Achieving the
2 0 1 0
Biodiversity
Target

CBD

IV National Report to the Convention on Biological Diversity

Estonia

KESKKONNAMINISTEERIUM

Estonian Ministry of the Environment

IV National Report to the Convention on Biological Diversity

Estonia

Tallinn 2008

Estonian Ministry of the Environment

Compiled by Liina Eek

Printed by: Folger Art

CONTENTS

Executive Summary

1. Overall status and trends in biodiversity, and major threats

Almost 40 000 living species are thought to be represented in Estonia. So far about 23 500 or 60% of them have been found. The rest 16 500 species or 40% of biota are yet to be discovered. 8 600 species or about one fifth of Estonian biota have been assessed for their endangerment and 1 314 or 15% of them are either endangered or extinct. One of the main riches of Estonian nature – very variable landscape – has formed both by the landscape's own development and also by centuries of human activities. In addition to vast bog areas and hilly moraine landscape, Estonia also has spectacular coastal landscapes.

As to the most important biodiversity trends in Estonia, the aboriginal breeds and varieties becoming a rarity, decrease of semi-natural grasslands and intensifying economization in agriculture; decreasing old forests, impoverishment in species and ecosystems and decrease in elements important for biodiversity due to intensified management in forestry; excessive fishing; impoverishment in sea ecosystems, pollution, eutrophication and spread of alien species in them can be brought out. In peri-urban areas there is quite a rapid growth in the extent of dwelling areas and this is accompanied with decrease of biodiversity in these territories. On landscape level both homogenization and fragmentation of biodiversity are simultaneously taking place due to human action processes.

The main threats to biodiversity in agriculture is the biassed market output of EU subsidiary agricultural policy, globalization and the disappearance of the economic reasons that lead to the formation of biodiversity values together with the alteration of the socio-economic role of these values. In forestry, from the standpoint of biodiversity, the problems lie in the growth of importance of big forestry companies, private forests going into hands of great producers and the industrialisation of forestry (great machines). The biodiversity of inland waters is endangered by excessive fishing, alien species and agricultural pollution. The main threats to the biological diversity of sea is eutrophication, caused by excessive waste, building pressure in coastal areas, changes in land usage and growth in recreation encumbrance. Caused by residential building the coherence of ecological network changes, the biota adapted to urban areas is more indigent than natural ecosystems. Intensive land usage and establishment of technical line infrastructures are dangers that cause homogenization and fragmentation of landscapes and therefore cause the loss of moving tracks and habitats for biota, especially animals. Globalization and intensification in land usage are closely connected to the potential threat of alien species.

2. Key actions taken in support of the Convention's three objectives and to achieve the 2010 target and goals and objectives of the Strategic Plan of the Convention

The three main objectives of the convention are 1) conservation of biodiversity, 2) the sustainable use of its components and 3) the fair and equitable sharing of the benefits arising out of the use of genetic resources. The first objective of the convention is acknowledged and dealt with in Estonia. There are several good biodiversity experts in this field, and production of practical basic knowledge is in process; nevertheless, there is yet much to achieve in putting the knowledge into practice. Endangered biodiversity resources have been registered (database EELIS, see Annex 4), they are being researched, monitored and tried to rehabilitate when needed and if possible. Moving towards the convention's second objective is more complicated. It can be said that the use of resources is often not yet subject to the principle of sustainable use of biodiversity in places where the actual usage of resource takes place. Both the biodiversity-related and wider environmental knowledge in society are low. Protection of biodiversity and sustainable use as the platform of whole human activity spectre is not acknowledged, let alone accepted. The third objective of the convention is practically not tackled in Estonia.

The actions towards the first objective are progressive. In 2003, 10.7% of terrestrial area was under protection in Estonia. Due to formation of EU nature conservation network Natura 2000, the amount of protected terrestrial area increased to 16%. In Estonia, the Natura 2000 network consists of 66 bird areas[1] and 509 nature areas[2] that may partly or fully overlap. On January 1, 2008, there are 129 nature conservation areas, 149 landscape conservation areas, 117 nature conservation areas without renewed regulations, 343 special conservation areas, 5 national parks, 548 parks or forest stands and 3 natural objects protected on local government level in Estonia. At the same time there are 1195 individual protected natural objects under protection. Protected areas (landscape conservation areas, nature conservation areas, national parks, nature conservation areas without renewed regulations, parks, forest stands) comprise 590 333 ha of terrestrial area and 92 253 ha of water area. Special conservation areas take another 113 745 ha of terrestrial area and 633 905 ha of water area and species' protection sites 74 707 ha of terrestrial and 12 795 of water area (see Annex 3B) accordingly. At the moment there are 570 species under protection in Estonia. Among them 35 plant species, 18 animal species, 9 mushroom species and 1 lichen species fall into the I or the most strict protection category. There are 262 species in the protected category II and 244 in the protected category III. According to the Nature Conservation Act of 2004, the requirement of conservation of species protection site for endangered species has essentially increased by the side of arranging individual-based protection. Species' protection sites are one of the protected natural objects.

1 areas hosting birds of which Estonia has informed the Commission pursuant to Council Directive 79/409/EEC on the conservation of wild birds (OJ L 103, 25.04.1979, pp. 1 18);

2 areas which, the Commission, pursuant to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, considers to be of common European importance

A lot of strategic documents have been prepared in order to achieve the main targets of biodiversity. The first Biodiversity Strategy and Action Plan in Estonia was finished in 1999 and was meant to be executed in 1999 – 2005. However, the document did not get adoption from the Government or the Parliament and stayed as an important reference document on the ministerial level. The general directions and priorities of national environmental policies, including biodiversity, are officially regulated by the Estonian Environmental Strategy until the year 2030 (from 2007). Environmental Strategy is the base for Environmental Action Plan (EAP from now on) for years 2007 – 2013, also adopted in 2007. EAP gives detailed actions with budgets, performers and indicators.

For a long time there has been a third important and broad-based orienteering document under development, "Nature conservation development plan until 2035" that should become the connecting link between environmental strategy and EAP. In present time it is being supplemented with important topics for the biodiversity convention, like the fair and equitable sharing of the benefits arising out of the use of genetic resource, alien species and other topics. There are several other strategic documents in Estonia, that directly or indirectly cover obligations deriving from Convention on Biological Diversity – Forestry Development Plan until 2010 (new Forestry Development Plan is under preparation and will be adopted in 2010), draft Environmental Education Development Plan, Estonian National Sustainable Development Strategy "Sustainable Estonia 21", Strategy of Agricultural Genetic Resources, Estonian Rural Development Plan 2007 – 2013, Tourism Development Plan, Transport Development Plan; draft Biotechnology Development Plan, Oil Shale Development Plan, National Waste Plan etc.

The strategic biodiversity targets and their achievement indicators used in Estonia have been elaborated according to the local conditions and requirements. In the 5th chapter (targets and measures) of Estonian Environmental Strategy are targets and measures of every single area of action. It can be said that global and national targets and indicators are overlapped in quite a large scale (see Annex 4). Environmental Action Plan has been created to fulfil Environmental Strategy. Its targets and action spheres are based on the analogues of the ones in the Environmental Strategy, but the result of every action is used as the indicator for that action. Specifically, the target for 2010 in the environmental strategy is the target of decreasing the measure of species becoming extinct, but it is not fixed by the time indicator of 2010. The expert panel (4.11.2007) considered the most important national environmental indicator from the viewpoint of biodiversity, to be changes in land usage and changes in function of ecosystems as whole connected to that, and the most important indicator to be the relative importance of nature-friendly (low intensity) land usage.

3. Areas where national implementation has been most effective or most lacking

There has yet been no general, all biodiversity field inclusive analysis about fulfilling high-priority action, focused on concrete results in Estonia. Different sectoral overviews and analysis have been prepared, for example about conservation areas (see annex 3). Current progress reports of EAP have mostly been based on monitoring different actions (how much money is spent, is the action complete or unfinished etc), but the factual fulfilment of the action is being observed only since 2008.

When tackling general nature conservation and sustainable use measures, then in the meaning of convention's article 6 the obligations have been fulfilled to extent possible, as well as in situ nature conservation according to article 8, except for paragraph h (preventing introduction of alien species). As to lacking, it should be brought out that the current biodiversity policy by EAP concentrates on protection of endangered species and planned actions, and those are rather focused on dealing with consequences. There is no approach to the system as a whole, where the final target should be to decrease the loss of species. It can also be said that ex-situ nature conservation according to convention's article 9 has found insufficient attention in Estonian strategies and action plans.

In different national strategies the sustainable use of biodiversity components according to article 10 has been tackled to extent possible, but it should be complemented in fields such as inclusion of local communities and private sector into restoring nature etc. Despite the fact that sustainable nature use as a term is integrated into majority of main laws and strategic documents, the implementation of the principle in practice is another question. Especially in industrial and energetic fields the conflict with sustainable nature use is inevitable. In conservation areas and in connection with protected species the protection of biodiversity and sustainable use, sustainable use is more or less effective in practical life. Unfortunately, these principles are not effective outside protection areas and in the cases of species that are not under protection.

As to the monitoring-related actions included in the convention, the monitoring of alien invasive species that is needed in both water and terrestrial environments is not specifically dealt with in Estonia. The alien species indicators are also insufficiently used, meaning they have been created, but measurements do not take place nevertheless.

The central conception of the biodiversity process – ecosystem approach – is taken into account in some measure in the most important strategies like in documents Sustainable Estonia and National Environmental Strategy, but rather in its narrower meaning, by sub-components of the ecosystems. The protection of components may not give the desired effect in ensuring the protection of the whole ecosystem.

Climate change and biodiversity – in EAP there is a whole chapter dedicated to climate change, but relevant actions are rather connected to air pollution and do not tackle the effect of climate change to biodiversity.

With the current national action plans the topic access to genetic resources according to chapter 15 is partly covered as well as the resulting fair and equitable sharing of the benefits, but this sphere is merely represented with the program of genetic resources of forest and agricultural plant resources. Strategically the genetic resource development directions outside agricultural use have been remained undefined on the national level. Therefore the area is largely not legislatively regulated, nor covered with process indicators.

As in environmental strategies, the convention's third pilar – fair and equitable sharing of the benefits of genetic resources – is also insufficiently tackled in EAP. The usage of biotechnology and share of its benefits according to article 10 is weakly represented in EAP-s actions. There is a general legislative framework concerning the use of GMO-s, but there is no political agreement for concrete actions.

The information exchange according to article 17 is insufficiently covered in strategies, especially information exchange with other countries, in particular with developing countries, i.e. in the cases of sharing scientific data, results of socio-economic research, training programmes, traditional knowledge etc. with others.

In the national action plans there are some practically untouched "less attractive" topics: Access to and transfer of technology according to article 16, i.e. assistance to developing countries or just other countries; the topic of intellectual property; patenting of nature; attracting the private sector and co-operation with national science institutions.

4. Major obstacles encountered in implementation

In fulfilling the principles of Convention on Biological Diversity, the main obstacle is the fact that the convention's principles are insufficiently integrated into ministerial and regional policies. The main reasons for this difficulty are insufficient information exchange and communication between sectors and low awareness of the role of different sectors in fulfilling the obligations of the convention.

Another important obstacle is low priority of biodiversity subject both by the general public and stakeholders in responsible sectors. The convention's potential implementers are very sceptical towards taking new obligations (i.e. the obligations coming from the decisions of the COP), especially when they are difficult to understand and fulfil at first sight, like the fair and equitable sharing of the benefits arising out of the use of genetic resources.

The existence of quite detailed and seemingly positive biodiversity-related information has a peculiar boomerang effect – when reviewing statistics and the current situation (i.e. the amount of protected areas, the situation of endangered species etc.) then it seems that the situation is so good compared to some other nearby countries, so as to there is no need for cardinal changes! The important fact is that seemingly satisfying situation is not always due to the actions in last years or used measures, but rather natural-historical conditions.

Connected to the last point it needs to be emphasized that both environmental and nature awareness and the state of nature-related education as whole in Estonia is weak and rather decreasing.

All the previous is closely connected to the lack of financing for the biodiversity sector and is directly bound to the fact that biodiversity, its protection and sustainable use is not always a priority to those in charge. Despite the fact that financing nature conservation from the state budget increases year by year in absolute numbers, it is not enough to cover all the obligations connected with the convention. In the meaning of fulfilling practical obligations it means that there is a lack in qualified and experienced workers, especially in the government sectors where biodiversity per se is not the main course of activity. As the protection of biodiversity is quite a specific topic to the state administrative organs, most administrative workers do not have the applicable training, what is more, qualified workers rather move to the private sector with higher salaries. The so-called green environmental departments also have to compete with the so-called grey departments, that are more prioritized for the decision-makers even inside the environmental sector. There is also some lack in co-operation between different sectors and institutions and even co-operation inside institutions, for example different ministries do not co-operate enough and often the NGO-s and private sector are not involved.

5. Future priorities

In Estonia, the institution responsible for implementing the biodiversity convention is the Ministry of the Environment and other ministries have referred to the requirements of this convention in their work quite rarely. The fields regulated by this convention comprise different environmental topics and the implementation of their targets needs integrated approach (agriculture, environment, transport, tourism, regional development, fishing etc.). The solution is certainly better planning of financial resources and making co-operation between different institutions more effective in order to avoid duplicating actions. In order to use financial resources effectively it is important to take previously stated targets as base and always perform target prioritizing.

In addition to the previous it is important to integrate the strategies and development plans for different sectors in order to avoid overlapping actions or, focusing on different actions. The most important targets and actions in the convention's interest should be covered in state importance development documents (i.e. Environmental Strategy and Action Plan, Nature Conservation Development Plan, Transport Development Plan, Oil Shale Development Plan etc.), but at the same time the coherence and unity of the targets and the planned actions should be assured. In conclusion, the best solution is better co-operation and co-ordinated actions that take into account both the needs and possibilities of governmental institutions and the society as a whole.

In fulfilling the demands of biodiversity the classical conflict between nature conservation and economy needs to be overcome – the nature conservation limitations restrict building activities, creating mines etc. The only way to overcome this is increasing awareness (both of the general public and, officials and politicians), open discussion, good co-operation between different institutions and seeking for alternative solutions.

Chapter I

Overview of Biodiversity Status, Trends and Threats

Introduction

Estonia ratified the Convention on Biological Diversity in 1994. This is the widest nature conservation convention and covers all classic nature conservation issues as well as related environmental protection, protection of genetic resources and ecosystems. Fulfilment of this convention de facto covers all activities of a state in protection of life and livable environment.

However, the society does not understand this very eagerly. The three main goals of the convention are 1) protection of biodiversity, 2) sustainable use of its components and, 3) fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The first goal is addressed quite seriously. Essentially there are people who do not understand the necessity for nature conservation but from the other hand there are many people who do understand it well. In Estonia, we have good professional experts in nature conservation and biodiversity, well established nature conservation science producing the basic knowledge useful for practical nature conservation. Application of this knowledge is sometimes a separate question. Endangered resources have been accounted (Estonian National Nature Information System (EELIS) see Appendix 4), they are studied, monitored and if necessary attempts are made to restore the resources (considering the differences between taxa). The situation with the sustainable use of the components of biodiversity is more complicated. Nature conservation outside the conservation areas is not functioning, actual use of resources is not subject to the principles of sustainability of biodiversity, and the use may be sustainable sometimes as a side-effect to economical use of resources. Environmental awareness and nature education of the society, including the Parliament, Government, and state officials tends to be low. The fundamental role of biodiversity protection as the basis for all human activities is not perceived, not to say a word about being acknowledged as necessary. Rather it is seen as spitefulness of marginal layers of society to economic growth. The third goal is not dealt with at all in Estonia. Like even the web page for Estonian biodiversity clearing house mentions in the overview section but within the actual data the topic is ignored. Also, the topic is rather ignored by the guidelines for this report.

