservation centres, local governments, educational institutions and third sector to create a network of support centres for nature and environmental education and innovations by imposing quality requirements and guaranteeing main finances for a salary fund and general expenses. Support centres will set up programmes to support the national curriculum, which would help children, youth and grown-ups to get to know nature better. Continuous funding for a network of support centres for nature and environmental education and innovations, and competent workers well-versed in the thematics of the centre, with great communications and development work skills, would ensure the reliability, good reputation, and sustainability of the system. The objective of support centres is to aid in the attainment of all strategic objectives on all levels of education for sustainable development through systematic and thematic practical learning reinforcing theoretical knowledge acquired in the classroom, by using the possibilities of

- the particular region, by working out methodologies, and by implementing programmes, which would support schools' study programmes.
9. Local governments and unions thereof create opportunities for acquiring environmental education – they develop support systems and create opportunities for cooperation with respective state structures.
  10. The state supports the creation or adaptation of up-to-date interactive nature study methods, programmes, and study aids, and the implementation thereof in environmental education.

#### **4 STRATEGIC OBJECTIVES OF ENVIRONMENTAL EDUCATION IN EDUCATIONAL SYSTEM**

Educational system has the best possibilities to influence a person's set of values both in formal education, informal education, and through indirect influence (from a child to a parent, etc.)

**The following mainly concentrates on formal education system.**

**Directions for informal education system** have been compiled upon the request by the MER by a separate work group in 2005 and published as an article in 'Säästvat arengut toetava mitteformaalhariduse edendamise kava Eestis' (A Plan to Promote Informal Education for Sustainable Development in Estonia), Tallinn, 2005, compiled by REC Estonia.

See <http://www.hm.ee/uus/hm/client/index.php?035262301315841817>

The following part lists some premises and principles of education for sustainable development, which would ensure an improvement in the environmental education situation.

##### ***4.1 Premises to be created by national general education study programmes***

1. Study programmes on all levels of education contain objectives, which would shape a citizen that knows and values the nature and culture of his or her homeland, understands his or her rights and obligations, and is tolerant of other societies and cultures.
2. Sustainable development thematics has been integrated into the national framework curriculum for pre-school education, with an emphasis on nature and human relations.
3. Environment and sustainable development are a recurring theme in the national curriculum for basic and upper secondary education; in addition, schools have an opportunity to handle the topic as a selective subject.
4. A study programme allows the pupils to practise citizen skills needed in a democratic society to notice environmental problems, to offer solutions, and to influence the society in a positive way.
5. Natural subjects are taught in all stages of study.
6. The amount of lessons in natural subjects allows, in addition to providing information about natural phenomena and laws of nature (incl. biological diversity, nature conservation, ecology, etc.), to form an interest in nature studies, an integral sense of nature, and modern attitudes and values.
7. The general part of the national curriculum for basic and upper secondary education, as well as study programmes for natural subjects make it possible to develop the kind of knowledge and skills which would provide a basis for the further study of natural sciences and contemporary areas of application thereof

(for instance, genetic engineering, forestry, medicine, environmental technology, other technological specialities, etc.).

The following principles may be applied by educational institutions on different levels of education to plan specific activities for the implementation of the sustainable development idea.

#### **4.2 Pre-school education**

1. The study programme for pre-school child care institutions provides opportunities for the formation of nature and environmental education and education for sustainable development based on active teaching methods (and for the inclusion of support centres in schooling and education).
2. In the implementation of the study programme, the following didactic principles are kept in mind: playfulness, experiencing, creativity, continuity, positivity, assessibility (right and wrong behaviour).
3. A development plan for a pre-school child care institution sets up environmental aims, including the management of the building and surrounding territory.
4. Pre-school child care institutions have opportunities to participate in environmental projects.
5. Teachers and heads of pre-school child care institutions have opportunities to enhance their knowledge and skills on nature, methodology and principles of environmental education and education for sustainable development.
6. In the funding of pre-school child care institutions, the need to reduce nursery schools' effect on the environment, and the need to shape the teachers' and children's environmental awareness have been taken into account.
7. Priority is given to the development of study aids needed for the education for sustainable development; such as environmental games, pictures, methodological sets to learn about nature, compilations of working and teaching methods, and so on.