In relation to the first goal what is happening in Estonia is very progressive. In 2003 **10.7% of terrestrial land of Estonia was protected**. The formation of the European nature conservation network Natura 2000 increased the portion of protected area to 16% of the terrestrial land. The Natura network includes 66 Birds Sites and 509 Habitats Sites that may partly or fully overlap. By January 1, 2007 most of the planned areas of the Natura network are legalized as protected areas. At the same time the protected land totalled in 12.2% of terrestrial area (Figure 1) which means that about 170 000 hectares of NATURA areas were outside the legal conservation areas.

The Natura 2000 aims to protect one of the major values of Estonia – the relatively well preserved so far natural environment which we do not always valuate properly as we are used to it just being there.

As of January 1, 2008 in Estonia there are 129 nature protection areas; 149 landscape protection areas; 117 areas with old, i.e. non-renewed protection rules; 343 limited conservation areas; 5 national parks; 548 parks and forest stands and 3 local objects. Also, there are 1195 individual protected natural objects.

The conservation areas all together cover 590 333 ha of terrestrial land and 92 253 ha of water surface. The limited conservation areas cover additional 113 745 ha of terrestrial land and 633 905 ha of water and species' protection sites 74 707 and 12 795 ha respectively (see Appendix 3B). This is the area with nature conservation functioning relatively well.

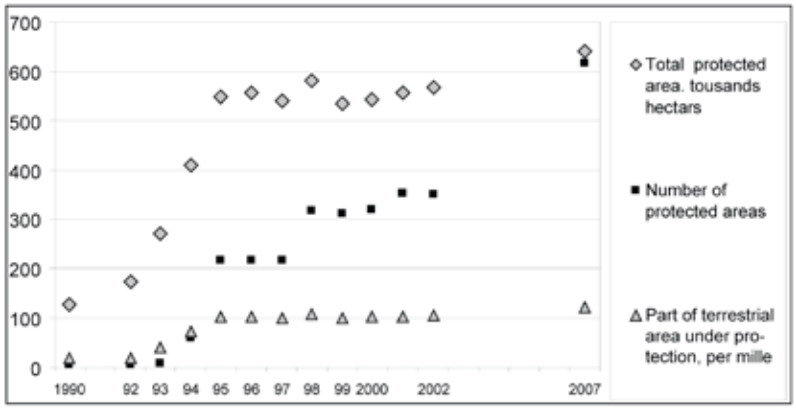

Figure 1. The total area, number and portion of terrestrial area (promilles) of protected areas (without parks). Data 1990 – 2002 Estonian Statistics , 2007. Ministry of Environment

The figure demonstrates development and rearrangement of the nature conservation system, in 1993-95 both the number and area of protected areas increased, decrease of the total territory in 1998 is mostly about rearrangement of the borders of the protected areas.

At the same time the decision of the government abolished the Biosphere Reserve in 2007, the state of which started to blur already in 2004 with the new Nature Conservation Act that does not include such legal entity. The procedure of proposing the NATURA areas was different in different counties, shady deals with land happened that brought to criminal case which does not affect the image of nature conservation well.

Owners of protected land have quite often re-evaluated the situation from seeming problems to positive aspects. Often people are afraid that you cannot do anything in the protected area but the protected areas include communities that need human impact or restoration and it is possible to get subsidies for maintenance and restoration of semi-natural communities.

Payment of subsidies was started in 2001 and it is meant to support maintenance and restoration of semi-natural communities. Farmers are paid the subsidies because they herd sheep, cows, horses and other animals on natural pasturelands and make hay on natural grasslands. These activities help maintain the still existing semi-natural grasslands and the landscape characteristic of Estonia. Within the last three years (2003-2006), the government has allocated yearly 18.2 to 30.1 million Estonian kroons for the purpose. The surface area of grasslands and pasturelands maintained reached 21,800 hectares in 2006.

Still, the opposite can be seen – landowners see the nature conservation as an obstacle to land use. No representative study is available on how many of landowners consider the conservation regulations a favour and how many an obstacle.

Since the year 2006, the payment of subsidies for maintenance and restoration of semi-natural communities has been organised by the State Nature Conservation Centre. Recovery from damage caused by certain species under protection is also practised. Thus the damage caused by grey seals, ringed seals and migrating cranes, geese and Brent geese and expenses made on measures taken for prevention of the damage are partly compensated.

The subsidies for maintenance of semi-natural communities in NATURA 2000 sites are since 2007 paid by the Estonian Agricultural Registers and Information Board (ARIB).

Nature conservation activities include protection of the local nature from alien species. In 2006 Estonia joined one of the main goals of the Convention on Biological Diversity – to reduce the current rate of biodiversity loss by the year 2010. One of the reasons for the extinction of species is problem of alien species. Alien species may act in a new place completely differently than in their homeland, which, in many cases, leads to their crowding out local species. A "good" example here is the tall attractive Sosnowski's hogweed (Heracleum sosnowskyi), imported to Estonia from Siberia in the 1950s. Initially the hogweed was considered a delightful adornment in home gardens. However, gradually the negative sides of the foreign species revealed themselves. The hogweed is so viable that it quickly occupies the area surrounding it by outcompeting other species from there. Therefore the control of Sosnowski's hogweed on the state level, started in 2004, is most important. At present, constant gathering and updating of the data and yearly control of larger colonies of the hogweed is in process. The problem may become especially severe when the climate warms and, as a result, many species that would have been frozen and perished in winter would then be able to survive the winter successfully.

An expert panel (November 4, 2007) evaluated different characteristics of environment and found the most influential for biodiversity to be changes in land use and related changes in functioning of the ecosystems, and the most important indicator to be the portion of low intensity nature-friendly land use.

Public awareness and data sources

A biodiversity clearing house mechanism has been created that reflects changes, data and problems quite well http://eelis.ic.envir.ee:8080/biomultifarious

The page reviews the background material of the convention, state of biodiversity in Estonia, and the protection measures carried out both by ecosystems and sectorial activities.

Convention	**Biodiversity in Estonia**	**Protection**	**Ecosystems approach**	**Sectorial approach**
Topics of the convention	Habitats	Protected natural objects	Forests	Agriculture
Information network	Species	Protected species	Mires	Tourism
Terminology	Taxonomy and collections	Monitoring and indicators	Grasslands	Planning and transportation
National Reports	Overview of land	Financial means	Inland waters	Nature education
Strategy and action plan	Database of nature observations	Supervisory	Coast	Hunting
Text of the convention		Biosafety	Sea	
Estonia's Bio platform				

Estonian National Nature Information System – EELIS has been created and is renewed on regular basis. Summarizing booklets are being printed like Estonian Nature Conservation in 2007 http://www.keskkonnainfo.ee/publications/327_PDF.pdf.

Statistics in Estonia covers under biodiversity extremely occasional and mostly old data (which is a sign of the recklessness of functionary) http://www.stat.ee/

In 2008, in the databases of Statistics under State of the Environment subdivision biodiversity can be found that covers KK03: Conservation areas by type, last renewed 17.04.2003 (data until 2002, Figure 1) and KK05: Endangered plant and animal species, last renewed 07.03.2003, data from 1994 and 1998. Under Natural resources and their use one can find a subdivision Change of biodiversity which covers KK519: Dynamics of the protected species, last renewed 07.03.2003. The table includes 10 species, 5 of which have data from 1990 – 2000, 4 from one or two years from the same period and on species mentioned actually does not have any data. Also the same subdivision covers KK52: enrichment of water bodies by fish species and county, last renewed on 28.05.2007, most recent data about 2004. The latter is repeated in the regional database. Not much help is of the other environmental statistics.

Indicators directly covering the protected species and objects are collected by the Estonian Environment Information Centre (see Appendix 4).

In addition to the protected species the Red Data Book has been compiled and the respective species are monitored, see Appendix 3A and 4.

Joining the European Union also added some revision of the Nature Conservation management which is also reflected in the changes in Figure 1.

The environmental and nature awareness is poor and rather getting worse than better.

Major ecosystem types

It is considered that 40 000 different species are living in Estonia. So far about 23 500 or 60% of them are found. The remaining 16 500 species or 40% we have not found yet although mostly they are known to science. For 8600 species or approximately one fifth of biota the level of being threatened has been evaluated, 1314 species or 15% are endangered or extinct.

Nowadays 570 species are protected in Estonia. Among them category I or the most endangered includes 35 plant, 18 animal, 9 fungi and 1 lichen species. Category II includes altogether 262 species and category III 244. The Nature Conservation Act of 2004 increased remarkably the role of habitat protection for endangered species in addition to specimen based protection. Species protection sites for habitat protection are one category of the protected objects.

Agricultural ecosystems

(a) Status of biodiversity in agricultural systems of Estonia;

The growing of traditional cultures is decreasing. The portion of organic farming is slowly increasing, though still small the trend is favourable.

Several local breeds and varieties have become rare and some of them are listed as threatened – Estonian native cattle breed, Estonian native horse, Estonian heavy draught and Tori horse. The same list includes also Estonian quail as a threatened breed of birds.

(b) Trends (i.e. changes in status);

Changes in land use are very important. The intensively managed lands are ongoingly getting more homogenous, the partial "ecologization" of agriculture in 1990-ies due to economic reasons is largely turning back towards more intensive management

The agricultural land is decreasing and being replaced with dwelling areas in particular around larger cities and forested elsewhere.

The conservation plan for the Estonian native horse is doing well at the same time the situation with the Tori horse is hopeless.

(c) Main threats to biodiversity;

Low cost effect of agricultural production (climate, location, inability of people for reorientation, biassed impact to markets of EU CAP with heavy subsidizing)

Forestation or urbanization of arable land.

Extinction of certain breeds is happening due to changes in the economic reasons that created these breeds and the changes in their socio-economic role.

Globalization of agriculture – too cheap global transportation or unreasonably cheap price of oil (from the point of sustainable development).

(d) Implications of changes on human well-being.

People have not realized the role of rural lifestyle and changing landscape in culture, attitude is largely influenced by urbanization. Changes in agriculture are related to landscape diversity.

Forests

(a) Status of biodiversity in Estonian forests;

The role of forests in Estonian land use is ongoingly high but the role in economy has dropped remarkably. As elsewhere in Europe the interest of private owners in forest management has fallen also in Estonia.

Estonian forest host 16 000 to 20 000 multicellular species, including about 10 000 insects. The number of extinct species in Estonian forests is so far very low (tens) compared to the number of species threatened or predicted endangered due to losses of habitat. The reason for that is extinction debt and lack of knowledge.

Protected habitats are established automatically for the most threatened species and by a special decree for the others.

Forests as carriers of biodiversity have been reasonably well studied in Estonia.

The most valuable tree species in Estonia both economically and ecologically are Scots pine, Norway spruce and birch, therefore in protection of genetic resources these species are the most important.

(b) Trends (i.e. changes in status);

The role of voluntary protection is growing.

Protection of the elements of biodiversity in managed forests is granted by law.

It is possible that climate change has some impact on the species composition of the forests (in the managed forests decisions about planting may favour more suitable for climatic conditions species).

The role of FSC and other certification organisations in forestry is growing.

(c) Main threats to biodiversity;

Decrease of the usage of forest may cause lowering of the life quality. State forests provide recreational possibilities for people. State subsidies try to build up better infrastructure and develop recreational possibilities in private forests.

(d) Implications of changes on human well-being.

Climate change may increase the number of alien species, change communities and disturb habitats.

Peatlands and mires

(a) Status of biodiversity of peatlands and mires

Approximately 22% of Estonia's terrestrial area is covered with peatlands, 40% of is raised bogs. Partly, the peatlands are also forested. The peatlands are divided according to their development stage into fens, transitional mires and bogs. Due to historical reasons relatively high percentage of peatlands are protected but ecological functioning of mire ecosystem is preserved only in 30% of peatlands. The Estonian Wetland Society evaluated in 2003 the spread of mire habitats within the NATURA 2000. Natural mires were found to cover 246 250 – 272 500 ha which is about 6% of Estonia's territory.

The last and only detailed plant cover mapping in Estonia based on fieldwork was carried out in 1934-1956 (Laasimer, 1965). Most of the land reclamation and drainage work has been carried out later.

The options for restoration of worked out peat excavation areas have been studied but there is no very clear and working solution so far.

(b) Trends (i.e. changes in status);

Changes in water regime (in surrounding areas) affect functioning of the mires. Decrease of the alkaline pollution is very good news for mires.

(c) Main threats to biodiversity;

Reach of the impact of drainage, decrease of natural habitats in mires.

(d) Implications of changes on human well-being.

Decrease of ecologically functioning peatlands is related to changes in water regime in much wider areas.

Grasslands

(a) Status of biodiversity of grasslands;

Semi-natural communities last only with continual human impact as mowing or grazing going on. If this action stops the meadows and pastures grow into forest sooner or later.

The heritage plant communities support the highest species diversity in Estonia – in the Laelatu wooded meadow 76 different vascular plant species have been found within one square metre, in the Vahenurme meadow 74. The wooded meadows are the best studied and appreciated ecosystems supporting biodiversity on Estonia.

Besides the plant diversity grasslands are also important habitat for many animals and proliferation of bushes after human impact is stopped has very direct negative impact to biodiversity.

(b) Trends (i.e. changes in status);

Decrease of semi-natural grasslands, mostly due to decreasing human impact because of the loss of economic reason.

(c) Main threats to biodiversity;

Loss of economic reason, preservation only based on nature conservation means.

Introduced alien species are a potential danger.

(d) Implications of changes on human well-being.

Important is change of the spread of grasslands in relation to landscape diversity.

Inland water bodies

(a) Status of biodiversity in water bodies;

Most of Estonia's inland water bodies are eutrophic, including the two large lakes Peipsi and Võrtsjärv, eutrophication is the biggest problem with inland water bodies.

The ecosystems here are extremely diverse, compared to many other habitats water bodies have preserved their natural look.

(b) Trends (i.e. changes in status);

In the worst development case the pollution load from agriculture increases a lot and this means heavy eutrophication pressure. According to a "good" development scenario the agriculture remains miserable, approximately at the level of 2000. Both cases assumed that enterprises follow the rules for environmentally friendly manure handling. The "good" scenario would lower the P load to water bodies a lot but not so with N load, the worst scenario would keep the existing P load but increase the N load. An exception is Lake Peipsi and the Narva River.

(c) Main threats to biodiversity);

Over catch of fish in Lake Peipsi, the importance of the lake in fisheries has dropped much, this endangers traditional lifestyle of local people.

Introduced species have reached several water bodies in Estonia, there is not clear plan to stop the spread.

As the main source for nutrients is agriculture prevention of nutrient loads from agriculture to coastal sea is the main factor to protect water bodies.

(d) Implications of changes on human well-being.

A few cases are known in Estonia where cattle have perished because of algal blooms. The possibilities for use and appearance of highly eutrophic water bodies changes.

Marine and coastal areas

(a) Status of biodiversity in marine areas and coast;

Estonian coastline covers 1240 km on continent and 2540 km on islands. Estonia has about 1500 marine islands, 80% of which are small. 60% of these are located in Western Estonia. Coastal areas, coastal sea and islands/islets are an extremely important habitat supporting biodiversity.

The diversity of coast types is high and they are very much represented among protected areas.

The biggest changes have occurred in coastal areas with agricultural use and traditional human impact, these landscapes are valued as traditional. The changes include those due to human impact stopped.

The Baltic Sea with brackish water supports less species diversity than oceans due to low and variable salinity. The number and growth of marine species decreases with the decrease of salinity towards east and north. The vegetation is poor in species richness.

The Baltic Sea, in particular the Gulf of Finland are very eutrophic, the state of the Sea depends a little on Estonia and a lot on international agreements.

(b) Trends (i.e. changes in status);

The sea gets poorer, more polluted and eutrophic, introduced species are spread. The state of eutrophication in the Baltic Sea has to be improved by 2015 according to the EU regulation.

Wide coastal areas are developed into summer house areas, increasing human impact.

Limited fish stock and catch limits affect among also traditional activities of people.

(c) Main threats to biodiversity;

Eutrophication due to high nutrient loads.

Real estate development pressure in coastal areas, increasing human pressure. Increasing tourism load and sensitive coasts.

As the main source for nutrients is agriculture prevention of nutrient loads from agriculture to coastal sea is the main factor to protect coastal sea.

(d) Implications of changes on human well-being.

The limits to fishing affect directly economy and welfare, blooming of the blue-green algae disturbs and sometimes directly threatens welfare of people and cattle. A few cases are known in Estonia where cattle have perished because of algal blooms.

Islands

(a) Status of biodiversity on islands;

Estonia has about 1500 marine islands, 80% of which are small. 60% of these are located in Western Estonia. Islands/islets are an extremely important habitat supporting biodiversity and they are highly represented among protected areas.

(b) Trends (i.e. changes in status);

The islands have high real estate development pressure.

New islets are added due to neotectonic land lift.

(c) Main threats to biodiversity;

Changes in land use, increasing human pressure.

(d) Implications of changes on human well-being.

Changes in recreational use. The islands are an important carrier of cultural diversity in Estonia where community habits are often better preserved than elsewhere in Estonia.

Urban ecosystems

(a) Status of biodiversity;

The data is not related to biodiversity issue in Estonia.

(b) Trends (i.e. changes in status);

Fast growth of dwelling areas, in particular around the cities and related decrease of land use diversity.

(c) Main threats to biodiversity;

The coherence of ecological network changes, adapted to widening dwelling areas biota is less diverse than that in natural ecosystems.

(d) Implications of changes on human well-being.

The relations are not acknowledged, important is the relation to landscape diversity and decrease of arable land. Widening of dwelling areas causes landscape fragmentation at the same time making it more homogenous – repeated patches of the same structure arise.

Landscapes

(a) Status of landscape diversity;

One of the main values of Estonian nature – diverse landscape has formed due to combination of natural processes and human impact. Along the wide peatlands and hilly moraine landscapes important are the coastal landscapes.

Landscapes are an integrating issue where agriculture, forests, grassland and urban areas meet each other.

(b) Trends (i.e. changes in status);

Human impact causes landscape fragmentation at the same time making it more homogenous – repeated patches of dwelling areas of the same structure arise. In wider sense the role of semi natural traditional heritage landscapes and its elements is decreasing, somewhat increasing is the role of dwelling areas. In peripheral regions human settlement is decreasing and that threatens the landscapes even further and increases the need for nature conservation motivated spending.

The change in the CORINE land cover between 1990 and 2000 showed decrease of forests and coastal pastures and increase of transitional areas.

(c) Main threats to biodiversity;

Breaking of the animal paths and loss or fragmentation of habitats (in particular for species that need wide areas).

The threats for landscape are often indirect and happen as changes in particular ecosystems.

(d) Implications of changes on human well-being.

The changes in landscape have clear relation to land use, including the percent of arable land, forests, grasslands and dwelling areas.

Arid, semiarid and mountain ecosystems are not found in Estonia

Chapter II

Current Status of National Biodiversity Strategies and Action Plans

Introduction

The first Estonian National Biodiversity Strategy and Action Plan was completed in 1999 and covered the years 1999–2005. However, this document was submitted neither to the Riigikogu (Parliament) nor to the Government for approval and thus remained a non-binding advisory document, although indicating the required budget together with the planned actions, their priority ranking and responsible entities. The document was circulated to all ministries with a request for them to take it into account in their work, in particular in planning their activities and budgets. This has been done to a limited extent but in general the document nonetheless remained just a good set of background information rather than a base document for further national action.

A new regulation of the Government – Types of strategic development plans and procedure for their preparation, revision, implementation, evaluation and the reporting procedure – took effect in December 2005, establishing the types of strategic development plans to be drawn up by authorities of executive power, and the procedure for their preparation, revision, implementation, evaluation and reporting. The Estonian Environmental Strategy until 2030 (approved in February 2007) has been prepared pursuant to this regulation.

The Environmental Strategy lays down broad policy guidelines and priorities.

The Environmental Strategy, in turn, provides a basis for the National Environmental Action Plan (hereinafter NEAP) for 2007–2013, which was also approved in February 2007. The NEAP provides detailed activities along with the budget, responsible entities and indicators.

Also the Nature Conservation Development Plan until 2035 was under preparation in 2003–2005. This document was intended as a link between the Environmental Strategy and the NEAP, describing not only the priority general objectives but also the existing problems, possible lines of action, etc. The document remained unapproved in 2005 due to government change and work is currently underway to revise the document to bring it into line with the requirements of the Biodiversity Strategy as provided in Article 6a of the Convention on Biological Diversity (hereinafter CBD), and to ensure that the Development Plan covers all the issues and obligations under the Convention. As the initial version did not cover several priority areas of activity under the Convention (e.g. the third pillar of the Convention – fair and equitable sharing of benefits arising from use of genetic resources; the entire issue of genetic resources was inadequately addressed; the issue of alien species was inadequately covered, etc.), these will need to be added to the document in 2008–2009 and the completed document circulated to other sectoral ministries for approval (to the Ministry of Finance; to the Ministry of Agriculture because agriculture is directly related to sustainable use of the environment and because genetic resources constitute one of the highest priority issues in the Convention; to the Ministry of Education and Research because sustainable use of the environment is tightly linked with the awareness and education of people; to the Ministry of Economic Affairs and Communications, whose domain includes tourism, transport, industry a.o. sectors directly affecting the environment). The Nature Conservation Development Plan will be approved by the Government of the Republic.

Estonia also has several other strategic documents either directly or indirectly covering the obligations under the CBD: the Forestry Development Plan until 2010 (a new Forestry Development Plan is under development and will be completed in 2009), the National Strategy on Environmental Education (under development), the Estonian national sustainable development strategy Sustainable Estonia 21, the Strategy for the Use of Agricultural Genetic Resources, the Estonian Rural Development Plan 2007–2013, Tourism Development Plan, Transport Development Plan, Biotechnology Development Plan (under development), Oil Shale Development Plan, water management plans, the National Waste Management Plan, etc. It is beyond the scope of this report to address them all in detail. Therefore, this report focuses mainly on the implementation of the Environmental Strategy and NEAP and the currently prepared new Nature Conservation Development Plan.

(a) A brief description of the NBSAP, identifying the main or priority activities;

The Environmental Strategy until 2030 establishes four main policy goals:

- sustainable use of natural resources and reduction of waste generation,
- preservation of landscapes and biological diversity,
- mitigation of climate change and quality of ambient air,
- the environment, health and quality of life.

The above broader policy goals are broken down into the following sub-sectors:

- waste, water, earth resources, forest, fish fauna, game, soil and land use;
- landscapes and biodiversity;
- energy production, energy consumption, protection of the ozone layer, transport;
- outdoor environment, indoor space, food, drinking and bathing water, contaminated sites, safety and protection of the population.

A numerical or measurable objective has been set, where possible, for each sub-sector (e.g. for waste: by 2030 the landfill of waste will have been reduced by 30% and the hazardousness of waste generated will have been significantly reduced), providing also the current indicators for assessing whether and how the objective has been achieved. The Strategy also identifies the indicators to be developed in cases where the current ones are inadequate or do not give an adequate picture of the situation.

For each of the objectives, the Strategy defines measures or lines of action, e.g. for waste: long-term planning of waste management; strengthening of the monitoring and supervision system, etc.

The Environmental Strategy is broad enough to cover all obligations under the CBD, albeit with certain reservations.

The draft Nature **Conservation Development Plan** until 2035 addresses four main sub-sectors:

- conservation of landscapes and biotic communities,
- conservation of species,

- nature education and awareness,
- interrelations of nature conservation with other sectors.

Twelve long-term objectives have been established under these sub-sectors, and the measures necessary to achieve the objectives (52 different measures in total) have been planned in more detail. The measures, in turn, are further specified into more detailed lines of action, which will provide a basis for developing specific operational programmes for specific periods (in the framework of the Environmental Action Plan). The Development Plan also provides an implementation framework for the substantive objectives, measures and lines of action by specifying the arrangement of implementation (roles of different institutions), financing needs and possibilities, assessment of effectiveness and legal analysis.

The objectives are as follows:

(1) To ensure the diversity and sustainable use of natural and man-made landscapes

(2) To ensure a favourable conservation status of marine areas

(3) To ensure a favourable conservation status of coastal areas (incl. small islands) and coastal communities

(4) To ensure the preservation of mires of high conservation value and restoration of spoiled peatlands by protecting and improving the naturalness of their ecological functions and promoting the sustainable use of natural resources associated with mires

(5) To ensure a good ecological status of inland waters and sustainable use of the resources associated with water bodies

(6) To ensure a long-term favourable status of forests and an increase in the naturalness and diversity of forests

(7) To ensure the preservation of all species naturally occurring in Estonia; to ensure the reliability of data necessary for species conservation and prevent species from becoming endangered

(8) To ensure the systematic provision of high-quality nature education that supports practical nature conservation

(9) To ensure high-quality media coverage of nature issues tailored to the expectations and needs of different target groups

(10) To ensure the consistent production of research and monitoring information and the use of the information in nature education and for developing the nature conservation system

(11) To ensure the integration of conservation objectives into all economic sectors and ensure that social and economic developments undertake activities that support the maintenance of conservation values

(12) To improve the efficiency of administrative measures in organising nature conservation

Under these objectives, the general problems, indicators, expected outcomes, prerequisites for achieving the objectives and possible risks have been described, followed by indicating the measures necessary for achieving the objectives and the respective specific lines of action.

The **National Environmental Action Plan** (NEAP) integrates the measures and activities designed in different (sub)sectoral development plans (e.g. the Estonian Nature Conservation Development Plan until 2035) into a single document to achieve the objectives established in the Environmental Strategy. The primary aim of the NEAP is to provide a consensus-based list of national priority activities aimed at achieving the main goals of environmental policy as defined in the Environmental Strategy, also indicating both the needs and possibilities of financing. The NEAP activities are planned for a three-year period and updated each year in the course of presenting an overview of the status of NEAP implementation to the Government. Overviews of the implementation of the NEAP in the years 2000 to 2006 are available on the web page of the Ministry of the Environment at http://www.envir.ee/2851.

The NEAP for the years 2004–2006 is divided into five areas of activity:

1. The environment, health and quality of life
2. Prevention of climate change and quality of ambient air
3. Preservation of landscape and biological diversity
4. Sustainable use of natural resources and reduction of waste generation
5. Environmental management

For each of these areas, the NEAP defines specific lines of action relating, inter alia, to the thematic areas of the CBD:

- achievement and preservation of the good status of the aquatic environment, remediation of contaminated sites, the built environment
- climate, weather, air, energy, transport, noise and radiation protection
- activities related to nature conservation infrastructure and preservation of biological diversity and man-made landscapes
- Land use, sustainable management of forests, sustainable use of earth resources, waste management and reduction of waste generation, prudent use of soil, sustainable use and restoration of aquatic biota and aquatic habitats, game, genetic resources
- Development of environmental policy, development and strengthening of monitoring and supervision

The lines of action, in turn, are broken down into activities, identifying the responsible entities, partners, financing needs and possibilities and the time schedule.

In total, 329 activities were planned under these lines of action in the NEAP for 2004–2006.

(b) An indication of whether and where targets and indicators (both global and national) adopted under the Convention have been incorporated into NBSAPs;

The Estonian targets and indicators have been developed according to the specific needs and conditions of Estonia. They are not directly based on the indicators of the CBD, although largely coinciding with these, and there are also some indicators or targets that are neither measured nor applied due to either our specific circumstances or the lack of resources (see Annex IV for further detail).

Chapter 5 of the Environmental Strategy (objectives and measures) provides objectives and indicators, both the indicators currently in use and the ones under development or yet to be developed, for each area of activity. These indicators measure the change of a phenomenon with respect to a baseline (e.g. change of surface area with respect to a certain base level). On the basis of the analysis presented in Annex IV, it can be stated in general that most of the indicators have been incorporated into the Environmental Strategy and most of the targets are covered with activities.

A National Environmental Action Plan (NEAP) has been prepared for the implementation of the Environmental Strategy. The objectives and areas of activity of the NEAP build on those of the Environmental Strategy but the effectiveness of each measure is assessed not by indicators but by its outcome. The latter does not directly coincide with an indicator but still contributes to measuring the implementation of the NEAP.

Some indicators of the CBD are not reflected in the Environmental Strategy, e.g. the conservation of genetic diversity is little addressed in environmental documents because strategic documents have been developed specifically for this issue in agriculture (the National Programme for Agricultural Genetic Resources) and include also the indicators for agricultural breeds and varieties. Genetic resources outside agriculture are largely unregulated and not measured by indicators (these have not been developed yet either). Also the use of indicators for alien species is inadequate, i.e. the indicators have been developed but are not measured in practice.

(c) Information on how activities under the NBSAP contribute to the implementation of the articles of the Convention and the thematic programmes and cross-cutting issues adopted under the Convention;

As said above, the Environmental Strategy covers the obligations under the CBD more or less completely (only the third pillar of the Convention and genetic resources are insufficiently covered but these issues can be incorporated as activities into the NEAP). Yet the Environmental Strategy is so general that it is very hard to assess its implementation in detail. As the NEAP has been adopted for the implementation of the Environmental Strategy, the performance of Estonia in fulfilling the obligations under the articles and thematic programmes of the CBD should be assessed through assessing the implementation of the NEAP. The NEAP is directly based on the objectives of the Environmental Strategy and it is thematically a sufficient instrument for the implementation of the CBD but the activities under the lines of action have often been designed according to the current priorities, financial possibilities, technical skills and knowledge in Estonia and not all lines of action defined in the CBD are covered with real activities. However, as the NEAP is regularly updated, it can be expected to better cover the obligations under the CBD in future. Some areas of activity may nonetheless remain unaddressed in the NEAP because the NEAP is developed on a consensus basis and there is always a possibility that certain lines of action are not a priority for Estonia and thus remain unaddressed, nor are some areas of activity relevant for Estonia (mountain biodiversity, coral reef issues, island biodiversity is relevant only to a certain extent, desertification, issues related to indigenous communities (see below for more detail), and many others).

A preliminary analysis of how the current activities under the NEAP contribute to the implementation of the obligations under the CBD are presented below, arranged according to the articles, thematic areas and cross-cutting issues of the Convention:

1. Like the Environmental Strategy, the NEAP is inadequate in addressing the third pillar of the Convention – sharing of benefits and the use of genetic resources (see point 13 below).