#### **4.3 Basic education**

1. All activities of the school support the attainment of environmental and sustainable development objectives.
2. Integrated treatment of natural and social sciences, economy and culture in the study process is supported by a democratic approach; study methods and forms used are linked, activity-oriented, and foster activeness.
3. In addition to knowledge, pupils' skills, values, motivation and activeness are shaped.
4. The following didactic principles are observed in the implementation of the study programme: problem orientedness, researchability, integratedness, experiencing, activeness, positivity, assessibility.
5. Besides the classroom, close and farther surroundings are treated as a learning environment; learning can take place both inside and outside.
6. Active learning methods are given preference at school, as they shape the skills of reasoning, cooperation, observation, and drawing conclusions, and they allow to connect the things learned with the operation of human society and natural environment.
7. Whoever responsible for running the school has to ensure that nature topics included in study programmes could be tied to practical nature studies.

8. All pupils in different stages of study have an opportunity to take part in environment and civil education projects.
9. A school's extracurricular activities support the attainment of environmental and sustainable development objectives.
10. Schools take advantage of programmes offered by support centres (nature houses, nature schools, nature centres, museums, etc.)
11. A school's development plan sets up environmental objectives and planned activities to achieve the objectives (environment-friendly management of the building, etc.).

#### **4.4 Upper secondary education**

##### **4.4.1 General secondary education**

1. All activities of the school support the attainment of environmental and sustainable development objectives.
2. National curriculum allows to use support centres (nature centres, hobby schools, exhibitions, museums, innovations centres, etc.).
3. The following didactic principles are observed in the implementation of the school's study programme: problem orientedness, researchability, continuity, integratedness, experiencing, activeness, positivity, assessibility; focus is on researchability, application of scientific method is practised.
4. The extent of natural subjects and topics covered, and the level of teaching make it possible for pupils to get theoretical knowledge as well as an overview of topical environmental problems in Estonia and in the world; they will also acquire a skill of offering solutions in a way that is acceptable in a democratic society.
12. A school's development plan sets up environmental objectives and planned activities to achieve the objectives (environment-friendly management of the building, etc.).

##### **4.4.2 Secondary vocational education**

1. All activities of the school support the attainment of environmental and sustainable development objectives.
2. National curriculum includes environment modules connected with a particular speciality, which enable pupils to acquire the principles of cleaner production and environment-friendliness.
3. National curriculum deals with the necessity for and principles of environmental management systems.
4. Schools' study programmes include an analysis of environmental problems (environmental influence) accompanying professional activities.
5. Learning process follows the principles of environment-friendliness and sustainable development.
6. The study programme enables pupils to practise the skills of noticing environmental problems, of offering solutions, and of affecting the society positively – the skills needed in every democratic society.
7. The following didactic principles are observed in the implementation of the school's study programme: problem orientedness, continuity, integratedness,

activeness, positivity, assessibility; focus is on activeness, application of skills and knowledge is practised.

8. A school's development plan sets up environmental objectives and planned activities to achieve the objectives.

#### **4.5 Higher education and research**

1. The curriculum includes obligatory modules on environment, sustainable development, and education related to these (environmental ethics, environment management systems, etc.).
2. Schools' study programmes include an analysis of environmental problems (environmental influence) accompanying professional activities.
3. Future teachers acquire knowledge about sustainable development, and skills for the application of didactic principles of the education for sustainable development.
4. Pedagogical specialities in nature sciences will include more practical learning and teaching about nature.
5. High schools use their scientific potential to carry out applied research and to publish study materials and aids in the field of education for sustainable development.
6. A high school's development plan sets up objectives concerning environment and sustainable development, and planned measures to achieve the objectives.
7. Scientific achievements related to environmental education and education for sustainable development are made available to teachers and other interest groups.
8. The employer acknowledges and fosters the compilation of study materials and the promotion of education for sustainable development in other ways as the lecturers' work result.
9. Lecturers and scientists are involved in the development of analytical, research-based educational and environmental media; an information network of experts will be created, which will cooperate with the media to ensure rapid and correct media coverage on the topics related to natural sciences, environment, health, human development, and other topics connected with the education for sustainable development.
10. Domestic and international cooperation in the field of education for sustainable development is promoted.

#### **4.6 Youth work and hobby education**

1. Schools' hobby groups support the attainment of environmental and sustainable development objectives set in the national curriculum.
2. Pupils have an opportunity to acquire a more thorough natural, environmental or civil education in a hobby school (or in the school's hobby groups).
3. A hobby school's development plan sets up environmental and sustainable development objectives and planned activities to achieve the objectives.
4. Youth work offers an opportunity to learn more about nature, connections between the man and nature, and civil initiative through various camps, projects, and events.
5. In summer camps, the principles of environment-friendliness are followed.