2. Activities in the field of cooperation, in particular cooperation beyond the jurisdiction of Estonia but also cooperation in the field of public education and multilateral arrangements for environmental impact assessment (transboundary impacts) for the purposes of Article 5 of the Convention, are insufficient.

3. General measures for conservation and sustainable use in accordance with Article 6 have been implemented as far as possible.

4. Identification in accordance with Article 7 would need to be improved.

5. In-situ conservation in accordance with Article 8 has been implemented as far as possible, except for subparagraph (h) (prevention of the introduction of alien species). The NEAP focuses only on the conservation of endangered species and the planned activities are aimed rather at mitigating the consequences. This is not fully in line with the CBD: the CBD approaches the system as a whole and aims at reducing the speed of species extinction, which is not precisely what is meant by species conservation in Estonia.

6. Ex-situ conservation in accordance with Article 9 is inadequately addressed. A strategy for ex-situ conservation was prepared in 2001 but became outdated in 2005 and, furthermore, was not approved, thus being just an advisory background document.

7. Sustainable use of the components of biological diversity in accordance with Article 10 has been addressed as far as possible but would need to be complemented e.g. with respect to the involvement of local communities in remedial action in degraded areas, involvement of the private sector, etc.

8. Incentive measures in accordance with Article 11 have been implemented as far as possible;

9. Research and training in accordance with Article 12: research is addressed in a very general manner in the NEAP but the relevant activities are partly incorporated into other documents in the field of education.

10. Monitoring activities do not include the monitoring of alien species, which would be needed both in the aquatic and land environment. As regards the aquatic environment, it is inevitable to plan and carry out research at least in potential bilge water discharge areas, where the concentration of alien species will be exceptionally high.

11. Public education and awareness in accordance with Article 13 has been implemented as far as possible. In addition, the Environmental Awareness Concept has been prepared and was completed in summer 2008), covering a big part of the obligations under the CBD.

12. Impact assessment and minimizing adverse impacts in accordance with Article 14 has been implemented as far as possible, in particular subparagraph (a), for which there exists a separate law, while the implementation of subparagraph (e) – emergency responses – is still being arranged (an emergency response plan is being prepared both at the Ministry of the Environment level and at the national level).

13. Access to genetic resources and sharing of benefits arising from genetic resources in accordance with Article 15 is partly covered but this issue is covered mainly by the programmes of forest genetic resources and agricultural plant resources under the Ministry of Agriculture, which do not cover any other resources.

14. Access to and transfer of technology in accordance with Article 16, incl., inter alia, assistance to developing countries or simply to other countries, the issues of intellectual property and patents, involvement of the private sector and cooperation with national research institutions, are essentially unaddressed.

15. Exchange of information in accordance with Article 17, in particular information exchange with other countries, in particular developing countries, e.g. exchange of scientific data, socio-economic studies, training programmes, traditional knowledge, etc., is insufficiently covered with activities.

16. Scientific and technical cooperation in accordance with Article 18, both at the national and international level, is covered to a certain extent but would need to be complemented (this includes e.g. the establishment and maintenance of clearing-houses (known in Estonia as an information network), which is presently partly covered by the Estonian Environmental Information Centre (EIC); development of national traditional technologies and sharing of experience with other countries (e.g. sharing of experience and techniques associated with our traditional fishing methods or development of innovative environmental measures); joint projects, joint enterprises, etc.).

17. Handling of biotechnology and distribution of its benefits in accordance with Article 19 is inadequately covered at the level of activities. A legal framework for the use of GMOs is in place in Estonia but there is a lack of political agreement and the policy of the Government changes according to the party in power and partly also at random.

18. Financial resources in accordance with Article 20: provision of financial support to developing countries is inadequately covered.

19. Thematic programmes of the CBD: agricultural biodiversity is covered as far as possible, although not by the NEAP but mainly by strategic documents under the Ministry of Agriculture (Rural Development Plan, etc.). These are not always sufficient at the level of activities, e.g. as concerns the preservation of indigenous breeds and varieties, but a general framework is in place.

20. Biodiversity of dry and sub-humid lands: as Estonia is located in the temperate zone, where precipitation is in general not a limiting factor, and as desertification does not occur in Estonia, this thematic area is not addressed in strategic documents, except for soil erosion and other problems related to soils (covered in the NEAP).

21. Forest biodiversity: covered in the NEAP and by Forestry Development Plan, which covers, inter alia, also all obligations under the CBD.

22. Island biodiversity: Estonia has many islands but these are located so close to the mainland that island problems for the purposes of this thematic programme are somewhat relevant only to one Estonian island – Hiiumaa. As this thematic programme has a rather low priority for Estonia, no specific activities have been planned for its implementation, except for the project of reintroducing the European mink in Hiiumaa. This, however, is a project-based activity and does not proceed from the NEAP.

23. Marine and coastal biodiversity: Estonia is developing a comprehensive network of marine and coastal protected areas. These descend from nature reserves and national parks of the last century and are currently being expanded into a system of protected areas within the framework of the EU Directives (Birds Directive, Habitats Directive). Activities targeted at marine and coastal protected areas include a wide spectrum of measures, including active surveillance, applied research, integration into the planning process, legal regulation of the uses of resources, etc. Capacity building is ensured by several curricula and educational programmes, such as 'Management of water ecosystems' at the Tartu University Pärnu College.

Protection of areas important for reproduction, such as spawning and nursery areas, is in general ensured, as well as institutional surveillance over excessive fishing and destructive fishing practices. Local and traditional knowledge is to some extent integrated into the management of marine and coastal resources. For instance, this is achieved by the activities of NGOs of traditional coastal fishermen.

Marine and coastal living resources are rather well identified for both scientific and commercial demands. The impact of mariculture is very marginal in Estonia since there is no big industry for this. Environmental impact assessment of mariculture is in place. Breeding and release into nature of native species is used.

Although marine and coastal environment is sufficiently protected by sectoral measures in Estonia, there has been hardly any success in applying an integrated approach in marine and coastal area management. Institutional, administrative or legislative arrangements are, as a rule, lacking a sufficient integrated dimension or clearly defined ecosystem approach.

24. Mountain biodiversity: as the highest hill in Estonia is less than 500 m high, this thematic programme is not relevant for Estonia.

25. Cross-cutting issues: the 2010 Target – reduction of the rate of biodiversity loss by 2010 – has been identified as an objective in the Environmental Strategy but the time indicator provided in the 2010 Target – the year 2010 – is not specified in the Strategy. The NEAP does not include any activities directly aimed at attaining this target but, as prevention of species extinction is the broader aim of the entire nature conservation, this issue is indirectly covered in the NEAP.

26. Access to and sharing of benefits arising from genetic resources: genetic resources for the purposes of Estonian strategic documents are understood differently than in the CBD. In Estonia they are understood mainly as resources with a direct utilitarian purpose rather than a possible future purpose. As stated above, mainly the resources of agricultural importance and forestry resources are regulated, while the rest is unregulated.

27. Traditional knowledge, innovations and practices: partly covered by the NEAP, which addresses the gathering, preservation and advancement of traditional knowledge related to the use of nature.

28. Biodiversity and tourism: a separate Tourism Development Plan is in place in Estonia under the Ministry of Economic Affairs and Communications, partly covering also nature tourism.

29. Climate change and biodiversity: the NEAP contains an entire subchapter for this issue but the respective activities remain rather at the level of air pollution and do not address the impact of climate change on biodiversity.

30. Economy, trade and incentive measures: see point 8 above. Estonia has joined the CITES convention and trade in endangered species is thus covered.

31. Ecosystem approach: Sustainable Estonia 21 and the Environmental Strategy and NEAP developed on the basis of it follow the ecosystem approach but this has a narrower interpretation in Estonia than in the CBD, e.g. classical nature conservation is approached as the establishment of a protected area network rather than the conservation of the entire natural environment, i.e. an ecosystem is not approached as a whole but rather through its sub-components. The conservation of these separate components, however, may not sum up to provide the expected effect, i.e. the conservation of the entire ecosystem is not evenly ensured.

32. The Global Strategy for Plant Protection is partly covered, see Annex IV for more detail.

33. The Global Taxonomy Initiative: partly covered. A national programme 'Collections of humanities and natural sciences 2004–2008' was adopted in 2004, ensuring the allocation of funds from state budget. The more than 200-year-old Natural History Museum at the University of Tartu (http://natmuseum.ut.ee/390683) can be regarded as an umbrella institution for taxonomic activities in Estonia. The activities relevant to the Initiative include the creation of the Estonian Species Index (http://unite.ut.ee/est/index.php) and the related database. The Species Index is unique in that it contains all eukaryotic species of Estonia (over 2100 species at present). A new version of the ESI, which is based on published research references, is being developed in cooperation between several institutions. It already contains over 2500 species with specific references. The new version will be made available in autumn 2008. The version of the web-based database (PlutoF 1.0) developed by the Natural History Museum of the University of Tartu within the framework of the national programme will be made publicly available at the same time.

34. Identification, monitoring, indicators and assessments: see point 4 above.

35. Impact assessment: see below on the implementation of Decision VIII/28

36. Invasive alien species: this issue is addressed both in the Environmental Strategy and in the NEAP but the planned activities in their present form are insufficient for preventing the introduction and subsequent spreading of alien species. There are particular deficiencies in the field of international cooperation and preventive measures and, as mentioned above, as concerns the monitoring of alien species.

37. Liability and compensation for damage (Article 14(2)): liability and compensation for damage was not regulated by a separate act in Estonia until recently but an Environmental Liability Act has been approved now (in 2007). In addition, provisions concerning environmental liability have been incorporated into several sectoral acts, such as the Nature Conservation Act, Deliberate Release into the Environment of Genetically Modified Organisms Act, Forest Act, etc.

38. Protected areas: an extensive and relatively coherent network has been established in Estonia, see Annex V for more detail.

39. Communication, education and public awareness: extensively covered in the NEAP, the Nature Education Concept and other development plans, yet it is an area which can always be improved and extended because public awareness is never too high.

40. Sustainable use of biological diversity has been integrated into all main legal acts and strategic documents. Their implementation, however, is a separate issue, especially in industry, energy, etc., where a conflict with the sustainable use of nature is inevitable.

41. Technology transfer and cooperation: see point 14 above.

It is hard to tell at the moment how the draft NCA implements the obligations under the CBD because it is only in the preparation stage and an analysis of how the requirements of the Convention are covered and what should be added is still underway.

8. An overview of progress made in implementation of priority activities or actions, focusing on concrete results achieved;

A comprehensive and all-inclusive analysis of the implementation of priority actions is missing for Estonia. Subsectoral overviews and analyses have been carried out, e.g. for protected areas (see Annex V). The existing reports on the implementation of the NEAP have been based mainly on the monitoring of various activities (how much money has been spent, whether the activity is completed or underway, etc.) but the substantive side of the activities has been monitored only since 2008. Thus, it is yet too early to give an exhaustive answer to this question.

9. An indication of domestic and/or international funding dedicated to priority activities;

As there is no budget directly attached to the Environmental Strategy, the financing of priority activities can be assessed in the frames of the implementation of NEAP activities.

The financing of activities under the NEAP in 2004–2006 totaled approx. 25 billion kroons. The actual total may be higher because some activities are still underway and the data may be partly deficient. The deficiency of data is particularly great in the field of fuel and energy: data are lacking on the current status of projects aimed at combined heat and power generation, renovation of district heating boilers and systems and extended use of biofuels and wind energy.

The highest expenditures were made for prevention of climate change and air quality projects – over 17 billion kroons in total. This sum includes primarily the expenditures made by Eesti Energia on the reduction of the environmental impact of oil shale energy, but also other investments into the development of the energy system.

Overview of the financing of the NEAP 2004-2006 by sources (million kroons)

	AA 1	AA 2	AA 3	AA 4	AA 5	Total:
SB total	247	384	314	112	251	1308
LG	137	62	11	7	-	217
EIC	329	118	195	203	385	1230
Enterprises*	214	16 726	0,6	38	44	17 023
Foreign aid	1186	70	2709	167	29	4161
Total	2112	17 360	3229	528	709	23 938

*includes also non-governmental organisations
AA – area of activity
SB – state budget
LG – local governments
EIC – Estonian Environmental Investment Centre (a national foundation for financing environmental protection activities in Estonia)

Another most extensively financed area of activity was the preservation of landscapes and biological diversity, which was financed with 3229 million kroons. Most of this amount (2709 million kroons) came from foreign aid funds.

In total, 68% of the financing of NEAP activities came from the funds of enterprises, 21% – from foreign funds, and 11% – from state and local budget funds, incl. the funds of the Environmental Investment Centre (EIC). Most of the foreign aid was used for the implementation of water and waste projects aimed at fulfilling the EU requirements. Local budget financing was the most extensive in the field of water management.

10. A review of successes and obstacles encountered in implementation and lessons learned;

One example of successful protection of biodiversity outside protected areas with the involvement of local people is the concept of woodland key habitats. Woodland key habitats (WKH) are up to 7-hectare areas in need of protection in commercial forests or protection forests, where there is a high likelihood of occurrence of narrowly adapted, endangered, vulnerable or rare species. A woodland key habitat can be a patch of old-growth forest, a stream bank, wooded meadow, island of mineral land within a mire, a burnt woodland, the surroundings of a spring, a single big tree, etc.

Inventories in Estonia have identified a total of 8600 WKHs on nearly 22 000 hectares. Of these, 2111 are located on private land on 5100 hectares, 5275 ones are located on state land on 14 000 hectares, and 1214 woodland key habitats are located on areas with an unclear ownership status on nearly 4143 hectares. As of the end of 2007, valid contracts were in place for 186 WKHs on 454 hectares.

Woodland key habitats in state forests are protected by a directive of the Minister of Environment, which prohibits economic activities in woodland key habitats.

In private forests, the preservation of woodland key habitats is subject to the free will of the forest owner. Information on the presence of woodland key habitats is being disseminated by regional forestry specialists of county environmental departments. Woodland key habitats are also reflected in the established forest management plans.

The state concludes voluntary contracts on the protection of key habitats with private forest owners. Upon the expiry of the contract, the obligations of the landowner to preserve the key habitat expire. The contracts are concluded between two parties – the state and private forest owner –, which gives the forest owner the possibility of premature termination of the contract.

Another example of a success story is the halting of the decline of the populations of the endangered natterjack toad and successful reintroduction of the species in Estonia. In the course of a LIFE project implemented in Estonia in 2001–2004 with support from the European Union, the decline of all the existing natterjack toad's coastal meadow populations was stopped and the populations were stabilized. Moreover, two out of three populations were increased in numbers. Also the re-introduction started during the LIFE project and one successful population establishment was recorded.

Boreal Baltic coastal meadows are the primary habitat for the natterjack toad Bufo calamita at the northern edge of its distribution range. The natterjack toad is a European endemic species adapted to a continuously changing open environment. In the first half of the 20th century, this amphibian was widespread and abundant on managed coastal grasslands in Estonia. Over the past 70 years, 91% of the natterjack toad's coastal meadow populations have disappeared, mainly due to the mismanagement and drainage of coastal meadows. In 2001, when the LIFE project started, only three declining coastal meadow populations of the natterjack toad were left in Estonia.

The aim of the project was to secure the still exiting coastal meadow populations of the natterjack toad by increasing the grazing density and restoring natural depressions as breeding habitats for the toads. Managed meadow areas were also expanded, thus enlarging suitable habitats for natterjack toads to enable the increase of the populations. In addition, 13 overgrown coastal meadows – former localities of the natterjack toad – were restored for further re-introduction to establish reserve populations for each natterjack population occurring in secondary habitats (mainly sand and gravel pits).

Obstacles. The main obstacle to the implementation of the CBD is the fact that integration of biodiversity concerns into sectoral policies, as required by Article 6 (b), has been insufficient. The main reasons can be listed as inadequate communication among the sectors concerned and low awareness of the role which each respective sector is to play in the implementation of the CBD.

Even if the necessary principles have been incorporated into political documents and laws, they tend to be low priorities for the sectors and are therefore not implemented. The general attitude towards international agreements is half-hearted in Estonia and the agreements are implemented only to the extent that this is mandatory (e.g. if they have been incorporated into some binding pieces of the EU legislation). There is usually much skepticism towards undertaking new obligations (e.g. those proceeding from COP decisions), especially if the obligations are, at the first sight, complicated to understand and implement, such as the sharing of benefits form the use of genetic resources. Nor is the situation improve by the fact that decision-making politicians have too much positive information at their disposal: looking at the statistics and present situation (e.g. the area of protected land, situation of protected species, etc.), the situation seems to be so good that there is no need for any fundamental measures. Importantly, however, the good situation is not the result of any actions or measures implemented in recent years but rather the other way round – the result of earlier non-action (e.g. in many places, the situation of endangered species is so good just because the areas used to be at the disposal of the army during the USSR period and were therefore closed reserves for all civilians).

Another important obstacle is financial and directly related to the fact that the protection and sustainable use of biological diversity is not a priority for the government. In spite of the fact that state budget financing for nature conservation is annually increasing, this is still insufficient to fulfil all obligations under the CBD.

Several other obstacles stemming from the above two main obstacles can be listed:

(a) there is a lack of qualified and properly skilled personnel in governmental "non-conservation" sectors;

(b) biodiversity is a relatively specific concern for public administration and the staff therefore lacks the relevant training;

(c) brain-drain of qualified personnel into the private sector;

(d) competition with "grey" issues within the environmental sector, which still hold a higher priority than the "green" ones;

(e) inter-sectoral and inter-institutional cooperation could be improved: cooperation between different ministries is insufficient, NGOs and the private sector are often forgotten, etc.

11. An analysis of the effectiveness of NBSAPs, focusing on:

Whether observed changes in status and trends in biodiversity (as described in Chapter I) are a result of measures taken to implement NBSAPs and the Convention;

As the Biodiversity Strategy has never been a binding document, no overviews have been produced on the implementation of the recommended activities specified therein. Overviews of the implementation of NEAP activities are prepared on an annual basis and also an overview of the Environmental Strategy is being prepared in 2008.

Nature conservation is regulated by the Nature Conservation Act, which is largely based on the EU legislation. Thus, the overviews of implementation have focused mainly on compliance with Natura 2000 requirements rather than the conservation of the ecosystem as a whole or the implementation of the three objectives of the Convention.

The positive trends referred to in Chapter I are not always the result of the measures taken to implement the NBSAP. The background situation in Estonia has historically been so good (a large area historically covered with forest; vast areas that were left untouched during the Soviet time and enabled the undisturbed reproduction of endangered species, etc.) that often no measures have been taken because we are anyway relatively ahead, in particular in comparison with the rest of Europe, in terms of the area of protected land and general conservation status. In summary, the situation in Estonia is good rather than bad but this is not an intentionally achieved goal but rather an unintentional effect and often the result of earlier inaction.

Whether the current NBSAP is adequate to address the threats to biodiversity identified in Chapter I

As the first Biodiversity Strategy remained an advisory document, it was inadequate for meeting the requirements of the Convention already for that reason. The current Environmental Strategy is too general to ensure the implementation of all CBD requirements, while being general enough to cover the entire implementation of the Convention, from classical nature conservation to biotechnology and biosafety. The current draft NCA is inadequate for fulfilling the CBD requirements but, as described above, incorporation of the missing issues and provisions is underway. All the threats indicated in Chapter I are expected to be addressed in the new version of the NCA.

How implementation of NBSAPs may be improved, where necessary, including suggestions of possible ways and means to overcome identified obstacles.

As the CBD regulates the entire environmental field, the implementation of the Convention cannot be the responsibility of only one ministry. In Estonia, responsibility for the implementation of the CBD is vested with the Ministry of the Environment, while other ministries have so far been highly selective in incorporating the requirements of the CBD into their work. There is a need for better cooperation and coordinated action.

Implementation of the CBD is certainly limited by the planning of financial resources, which is not based on the established objectives and their priority ranking. The broad scope of the field to be regulated is evidently a problem. The CBD covers a broad range of environmental issues (agriculture, environment, transport, tourism, regional development, fisheries, etc.), which is why the implementation of the objectives established under these issues requires an integrated approach. The solution certainly lies in improving the planning of financial resources and cooperation between different institutions to avoid the duplication of activities. It is also important to integrate various sectoral strategies and development plans to avoid overlap between activities and differences in the their focus. Priority objectives and activities under the CBD ought to be covered by development documents of national importance (e.g. the Environmental Strategy and NEAP, Nature Conservation Development Plan, Transport Development Plan, Oil Shale Development Plan, etc.), while ensuring the consistency of the established objectives and coherence of the activities planned for attaining the objectives.

Implementation of the obligations under the CBD is complicated by the classical conflict between nature conservation and economy – conservation restrictions are impediments for building activities, establishment of mines, etc., etc. These difficulties can be overcome only by better public awareness (both that of the general public and that of officials and politicians), open discussion, good cooperation between different institutions and search for alternative solutions.

12. The specific information requested in COP 8 decisions (see a list of these requests contained in Annex I of the guidelines).

VIII/5 (Article 8(j))

Para 2. *Invites* Parties to submit through their national reports, if appropriate, to the Executive Secretary, reports on progress in achieving national participation of indigenous and local communities, and associated capacity-building;

There are no indigenous communities for the purposes of Art. 8(j) of the Convention in Estonia. People carrying traditional knowledge (of the use of nature) could, to some extent, be regarded as indigenous but they do not form distinct communities. Building of their administrative capacity is not specifically dealt with in Estonia. There are few institutions and initiatives dealing with these issues at all. A sectoral development plan entitled "Strategy for Sustaining and Enhancing the Estonian Cultural Heritage until 2035" is being drafted under the Ministry of Research and Education. This is still in the draft stage but, once adopted, it will regulate the use of cultural heritage, which includes also various traditional uses of nature and their carriers – thus, local communities.

Documents contributing to the use and preservation of traditional knowledge of nature are few in Estonia and they usually address the issue only indirectly. The most important of these documents is the Rural Development Plan 2007–2013, which contains a number of measures related to the promotion of traditional uses of nature. Of these, in turn, the most important is the restoration and maintenance of seminatural communities, which was earlier financed only by the Ministry of the Environment from state budget in the form of direct aid for mowing, grazing and removal of brushwood in seminatural communities (restoration and maintenance of habitats). Restoration of seminatural habitats is now financed by the Ministry of the Environment, while the costs of their maintenance are covered by the Ministry of Agriculture. In addition, the restoration and maintenance of stone fences is supported and farmers are encouraged to reclaim old crop fields.

Provisions related to traditional use of nature are partly included also in other sectoral development plans, e.g. in the development plans of forestry and hunting management, and also in the draft NCA.

VIII/21 (Marine and coastal – deep seabed)

Para 3. *Concerned* about the threats to genetic resources in the deep seabed beyond national jurisdiction, *requests* Parties and urges other States, having identified activities and processes under their jurisdiction and control which may have significant adverse impacts on deep seabed ecosystems and species in these areas, as requested in paragraph 56 of decision VII/5, to take measures to urgently manage such practices in vulnerable deep seabed ecosystems with a view to the conservation and sustainable use of resources, and report on measures taken as part of the national reporting process;

Estonia does not actively deal with these issues. No institution in Estonia is known to utilise the resources of this habitat type outside our jurisdiction, neither for an industrial nor for scientific purpose, thus this issue is not a national priority for Estonia and no measures have been taken.

Being a member state of the European Union, Estonia participates, in the frames of the COMAR Working Group, in negotiations over this issue and is generally of the opinion that the use of marine genetic resources outside our jurisdiction has to follow certain rules (if possible, in the frames of the United Nations Convention on the Law of the Sea – UNCLOS). More detailed opinions are still in the process of development and approval.

VIII/22 (Marine and coastal – IMCAM)

Para 5. *Requests* Parties, in the course of reporting on implementation of the marine and coastal programme of work, to report on measures taken to enhance implementation of Integrated Marine and Coastal Area Management in their national reports, where relevant;

Estonia does not have a specific coastal protection programme but the issue is directly regulated by the Nature Conservation Act and Water Act. The Nature Conservation Act regulates the use of shores and banks also outside protected areas. The Act establishes limited management zones, in which building is prohibited and activities are subject to certain restrictions. Such limited management zones apply both to the water and to the shore or bank. Several activities are prohibited in the limited management zone, e.g. extraction of earth resources, land treatment of sewage sludge, etc.

Activities within marine protected areas are regulated by management plans, which are developed separately for each protected area according to the specific features of the area.

The Water Act establishes restrictions to be applied in the water. According to this Act, certain restrictions apply to the water protection zone, e.g. the extraction of earth resources is prohibited, economic activities, except mowing and reed-cutting, are prohibited, the use of plant protection products is subject to certain restrictions, etc.

In summary, it can be stated that the recommendations of IMCAM have been incorporated into the existing laws.

VIII/24 (Protected areas)

Para 4. *Urges* Parties, other Governments and multilateral funding bodies to provide the necessary financial support to developing countries, in particular the least developed and small island developing States, as well as countries with economies in transition, taking into account Article 20 and Article 8 (m) of the Convention to enable them to build capacity and implement the program of work and undertake the reporting required, including national reports under the Convention on Biological Diversity, to enable the review of implementation of the program of work on protected areas in line with goal 2.2 of the program of work.

Estonia as a country with economy in transition has not yet reached the stage where it could provide financial aid to developing countries. There are certain exceptions, e.g. the bilateral cooperation between the Estonian and Georgian Ministries of the Environment. In the frames of this cooperation agreement (concluded in 2006 for an unspecified term), several study tours have been organised for officials (incl. technical assistance) and the cooperation continues also in 2008. The programme for 2008 includes also cooperation related to protected areas, including the protection of forests.

The State Forest Management Centre is carrying out the project "Estonian-Moldovan development cooperation project in the field of sustainable forestry and environmental quality 2007–2008", which covers partly also the issues of forest conservation areas.

VIII/28 (Impact assessment)

Para 5. *Urges* Parties, other Governments and relevant organizations to apply the voluntary guidelines on biodiversity-inclusive environmental impact assessment as appropriate in the context of their implementation of paragraph 1 (a) of Article 14 of the Convention and of target 5.1 of the provisional framework of goals and targets for assessing progress towards 2010 and to share their experience, inter alia, through the clearing-house mechanism and national reporting;

Environmental impact assessment of projects with significant environmental impact and involvement of the public in this process is not voluntary in Estonia but a mandatory procedure required by law. The relevant law – the Environmental Impact Assessment and Environmental Management Systems Act – was passed already in 2005 and amended in 2006 and 2007.

Environmental impact has to be assessed when applying for an activity licence or amendment of an activity licence for an activity which may have a significant environmental impact, or when planning an activity which may, either individually or in combination with other activities, have a significant effect on a Natura 2000 site.

Environmental impact means any direct or indirect effect of an activity on human health and well-being, the environment, cultural heritage or property. Environmental impact is significant if it is likely to exceed the environmental capacity of a site, cause irreversible changes to the environment, endanger human health and well-being, the environment, cultural heritage or property.

The aim of environmental impact assessment is to propose an optimal choice for the solution of the proposed activities.

The aim of strategic environmental assessment is to integrate environmental considerations into the preparation and adoption of strategic planning documents, thereby ensuring a high level of protection of the environment and promoting sustainable development.

Strategic environmental assessment is carried out as part of preparing strategic planning documents. Strategic environmental assessment is not carried out for all planning documents but only if the document is prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications or tourism and addresses certain activities with a significant environmental impact, such as oil processing, establishment of a nuclear power station, construction of a port, and many other activities listed in the Act. Strategic environmental assessment is carried out if the proposed activity is likely to have a significant environmental impact. It is also carried out for important planning documents and activities that are likely to have a significant effect on a Natura 2000 site.

Chapter III

Sectoral and cross-sectoral integration or mainstreaming of biodiversity considerations

The main directions of national policies are expressed in development plans, action plans made to put them into practice, sectoral policies and other similar documents.

Chapter II covered in detail the Environmental Strategy until 2030, the National Enviroment Action Plan (NEAP) and the draft for Nature Conservation Development Plan, environmental policy documents that have a strong cross-sectoral character. Also chapter II mentions the Forestry Development Plan, the National Strategy on Environmental Education (under development), the Estonian national sustainable development strategy Sustainable Estonia 21, the Strategy for the Use of Agricultural Genetic Resources, the Estonian Rural Development Plan 2007–2013, Tourism Development Plan, Transport Development Plan, Biotechnology Development Plan (under development), Oil Shale Development Plan, water management plans, the National Waste Management Plan, etc.

The following summarizes analysis of 75 documents prepared and published by different ministries and offices. These documents reflect about fifty different policies. Remarkable part of the development plans have been also reviewed in brief by Enterprise Estonia (http://mak.eas.ee/26678y/z0zARTICLEy95zNLM.html).

Key words directly referring to biodiversity (also biological, natural diversity) were found in 11 documents – the Environmental Strategy and the NEAP, the draft for Nature Conservation Development Plan, State Budget Strategy, the Sustainable Estonia 21, the Rural Development Plan, the Forestry Development Plan, the Fisheries Development Plan, the draft for National Strategy on Environmental Education, Hunting Activities Development Plan, final report of the monitoring system for the ecological tax reform and two programmes of the government – actual and that of the previous one. Nature conservation that can be considered an indirect reflection of biodiversity is in addition mentioned in National Master Plan Estonia 2010, Long-term Public Fuel and Energy Sector Development Plan until 2015, changes to the Rural Development Plan and Tourism Development Plan.

The documents expressing the sectoral policies cover the need for protection of biodiversity weakly, of secondary importance and often formally. Biodiversity is not an important issue in the documents outside the nature conservation and environment.

Further the main national development plans as the cross-sectoral documents and selected sectoral development plans (many of which do have strong cross-sectoral features) are reviewed.

The documents are grouped by sectors, always first the documents mentioning biodiversity and then the documents that do not mention biodiversity.

National development plans:

National Master Plan Estonia 2010

The Plan presents the vision of the spatial structure and the strategic goals for built and natural environment. It forms the basis for development of settlement system (living environment, economic activities, and major services) and protection of natural and cultural environment. The plan therefore forms a ground for important placement decisions and protection of certain areas and is a major factor that determines the spatial possibility for preservation of biodiversity.

Several main goals of the National Master Plan are related to biodiversity:

- Preservation and development of the values of Estonia's settlement and landscape structure;

- Protection and improvement good state of natural environment.