6. Camps, study trips, competitions, and the like are organised for children and teenagers interested in nature and environment.
7. People have access to practical nature study, to study trails and hiking trails, and to methodological information on spending time in the nature; the network of study trails is connected with practical nature study.

#### **4.7 *Training and in-service training of teachers and others who shape environmental awareness***

1. Future teachers acquire knowledge on the links between nature and society, and the skills to apply the didactic principles of education for sustainable development.
2. Teachers on all levels of education and the heads of educational institutions have an opportunity to participate in sustainable development trainings.
3. The extent and themes for teachers' in-service training have been found out and corresponding study programmes have been drawn up.
4. Training and in-service training ensure that the teachers are skilled in tying topics found in the study programmes of general education schools or vocational schools to environmental education.
5. Teachers, professors, youth workers, workers in environmental education support centres, and others, have an opportunity to participate in environmental trainings and to share experience in Estonia, as well as within the EU.

#### **4.8 *Study materials and aids***

1. National and other funds give priority to financing the projects that include the compilation of study materials for schools, based on active learning, or the projects which include an inventory of existing study materials and other sources.
2. Schools will have an opportunity to buy study materials needed to teach environmental topics on the same basis as textbooks.
3. The state supports the schools in buying aids for activities meant for the education for sustainable development, and in creating learning opportunities for pupils (research equipment, outdoor labs, etc).
4. An Internet database of study materials will be created, and its administration guaranteed.
5. The state supports the establishment of regional environmental education centres for pre-school child care institutions and other educational institutions. The centres borrow study aids, distribute worksheets, and so on (similarly to Lehola Environmental Education Centre in Tallinn, see <http://www.leholalasteaed.ee>).

## 5 MEASURES

### **MEASURE 1. Compilation and application of the state environmental education programme (ME, MER, research and development institutions).**

The aim of the state programme is to ensure coordinated development activities in the field of environmental education support centres and conservation units, including enhanced competitiveness based on cooperation in the direction of the EU programmes, and ensuring main financing for a salary fund for principal centres and measures (incl. environmental education).

The initiator of the programme is the Ministry of the Environment as the curator of the field, and the Ministry of Education and Research is its partner.

The state programme will be implemented via a new foundation or a department of an existing foundation, and a fund financed from the state budget.

### **MEASURE 2. Development of the network of environmental education support centres (ME, nature conservation centres, MER and its implementing agencies, county governments, local governments, research and development institutions, State Forest Management Centre).**

Diversity in Estonian landscape provides us with opportunities to get to know different types of ecosystems – this must be viewed as a valuable learning environment in the contexts of Estonia, Europe, and the world at large.

Conservation units definitely need to invest more into trained people teaching natural subjects (through a salary fund), into technical equipment, and into cooperation with scientists to acquire new knowledge on the region's nature and to help the Estonian citizens to get to know and to start valuing what we may call as our greatest asset.

Learning options in urban nature houses, museums, science centres, botanical gardens and zoos are no less valuable. In the limits of their possibilities, all the mentioned establishments offer thematical educational programmes, part of which are connected with the curriculum. Prospective direction would be cooperation with schools, including the extension of programmes based on the curriculum, and planning the museums' schedule of learning programmes according to the needs of schools' study programmes.

### **MEASURE 3. Making suggestions about natural sciences and environmental education to work groups that draw up national curricula, and to educational institutions on the application of curricular principles and on the formulation of environmental objectives in the development plan (MER, ME, National Centre for Examination and Certification, involving relevant institutions and organisations).**

New curriculum for general education is being drafted. The curriculum needs to be analysed from the viewpoint of natural sciences and the quality of environmental education. In addition to knowledge that prepares citizens for coping in safe ordinary environment and for valuing nature, educational system has to provide them with sufficient skills to behave in natural environment and to be ready to manage in extreme situations; e.g., in case of natural disasters of different levels of seriousness both at home and abroad. The country's sustainability, safety and dignity, as well as its

citizens' life and health depend on this. Each person well-acquainted with nature may be a potential helper, each person ignorant of nature may be the one in need of help.

**MEASURE 4. Compilation of a national action plan for environmental education (together with a financial analysis) for the years 2007-2013, which would cover all levels of education and support structures (in cooperation between the MER and ME).**

To ensure the systematicity and sustainability of the promotion of environmental education, national action plans have to be drawn up periodically, covering all levels of formal education and informal education.