The Master Plan was created based on the understanding that the landscape structure is one of the major expressions of Estonia's culture and historical consistency, and an important factor supporting national identity and grade of environment. About three quarters of Estonia is covered with forests and peatlands and, rich and diverse natural environment is one of our most valuable dowries into the new century. Protection and development of the good state of natural environment is an important basic presumption for spatial management, settlement, land use, transportation, energy production and economic development.

State Budget Strategy 2007-2010

The document provides the principles of the government for composing the state budget within four years, main goals of activities, analysis of the economic situation, prediction of the economic development and other relevant financial information. The State Budget Strategy also plans the priorities and goals for use of the EU funding within the 2007 – 2013 period.

The foreword to the document mentions among other preservation of the unique natural environment, as a detail of a more flexible and sustainable model of the welfare society nature capital is mentioned including biodiversity. The valuation of natural resources is expected to be achieved by taxation system. As a part of Priority 4: Lower environmental load, preservation of biodiversity as a basis for assuring generally favourable environment is seen, mostly by means of Natura 2000 areas and other protected areas and general nature protection management. The applied action plan of the document for environment includes measure 2.3 Preservation of biodiversity and securing sustainable use of natural resources as and investment from European Regional Fund.

Sustainable Estonia 21 (SE21)

Sustainable Estonia 21 determines the goals for development of Estonian state and society until 2030 and relates the developments in economic, social and environmental sectors to global (Agenda 21) and EU documents for long-term development. The document names goals and courses of action. As a general course development of the state towards knowledge-based society is named, four goals for development are brought out: preservation of Estonian cultural space, growth of welfare, increase of the coherence of the society and preservation of the ecological balance.

Goal 4 of the document Ecological balance includes preservation of biodiversity and natural areas where a danger is seen in the increase of the share of energy production based on renewable resources, a support worthy activity itself, increasing at the same time the pressure on natural environment and biodiversity. The document brings out a strong relationship between the Estonian cultural space and natural biodiversity with a clear positive effect to biodiversity.

Coalition agreements of the government

The coalition agreement of the previous government of the Estonian Reform Party, the Centre Party of Estonia and the People's Union of Estonia included one very clear activity to create the Natura 2000 network. This activity being lost from the new agreement can be related to the activity being fulfilled (further development of the Natura network has moved into the daily activities) does not necessarily demonstrate change in attitude.

The coalition agreement of today's government of the Estonian Reform Party, Union of Pro Patria and Res Publica and Social Democratic Party for 2007 – 2011 is much more declaratory but potentially includes more attention to biodiversity.

The chapter Environmental Policy mentions, that the aim of the environmental policy of the government is to ensure pure and naturally diverse environment supporting continuance of Estonian people and preservation of that for generations. The government coalition assumes that people are part of natural environment and seeks for reasonable balance between the environmental protection and other goals of society. In case of conflicts between the economic interests and reasoned clearly and in public environmental interests the preference has to be given to environment. To achieve this goal the government coalition among other aspects emphasizes on active measures to protect and restore biodiversity.

Certain measures mentioned are:

4) further development of ecological tax reform, turning the monitoring system of following the „polluter pays" principle and the requirements for re-use/recycling of waste into effective. Increases the payments for generating waste and resource use, including the oil-shale;

17) improves the functioning of the network of protected areas and makes stronger the monitoring of the natural values to make better the protection of forests, wetlands and coastal areas, inland water bodies and sea;

18) completes the reform of the nature protection management by giving the State Nature Conservation Centre the obligation of management and rights for supervisory of protected areas;

20) supports traditional management of heritage landscapes and communities.

Plan for the ecological tax reform

The tax reform plan could be brought out as and example of positive surprise. The reform plan supports the concept of nature's capital including the biodiversity, stresses that natural resources and ecosystems cannot be fully replaced by produced goods and the critical issue is following the precaution principle while formulating the policies, and ensuring the sustainability of ecosystems by protecting the biodiversity. Major development strategies to be considered are brought out, including several directed towards preservation of biodiversity.

Rural architecture and landscape. Research and preservation. Sectoral development plan 2007 – 2010.

The development plan underlines in descriptive part the relations to biota, landscape and cultural diversity and relying on the same values.

Estonia's historical natural holy places. Research and preservation. Sectoral development plan 2008 – 2012.

The development plan underlines in descriptive part the relations to biota, landscape and cultural diversity, relying on the same values and importance of natural holy places in preservation of cultural and biodiversity.

National development plans and other similar level documents not referring to biodiversity:

Success Estonia 2014

The document brings out critically important factors for success that provide via competitive economy and knowledge based society a long term sustainable and human centred socio-economic development. The major high priority success factors listed are science, education, technology and innovation and highly qualified and mobile workers (or human capital).

The goals, priorities and common understanding of future determine by the Development Strategy Success Estonia 2014 are assumedly basis for all other strategic development plans and other documents, in particular in the sector of economy. All the development strategies of lower level „have an obligation" to refer to the goals of Success Estonia 2014.

As biodiversity and nature conservation are not mentioned in this document we must conclude that these are not important domains for Estonia's success (at least as understood by the authors of this document).

Strategy for accomplishment of basis for population policy 2005-2008

The population policy covers policies for natality, family, geriatrics, healthcare, regional issues and migration.

The Estonian Civil Society Development Concept for

The Estonian Civil Society Development Concept is a document which describes the different roles of the public sector and the non-profit sector which supplement each other, and the co-operation principles in developing and implementing public policies and building up the civic society.

Development Plan for Support to Civic Initiative 2010

The aim of the development plan is to establish favourable conditions for civic initiative.

Environment:

Environmental Strategy 2030 and the implementation document **National Environmental Action Plan 2007-2013**

The draft for Nature Conservation Development Plan 2035,

Both have been thoroughly covered in Chapter II. Essentially both address biodiversity and its relations to other sectors a lot.

There are no development strategies not referring to biodiversity in sector of environment.

Economy:

Long-term Public Fuel and Energy Sector Development Plan until 2015

Nature conservation restrictions for development of fuel and energy management and while using certain energy resources are mentioned.

National development plans and other similar level documents not referring to biodiversity in economy sector:

The Estonian Action Plan for Growth and Jobs 2005–2007 for implementation of the Lisbon Strategy

The Estonian Action Plan for Growth and Jobs was a programme document of the government that assembled all major goals for increasing the economic competitiveness of Estonia within 2005 – 2007. The Plan made use of the general guidelines of the EU that split between three sectors – macro economy, micro economy and employment, and the specific guidelines by the European Commission for Estonia about the actions needed to increase the competitiveness.

Estonian Enterprise Policy 2007 – 2013

A strategic document that assembles main goals and activities to develop the entrepreneurship activity of Estonia's people, the entrepreneurship environment and competitiveness of local enterprises for the period 2007 – 2013.

Communication, transportation:

Biodiversity and nature conservation are not reflected in development plans dealing with communication and transportation.

National development plans and other similar level documents not referring to biodiversity in communication and transport:

The Estonian Information Society Strategy 2013

The strategy is a sectoral development plan, setting out the. General framework, objectives and respective action fields for wide implementation of ICT in development of knowledge based economy and society in Estonia in 2007 – 2013.

The Transport Development Plan 2006-2013

Description of the situation in the transportation, problems of transport branches, priorities, principles and goals for state subsidies to transportation in Estonia.

The Public Transport Development Programme 2006-2010

The vision, principles and main courses of action for development of public transport in 2006 – 2010.

Housing and communal services:

Biodiversity and nature conservation are not reflected in development plans dealing with housing and communal services.

National development plans and other similar level documents not referring to biodiversity in housing and communal services:

The Strategy of Estonian Housing Policy 2007 – 2013

This document states the three most important priorities in Estonian housing policy, namely: providing affordable housing for the tenants from restituted buildings; supporting reconstruction of apartment buildings; and supporting development of living environment, roads and yards between block-houses.

Agriculture and primary sector (fisheries, forestry):

The Estonian Rural Development Plan 2007-2013

The general goal of compiling the rural development plan was to support the sustainable development in rural areas using the measures for rural development accompanying the EU CAP.

The Estonian Rural Development Plan 2007-2013 is aimed at raising the competitiveness of agriculture and forestry in Estonia, improvement of environment and localities, improvement of life quality and diversification of rural economy considering the distinctive character of rural life in Estonia.

The situation analysis of the rural development plan mentions Estonia's landscape and biodiversity as well as genetic and species diversity an important valuable component of environment. Also, the Natura 2000 sites and state of forests are mentioned. Te diversity is seen as an important strength and decrease of diversity as a threat, the activities preserving the diversity need to be supported. There is a list of activities directed towards protection of biodiversity.

Estonian Fisheries Development Plan 2007 – 2013

The strategy aims at development of native fisheries as an economic activity and increase of competitiveness of fish production in internal and external markets supporting development of favourable and balanced economic environment in Estonia.

The basis of strategy outlines considerations that the ability of fisheries sector has to meet the sustainable development of natural resource preserving the biodiversity.

Estonian Forestry Development Plan until the year 2010

The development plan determines the priorities for development of forestry until year 2010 and lists the activities needed to achieve the goals.

The development plan stresses biodiversity of forests as a benefit from the forest while discussing the importance of forestry for Estonia, also, the importance of forests for biodiversity preservation is highlighted with a reference to the Convention. The need for biodiversity conservation is highlighted as a general principle or forest policy. The diversity is related to the vitality and sustainable productivity of the forests, protection of ecosystems. A series of measures for biodiversity conservation are planned.

Estonian Hunting Activities Development Plan 2008 – 2013.

The Development Plan states being based on the Convention and stresses the need for conservation of the game and habitat diversity.

No major development plan or strategy in the primary sector passes the biodiversity without mentioning it.

Tourism:

The National Tourism Development Plan 2007-2013

The national tourism development plan presents the balanced strategy for development of tourism as economy sector during 2007 – 2013, aimed at support to economic growth of Estonia by increasing international competitiveness of tourism sector. The development plan considers the achievement of the goals of the previous period and focuses on strengths of Estonia and resolving the bottlenecks supporting the development of tourism economy in Estonia via efficiency, flexibility and quality.

Among the development plans of other sectors several are named supporting biodiversity. Nature values are listed as tourism objects and their need to be preserved is mentioned.

Education and science:

Biodiversity and nature conservation are not directly reflected in development plans dealing with education and science.

The National Strategy on Environmental Education is in completion that reflects the need to know and teach the relations of nature to other human activities. The development plan does not mention biodiversity directly but comprehensive understanding of nature may be assumed to include also biodiversity explained.

National development plans and other similar level documents not referring to biodiversity in education and science:

Estonian Research and Development and Innovation Strategy Knowledge-based Estonia 2007-2013

The strategy is a sectoral development plan of the government that provides the goals and action courses to achieve them to ensure quality and growth of the research and development activities, increase the innovativeness of enterprises and the added value they produce, and turn Estonia into an innovation friendly state n 2007 – 2013. The strategy and the implementation plan provide the framework and volume for support measures in public sector until year 2013, giving the R&D institutions guidelines and motivation for long-term planning and management of their activities.

The Development Plan for the Estonian Vocational Education and Training System 2005 - 2008

The task of the Development Plan is to set the aims for the development of vocational education and training in Estonia up till year 2008, and to plan the required measures, activities and resources.

The Reorganisation Plan for State VET Institutions in 2005–2008

The development plan focuses only on the development of the network of institutions and leaves out all other aspects that do not directly refer to it.

The Development Plan for e-learning 2006 - 2009

The development plan determines the main development courses of e-learning for the period. The aim of the plan is to raise the efficiency and quality of learning by use of ICT, turning e-learning a part of regular studies and providing the needed prerequisites for it.

The Estonian Higher Education Strategy 2006 - 2015

The document determines the strategic development courses in Estonian Higher Education for the 10 year period. The guidelines adopted by the Parliament will guide the government, ministries and institutions of higher education.

Strategy for the internationalisation of Estonian higher education over the years 2006–2015.

The strategy outlines the main activities to improve the position of Estonian higher education in international space of education, to turn our educational system into more open and visible. The agreements in the strategy guide the Ministry of Education and Science, related institutions, universities and student organisations.

The Estonian Lifelong Learning Strategy

The general aim of the strategy is to provide the prerequisites for establishment of a system supporting lifelong self-education, for rational, efficient and intensive behaviour of the system on all levels of social regulation and management in Estonia.

Health, social care and youth:

Biodiversity and nature conservation are not reflected in development plans dealing with health, social care and youth.

National development plans and other similar level documents not referring to biodiversity in health, social care and youth:

The Strategic Development Plan for Sport for All for 2006-2010

Estonian Youth Policy and Youth Work Strategy 2006-2013

National Report on Strategies for Social Protection and Social Inclusion 2006-2008

Developmental Plan for Reduction of Juvenile Delinquency 2007-2009

Regional development and regional policies:

Biodiversity and nature conservation are not reflected in development plans dealing with regional development and policy.

Regional development strategy of Estonia 2005-2015

The strategy determines the future of Estonian regional development, strategic goals for guidance of regional development, and principles to be followed while implementing the regional policy. The strategy has an implementation plan attached. The strategy serves as a basis for development of legislation needed for regulation of regional development.

Biodiversity and nature conservation are not mentioned.

Defence and security, foreign policy:

Biodiversity and nature conservation are not reflected in development plans dealing with defence, security and foreign affaires. National development plans and other similar level documents not referring to biodiversity:

The Basic Guidelines of Estonian State Defence Policy

Main guidelines of Estonia's security policy until 2015

The National Security Concept of the Republic of Estonia (2004)

Estonian Cyber Security Strategy for the year 2008-2013

The Goals of Estonian Foreign Policy

Chapter IV

A Progress Towards the 2010 Target

The strategic biodiversity targets and their achievement indicators used in Estonia have been elaborated according to the local conditions and requirements. In the 5th chapter ("targets and measures") of the most important state guideline document – Estonian Environmental Strategy – there are targets and indicators of every single area of action. It can be said that the global 2010 targets and indicators and Estonian state targets and indicators are quite coincided (see annex 4, table 1).

When comparing internationally used separate targets and indicators intended for achieving the 2010 biodiversity goal and Estonian respective targets and indicators, then in the fields of *Promote the conservation of the biological diversity of ecosystems, habitats and biomes* there are very similar analogues existing. However, there are no direct indicators in the field of *Promote the conservation of genetic diversity*. In the field of so-called classical nature conservation, there have been bigger developments concerning the 2010 target – mainly due to the creation of Natura 2000 areas: the area of protected land has increased from 12% in 1998 (the first NBSAP) to 16% of terrestrial areas in 2008.

In the field of *Promote sustainable use and consumption* there are generally no analogical targets and indicators in Estonia. Although targets have been set in the programmes of different sectors from the aspect of usage and production, they are usually not from the aspect of sustainable use. Such indicators have been implemented for example as usage indicators in peat, fish, forest and game reserves, but not directly for measuring the importance factor of sustainable use.

In the field of *Address threats to biodiversity*, the situation concerning different 2010 targets and indicators differs between subjects. As to the subject of changes in usage of land there are both indirect goals and indicators set in Estonia; some targets have been set as to the control of invasive alien species, but no indicators yet; as to the impact of climate change to living nature there are yet neither direct goals nor indicators present.

In the department of *Maintain goods and services from biodiversity* there are neither direct goals nor indicators as to maintaining the ability of ecosystems to support human well-being. That important sphere is nevertheless indirectly represented in some Estonian strategies, for example as the targets and indicators concerning water quality in water ecosystems.

There are no nationally controlled targets and indicators originating from the protection and use of biodiversity in the sphere of *Protect traditional knowledge, innovations and practices*; the situation is similar in the fields of *The fair and equitable sharing of benefits of genetic resources and Provision of adequate resources*.

B Progress towards the Goals and Objectives of the Strategic Plan of the Convention

In Estonia, there is no plan for achieving the strategic goals of the Convention on Biological Diversity. The strategic goals and their achievement indicators have been developed originating from the local needs and nuances and are mainly found in Estonian Environmental Strategy until the year 2030 and in the Environmental Action Plan 2007 – 2013 – the implementation document of this strategy.

C Conclusions

An overall assessment of whether the implementation of the Convention has had an impact on improving conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, in their country

The convention's first target – conservation of biodiversity – is well known and valued already based on traditions, and this sphere is actively dealt with. There are good experts in this field and production of practical basic knowledge is in process; nevertheless, there is yet much to achieve in putting the knowledge into practice. Endangered biological resources have been registered (see Annex 4), they are being researched, monitored and tried to rehabilitate when needed and if possible. Moving towards the Convention's second goal – sustainable use of biodiversity components – is more complicated. It can be said that the use of resources is often not yet subject to the principle of biological biodiversity in places where the actual usage of resource takes place. Both the biodiversity-related and wider environmental knowledge in society are low. Conservation of biodiversity and sustainable use as the platform of whole human activity spectre is not acknowledged, let alone accepted. The third target – *The fair and equitable sharing of benefits of genetic resources* – is basically not tackled in Estonia at all.

An analysis of lessons learned regarding implementation, highlighting examples of successful and less successful actions taken

Forest protection outside protected areas, through the mediation of so-called woodland key-habitats principle (see Chapter II) can be brought as one of the most successful examples of implementation of the convention. This modern conception includes putting down small key ecosystems in managed forests, notifying private owners about the value of forest life forms and attracting them in the nature protection process through voluntary settlements. At the moment there are over 8000 registered forest key-habitats and over 250 of those are backed by protection settlements.

Another success story is stopping the disappearance of populations and the re-population of the endangered species Natterjack toad (Bufo calamita) in Estonia. In years 2001-2004 LIFE project was carried out with the support of European Union, during which the disappearance of all existing populations of Natterjack toad was stopped and the condition of the populations stabilized. There was an increase in number in two out of three populations. During the operation of the project re-populating the species was also started, and successful recoverage of one population at least has been registered.

As an example of less successful implementation of the Convention, Estonian Biodiversity Strategy and Action Plan for 1999 – 2005 remained a voluntary document. Despite years of preparations including all key sectors and the technical thoroughness of the document (programme included pre-acknowledged estimate with actions, their prioritizations and performers), the juridical enforcement was not successful in the government and parliament (*Riigikogu*) for the "ahead of its time" document. Although the document did not become the formal base of further national actions, it was used in later work as a collection of strategic background information that was widely taken into consideration in compiling for example Environmental Strategy, Environmental Action Plan, Forestry Development Plan and other guidance directing the biodiversity policies.

A summary of future priorities and capacity-building needs for further national-level implementation of the Convention

One of the important problems in fulfilling the convention's requirements on national level lies in insufficient integrity into department and regional politics. The main reasons and also needs for development are insufficient information exchange and communication between sectors and low awareness of the role of different sectors in fulfilling the Convention on Biodiversity.

Another important need for development in implementing the convention's process in the country lies in changing and directing the attitude towards biodiversity – both for society in general and specific participants in official responsibility spheres. For example, the potential Convention's implementers are very sceptical towards taking the obligations deriving from the decisions of Conference of the Parties, especially when the obligations are not known before, difficult to understand and fulfil at first sight.

Both environmental and nature awareness and nature education as a whole are a high priority among development needs.

Suggestions for actions that need to be taken at the regional and global levels to further enhance implementation of the Convention at the national level, including: refining existing programmes of work or developing new ones to address emerging issues; suggesting goals and objectives that may be included in the future Strategic Plan of the Convention; and identifying mechanisms that need to be established at various levels.

Both on global and regional levels more attention should be paid to developing convention's so-called second and especially third pilar implementation mechanisms. Sustainable use of biodiversity components and fair and equitable sharing of benefits of genetic resourcesare are the most problematic and therefore the least fulfilled thematic spheres in most countries.

In the global level of the Convention measures have already been taken in order to make the integration of biodiversity targets into sectoral policies more effective. Nevertheless one of the most important needs for development is information exchange and co-operation between sectors and increasing awareness about the role of different sectors in fulfilling the Convention on Biodiversity. As a suggestion for an action to support the Convention's implementation both regionally and globally, the international biodiversity community in co-ordination with the Convention's secretariat could streamline co-operation with world organisations representing key sectors, like UNFF in the case of forestry sector and try to integrate more biodiversity-related actions into the international development guidelines of applicable organisations.

Appendix 1 Information concerning reporting Party

Contracting Party	Estonia
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of the Environment, Republic of Estonia
Name and title of contact officer	Dr Liina Eek Councillor Nature Conservation Department Ministry of the Environment
Mailing address	Narva mnt 7a Tallinn 15172 Estonia
Telephone	+372 6262 877
Fax	+372 6262 901
E-mail	Liina.eek@envir.ee
CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	
Name and title of contact officer	
Mailing address	
Telephone	
Fax	
E-mail	
SUBMISSION	
Signature of officer responsible for submitting national report	
Date of submission	Submitted on the 1st of December 2008 to the Secretariat of CBD

Appendix 2.

Process of preparation of national report

The preparation of Fourth National Report of CBD started with creation of a steering committee in the autumn of 2007.

The steering committee consisted of following members:

Dr Liina Eek – councillor, Department of nature Conservation, Ministry of the Environment, (compilation of the report, Chapter II).

Lauri Klein – councillor, Estonian Environment Information Centre, Ministry of the Environment (indicators).

Dr Mart Külvik – professor, University of Life Sciences, Institute of Agricultural and Environmental Sciences (Executive summary and Chapter IV).

Dr Tiiu Kull – professor, University of Life Sciences, Institute of Agricultural and Environmental Sciences (Global Strategy for Plant Conservation).

Dr Tõnu Oja, professor of geoinformatics and cartography, University of Tartu (Chapters I and III)

Dr Toomas Kokovkin – non-profit organization Arhipelaag, director (Chapter II)

Dr Kalev Sepp, professor, director of Institute of Agricultural and Environmental Sciences, University of Life Sciences (protected areas).

The basis of the report is several reports that have already been published and are publicly available. The most important among them are the Estonian national sustainable development strategy Sustainable Estonia 21, the Forestry Development Plan until 2010, Environmental Strategy until 2030 and National Environment Action Plan 2007 - 2010, draft Nature Conservation Development Plan, web-pages of Ministry of the Environment and Estonian Environment Information Centre and others.

Each expert compiled its chapter or appendix. This text was discussed and revised in steering committee either in its meetings or electronically. Additionally, the report has been revised and commented by several officers from Ministry of the Environment.

Appendix 3.

A Progress towards Targets of the Global Strategy for Plant Conservation

The main national targets have been listed in draft Nature conservation development plan until the year 2035 (to be adopted in 2009): the number of threatened species and threats imposed to them will not increase.

Nature conservation act (adopted in 2004) assures in situ conservation for all most threatened species. For getting the idea what trends take place in distribution and vitality of threatened species state monitoring scheme of threatened plant species has been in active for already 14 years. However, management plans cover at the moment only a small fraction of protected species (11 species out of 261 protected plant species). Resources are not sufficient implement the adopted management plans.

Target 1 *A widely accessible working list of known plant species*

A widely accessible working list of known plant species has been made available: vascular plants http://www.zbi.ee/~tomkukk/nimestik/

bryophytes http://www.botany.ut.ee/bryology/

These lists are updated regularly. Specialists are available in the Estonian University of Life Sciences and in the natural museum of the University of Tartu. Several projects have been supporting it, e.g. The EEA and Norwegian Financial Mechanism project and Nordic GBIF Nodes LSID e-Infrastructure Project, etc (Joint project of the Nordic GBIF Nodes by NordForsk 2008-2010; project EE0018 *„Estonian biodiversity data base and information network supporting Natura 2000"* 2008-2010).

Target 2 *A preliminary assessment of the conservation status of all known species*

An assessment of the conservation status of legally protected species was made in 2004. A new assessment of the Red Data Book was finished in June 2008. It applies the latest IUCN criteria. For it 2225 plant species inhabiting Estonia were assessed.

category 2008	**Number of species**
Regionally extinct RE	**26**
Critically endangered Cr	**31**
Endangered En	**59**
Vulnerable Vu	**91**
Near threatened NT	**184**
Data deficient DD	**181**
Least concerned LC	**778**
Not applicable NA	**875 (aliens)**
Not evaluated NE	**3**

Target 3 *Development of models with protocols for plant conservation and sustainable use.*

No such models have been made in Estonia. The reason is scarcity of funding mechanisms for applied research.

Target 4 *At least 10% of each of the world's ecological regions effectively conserved in situ.*

16% of the land is covered by protected areas in Estonia and 31% of the them have management plans

In 2002 protected areas made up 10.4% of the area and it increased up to 16% with adoption of Natura2000 in 2005. By 2008 most of planned Natura2000 areas are under protection, and Estonia has all in all 129 protected areas, 149 landscapre reserves, 117 protected areas without renewed mangement regime, 343 Natura2000 areas, 5 national parks, 548 parks or dendrological collections.

Target 5 *Protection of 50% of the most important areas for plant diversity assured.*

The total number of Important Plant Areas in Estonia (IPA) is **108**. Area covered with IPAs is **286,084** ha. Majority of them (**103**) lie on protected areas. For more information, see: http://www.plantlife.org.uk/international/plantlife-ipas-euro-estonia.htm

Target 6 *At least 30% of production lands managed consistent with the conservation of plant diversity.*

In Estonia forests cover ca. 2.3 ha million hectares (ca 51% of territory), of which ca. 70% or 1.5 million hectares are commercial forests or management forests. A third of Estonian forests are protected or have some limitations in exploitation. Estonia now has one of the biggest areas of FSC certified forests in Eastern Europe. 1,063,000 hectares of state forests managed by the Estonian State Forest Management Center (RMK) have received Forest Stewardship Council (FSC) certification.

In addition to the Forest Act, another corner stone of forestry is the Estonian Forestry Development Plan for the years up to 2010, approved by the Riigikogu at the end of 2002. The plan specifies the objectives of sustainable (including ensuring biodiversity) and effective forestry set in the Estonian forest policy and activities necessary for the achievement of the objectives. New Development Plan is currently being drafted and is expected to be ready in year 2010.

60% of semi-natural grasslands have been inventoried and 20% of them covered with management actions. 44% of semi-natural grasslands are on protected areas.

Target 7 *60 per cent of the world's threatened species conserved in situ.*

In Estonia all species in the first conservation category (31 species of vascular plants and 4 species of bryophytes) need to be located on protected areas which means that they are preserved *in situ*. Management plans have been settled for *Cypripedium calceolus, Ligularia sibirica, Coeloglossum viride, Crepis mollis, Rubus arcticus, Taxus baccata, Dactylorhiza ruthei, Orchis morio, O. ustulata, Asplenium septentrionale, Asplenium viride, Botrychium matricariifolium, Botrychium virginianum, Cystopteris sudetica, Equisetum x trachyodon, Isoetes echinospora, Polystichum aculeatum, Polystichum braunii, Polystichum lonchitis* and all bryophytes in the first category.

Target 8 *60 per cent of threatened plant species in accessible ex situ collections*

Ministry of Environment has composed an *Ex-situ* conservation action plan, but this expired in 2005. It was voluntary guidelines and it was and still is partly adopted, but it needs updating and adoption.

Ex situ collections in Botanical Gardens contain about one third of the Estonian protected species.

Restoration programs are in place for most of the 1st category (most threatened) species.

Target 9 *Conserve the genetic diversity of all known indigenous traditional plant varieties of crops and land races*

Estonian National Programme "Collection and Conservation of Plant Genetic Resources for Food and Agriculture (PGFRA)" has been formally approved and finances allocated by the Government of Estonia in 2002.. Programme is coordinated by the Council of PGRFA organized by the Estonian Ministry of Agriculture. After the expiry of the National Programme, new development plan "Collection and Conservation of Plant Genetic Resources 2007-2013" was adopted in 2007 which has the following objectives:

· Sustainable conservation and utilization of PGR of Estonian origin to ensure implementation of the Convention on Biological Diversity

· Development of the national PGR network

· Exploration and utilization of collections

Five institutions storage 4570 items of different cultures (cereals, vegetables, berries, fruits, medicinal and horticultural plants):

- Plant Biotechnological Research Centre EVIKA of the Estonian Research Institute of Agriculture

- Jõgeva Plant Breeding Institute

- Polli Horticultural Research Instite of the Estonian University of Life Sciences

- Botanical Garden of Tartu University

- Department of Gene Technology in Tallinn Technical University

The following fields are covered:

long-term seed preservation of cereals, vegetables, forage grasses and legumes

(1950 accessions)

In vitro preservation of potatoes and horticultural crops (1020 accessions)

Preservation of fruit trees and berry plants in field collection (1040 accessions)

Preservation of medicinal and aromatic plants in field collection (50 accessions)

Target 10 *Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems*

Management plan for giant hogweed (*Heracleum mantegazzianum* and *Heracleum sosnovskyi*) is in place. The total area of this species in Estonia is about 1400 ha. In 2006 3.36 mill. EEK was spent for eradication. In 2007 eradication was carried out on 30% of the area.

No other management plans have been completed for any other alien plant species in Estonia. Management plan for raccoon dog is under way, planned to be ready in 2009. Due to heavy budgetary constraints, other IAS management plans have been postponed.

Target 11 *No species of wild flora endangered by international trade*

Number of Estonian plants in CITES appendixes is 36. Wild flora is not endangered by trade as several species as Allium ursinum, clubmosses etc. that could be of interest, are under nature protection and collecting them is prohibited.

Target 12 *30 per cent of plant-based products derived from sources that are sustainably managed*

About 10% of agricultural land is managed organically.

Existing legislative system ensures the sustainable use of forest resources.

Target 13 *The decline of plant resources and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods, local food security and health care, halted*

Information on agricultural and rural practices and traditions of Estonia have been collected during a long period and published in several books. However, the information is scattered, and not easy to find (medicinal plants are the exception).

Estonia does not have separate strategy for traditional use of natural resources. These points are in development plans of forestry, hunting, etc.

Target 14 *The importance of plant diversity and the need of its conservation incorporated into communication, educational and public-awareness programmes*

The topic is in the focus of several institutions in Estonia:

State Nature Conservation Centre has organized several nature centers where education programs are running:

Matsalu nature center http://www.matsalu.ee/; Endla nature center http://www.endlakaitseala.ee/?id=585; Emajõe-Suursoo nature center www.emajoe-suursoo.ee; Saadjärve nature center http://www.vooremaastik.ee/suurem.html; Kirna nature center; Karula nature center www.karularahvuspark.ee/

State forest management centre has Sagadi forest center where nature training courses take place.

Tartu Environmental Education Centre has several curricula for school-childrens' after school activities and also exhibitions for the citizens.

Estonian Naturalists' Society has a lecture series for school teachers and a database for collecting distribution data of different species

Tallinn Botanical Garden has a program for school children to show the plant collections and deliver environmental education. Tartu Botanic Garden has a similar program

Target 15 *The number of trained people working with appropriate facilities in plant conservation increased*

New curricula have been opened in universities (University of Tartu (20 people per year), Estonian University of Life Sciences (50 people per year) to offer environmental education on BSc as well MSc levels that has a part of plant conservation (Ecology and biodiversity conservation - University of Tartu, Management and protection of natural resources; Management of biodiversity and multifunctional landscapes, Landscape Protection and Preservation- Estonian University of Life Sciences).

State Nature Conservation Centre is a reorganized institution that has specialists for education and public awareness.

Target 16 *Networks for plant conservation activities established or strengthened*

The number of regional and European programs in nature conservation and environmental education is growing.

Important Plant Areas project and projects connected to Natura2000 species have given a good basis for it.

B Progress towards Targets of the Programme of Work on Protected Areas

Is the existing national protected areas system comprehensive, ecologically representative and effectively managed (provide number of existing protected areas, total area covered, and type and percentage of biomes covered?

Is the existing protected areas system coherent, ecologically representative and effectively managed?

- **What are the definitions of "comprehensive", "ecologically representative" and "effectively managed" in your country?**

- **What is the progress made in quantitative and qualitative terms against the national targets relating to "comprehensiveness" ecologically representative', "effective management"?**

- **What biomes are adequately represented?**

- **What biomes are under represented or not represented?**

- **What IUCN categories of protected areas are included?**

In Estonia the established protected areas network is comprehensive and comparatively coherent. By 1 January 2008, there were 3 389 protected natural objects in Estonia from which there are:

- 129 nature protection areas;
- 149 landscape protection areas;
- 5 national parks;
- 117 areas with old, i.e. non-renewed protection rules;
- 548 parks and forest stands;
- 343 limited conservation areas;
- 869 species' protection sites;
- 3 natural objects protected on local government level;
- 1 195 individual protected natural objects, incl. trees and groups of trees 725, rocks and rock fragments 358, other objects 112.

Protected areas (landscape protection areas, nature protection areas, national parks, areas with old, i.e. non-renewed protection rules, parks and forest stands) cover 590 333 ha of land and 92 253 ha of waters. The total surface area of the nature protection areas is 257 929 ha, incl. 244105 ha of land and 13 824 ha of waters. The total surface area of the landscape protection areas is 191 031 ha, incl. 180 379 ha of land and 10 652 ha of waters. The total surface area of territories with old, i.e. non-renewed protection rules is 32 258 ha, incl. 32 108 ha of land and 150 ha of waters. The total surface area of 343 limited conservation areas is 747 660 ha, incl. 113 783 ha of land and 633 877 ha of waters. The total surface area of species' protection sites is 87 353 ha, incl. 74 542 ha of land and 12 810 ha of waters. Natural objects protected on local government level cover 1 347 ha. The protected area in Estonia formed 17.9% (18.9% incl. Lake Peipus and Lake Võrtsjärv) from the total territory of the republic by 1 January 2008. Ca 4% of the territory of Estonia is covered by the areas which are strictly protected and maintained in a state unaltered by human activity or used only for scientific monitoring purposes (IUCN category Ia) and areas where only activities following strictly the preservation of the natural state can be organized (IUCN category Ib).

Coastal habitats (68.7%), swamps (64.1%), natural grassland (57.5%) and inland water bodies (45.9%) form the major part of the protected areas. Areas under strict protection (IUCN Ia and Ib) are mainly swamps (30.8%), coastal habitats (8.7%) and coniferous forests. Under-represented are hardwood forests (ca 12.5%) and sea habitats in the economical zone.

Words "comprehensive", "ecologically representative" and "effectively managed" have no standard definition in Estonian legal acts and strategic documents. In principle, the evaluation guidelines of the efficiency of the management of the protected areas worked out in the IUCN Commission of Protected Areas, are recognized in Estonia. Based on these guidelines, the following six main aspects of the management cycle are taken into consideration at the assessment of the efficiency of management: context, planning, input, management process, output and outcome.

The Nature Conservation Act defines the favourable conservation status of natural habitats and species (1) The conservation status of a natural habitat will be taken as favourable when its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

- **Do new protected areas established since COP-7 cover under represented ecosystems and biomes (number of new protected areas since COP-7, area covered by them, type and percentage of biomes covered by them)?**

Sixty-six new protected areas were formed in the years 2004 - 2007. Mainly the existing protected area was expanded or a new protected area was formed based on the area with temporary restrictions. Protection rules have been prepared to the limited conservation areas. The marine biotopes are continuously under-represented.

- **Are there plans for the establishment of additional protected area s by the year 2010 (terrestrial) and 2012 (marine)?**

- **Have plans or actions for protected area system (incorporating elements for filling ecological gaps, securing financial resources, capacity-building, addressing policy, legislative and institutional barriers) been developed?**

According to the nature protection development plan up to the year 2035, additional protected areas must be established both on land and in the waters. All habitats should have at least 20% protection of the total area of the habitat. At the same time, the waters have not been much studied in respect of their nature protection value and there is no consolidated knowledge, which could be used in practice. There are no protection measures of the marine zones in many of the protection rules of the protected areas covering the sea.

The objectives in the coming years are to form the network of the protected marine areas, place under protection valuable marine areas and objects (harmonization of the networks covering different marine areas involving Natura, Helcom, Biosphere protection and Ramsar protected areas, objects of untouched nature related to the sea) and define and apply measures needed for the protection of the marine landscape (incl. designing of the wind parks, construction in the sea) and improvement of the corresponding legal acts.

Although the surface area of the protected marine areas has doubled up to the year 2005 and, due to Natura 2000 network,, the imposing network of the protected areas has been established in the Väinameri, the European Commission is still of the opinion that not enough attention has been paid to the protected marine areas in Estonia. In the coming years, new protected marine areas must be defined in the economic zone and necessary measures applied there.

Non-profit association Baltic Environmental Forum in co-operation with the partners from Estonian Marine Institute, Estonian Ornithological Society, State Nature Conservation Centre and Estonian Environment Information Centre have started preparing management plans to Väinameri and Küdema Bay limited conservation areas. Several studies of the birds, marine mammals, fish and benthos in the Estonian marine areas, incl. Väinameri and Küdema Bay limited conservation area have been performed in the frames of the LIFE-Nature Project "Marine Protected Areas in the Eastern Baltic Sea" since the end of 2005.

- **What measures haven been taken for developing enabling environment (legislation, policies, tools) for integrating protected areas into broader land and seascapes and other sectoral interests (i.e. agriculture, infrastructure, energy)?**

The two major subjects of the thematic plan of the county plan "Environmental conditions having impact on the human settlement and land use" were valuable landscapes and green network. Valuable landscapes and natural values were defined and taken into inventory in the frames of compiling the plan. Database of the valuable landscapes and natural values was established on the basis of the mentioned plan in the county governments. By the year 2007, all 15 counties in Estonia had defined the green network and set conditions of use to the structural elements of the network. At present and in the coming years, the green network will be specified in the general plans of the counties. The plan of the green network is an important measure in guaranteeing the coherence of the protected areas. Maintenance plans have been established to several regions and landscape management performed.

The legislative validity of the plans guaranteeing the preservation of the connection links between different protected areas must be strengthened, as the mentioned thematic plans are with comprehensive plans the main measures for guaranteeing the protection and preservation of the landscapes.

The continuous observation of the changes in the nature has been the task of the sub-programme of the national environmental monitoring – monitoring of the variety of the wildlife and landscapes - since 1994. The existing monitoring system needs reorganization (that were started already in 2005) to guarantee the inflow of the information about the changes in the state of the species and habitats protected with the EU Nature and the Birds Directive.

Principles of the ecosystem management have been taken into consideration in Estonia both in the organisation of the nature protection and development of the systems of the protected areas. The activities in Estonia at the protection and sustainable use of the values of life, e.g. variety of the forest life coincide with the principles of the ecosystem approach directly and indirectly. Ecosystem approach has been applied in some cases, for example at the management of nature protection on Hiiumaa island and the preparation of the management plan of Lahemaa National Park. In the fisheries sector the ecosystem approach is one of the political goals.

- **What collaboration across national boundaries has been implemented in relation to protected areas?**

- **Has any consultation process been established to identify potential transboundary including marine, protected areas?**

- **How many protected areas feature in regional networks and how many of these are transboundary?**

- **Has the potential for regional cooperation under relevant conventions been utilized for the establishment of migratory corridors?**

Estonian and Latvian Ministries of Environment have made a common decision about the formation of the transborder wetland in the area of North-Livonia, which is the first Estonian-Latvian transborder wetland complex. The North-Livonian transborder wetland complex involves Nigula and Sookuninga Nature Reserves in Estonia and Ziemelu Purvi at Ramsar site in Latvia. The North-Livonian transborder wetland is the sixth in the world Ramsar site with transborder status. In Estonia Nigula and Sookuninga Nature Reserves and in Latvia Ziemelu-Purvi Nature Reserve are located at the area covering ca 400 000 ha. This is the former North-Livonian border area on the Estonian side of which are Nigula and Tõrga (Kodaja) mires and on the Latvian side Kapzemes, Sandre and Rongu mires.

The objective of the project "Study nature through the transboundary cooperation" is to strengthen the role of the centers of nature education and protected areas in the society and improve the co-operation between the Estonian and Latvian environmental institutions, increase the variety of the possibilities of outdoor education and improve the environmental awareness of the population. The project partners are Tartu Environmental Education Centre, Peipsi Center for Transboundary Cooperation, Gaujas National Park Foundation and Latvian Olympian Club.

- **What percentage of protected areas (area and number) have up-to-date science-based management plans that**

a) Are under development?

b) Are under effective implementation?

Management plan has been compiled only to a small number of protected areas in Estonia. By 1 January 2008, there were 25 approved management plans and 35 were under development:

a) are under development 35

b) are under effective implementation 25

- **Have consultation been undertaken involving protected area functionaries, local stakeholders and researchers to identify science-based biodiversity conservation targets?**

- **What measures have been put in place to identify, prevent and/or mitigate the negative impacts of threats?**

- **What measures have been taken to restore and rehabilitate the ecological integrity of protected areas?**

Green network plan at the state and county level should guarantee the coherence of the protected areas and set necessary application rules to the structural elements of the green network and conflict areas (paths of the animals, highways, etc).

All projects that can impact the state of environment (construction of dams at the rivers, new sections of highways, structures, etc) must pass the environmental impact assessment.

- **What legislative or policy frameworks are in place to establish frameworks for the equitable sharing of costs and benefits arising from the establishment and management of protected areas?**

- **Have assessments been made of the economic and socio-cultural costs and benefits of protected areas, particularly for indigenous and local communities?**

- **What measures have been taken to avoid and mitigate negative impacts on indigenous and local communities?**

- **What mechanisms have been put in place to identify and recognize community conserved areas and how many such areas have been integrated into the national protected areas system?**

No scientific research about the benefits of the protected areas to the local community has been carried out in Estonia. However, several questionnaires have showed that the local communities value more and more the fact that their real estate is located at the protected area.

Land tax subsidies are applied to the land owners whose landed estate is located at the protected area where the economic activities are restricted or prohibited with the protection rules. It is possible to exchange the landed estate with another plot or sell it to the state. An important measure having impact on the biological variety is the felling-free period lasting throughout the nesting period of birds enforced by the State Forest Management Centre (RMK).

Nature Conservation Act (2004) gives a possibility to the local government to take natural objects under protection at the local government level. At the local government level, a landscape, valuable arable land, valuable natural biotic community, individual landscape object, park, green area or an individual object of a green area which has not been placed under protection as an individual protected natural object and is not located within a protected area may be a protected object.

- **What mechanisms have been implemented to ensure full and effective participation of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable international obligations, in the management of existing, and the establishment and management of new, protected areas?**

- **What measures have been taken to support areas conserved by indigenous and local communities?**

- **What mechanisms have been put in place to ensure the participation of relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas?**

At present, there are no environmental protection co-operation networks for changing information and experience in the field of the protection of natural resources between the landowners, local environmental and nature protection administrations and other stakeholders in Estonia. However, a goal has been set in the Forestry Development Plan to ensure the correspondence of the science and education in forestry to the international requirements satisfying at the same time local needs and explain the nature and principles of the sustainable forestry to the population.

The Law of the Small Islands sets the establishment of the Small Islands Committee at the Government of Estonia as the representation of the small islands with permanent residents. The representatives of the small islands, leaders of the local governments and the representatives of the Ministry of Environment, Ministry of Finance and Ministry of Economic Affairs and Communications form this committee.

The establishment of the local LEADER groups to promote the importance of the decisions made at the local level is foreseen in the Estonian Rural Development Plan (2007 - 2013).

Traditional knowledge can be applied in the continuous management of the semi natural communities. Estonian Rural Development Plan (2007 - 2013) supports the restoration and maintenance of the stone fences, maintenance of Natura sites, farmers are encouraged to apply old field areas. Direct aid has been provided to the farmers by the Ministry of Environment for making hay, herding and cutting the brushwood.

Enterprise Estonia supports the local development through the local governments and the mutual and non-profit (third) sector.

- **Are the appropriate policy, institutional and socio-economic frameworks in place value goods and services and enable more effective establishment and management of protected areas?**

- **What kind of social and economic valuation methods and incentives for more effective establishment and management of protected areas are developed and incorporated into national policies, institutional and socioeconomic structures?**

- **What are the main impediments to effective establishment and management of protected areas?**

- **Have measures been taken to overcome these?**

Several problems preventing the systematic and efficient management of the protected areas located in Estonia were discovered in the analysis carried out in the period 1999 - 2003. Reforming of the management and financing of the protected areas was carried out to decrease and mitigate the problems.

Division of workforce and financing of the protected areas from the state budget have improved with the reform carried out in 2006 as the authorities are now all the same type and the protection is organized in the whole republic by one organisation – State Nature Conservation Centre. Therefore, it is better to get an overall review of the protected objects in Estonia, make better decisions and divide resources better taking into consideration the needs of the protected areas.

- **Has a comprehensive capacity-needs assessment or protected areas management been carried out?**

- **What capacity-building programmes have been undertaken or are being undertaken. How successful have the completed programmes been?**

- **Does your country consider a multidisciplinary approach to protected areas management?**

The expenses on the management of the protected areas and actual needs were studied in the course of the reform of the management of the protected areas carried out in 2006. The results were taken into consideration in the new structure. At the same time, the uniform division of the workforce and financial resources between the protected areas has not solved the problems related to financing and workforce because the amount of human and financial resources needed for the management of the protected areas was clearly insufficient according to the opinion of the officials in 2006.

- **What new innovative approaches and technologies have been identified, developed and implemented for protected areas establishment and management on the national and regional level?**

- **Has there been collaboration within the country and/or with other countries to share information and technologies**

- **Have financial needs been identified? What are the results of this needs assessment (quantitative and qualitative)?**

- **What strategies are in place to meet these needs, and in particular, to secure long-term funding for the national protected areas system?**

- **What financial support has been given to developing countries and countries with economies in transition States and small islands?**

- **What proportion of the budget is dedicated to supporting the national protected areas system (proportion of the total funding for the national protected areas comes from private and public funding sources, and how much from the state budget?)**

- **Have studies been made on the efficient use of the resources in contribution to financial sustainability of protected areas?**

The financial resources for the implementation of the planned activities in the Estonian Rural Development Plan (2007 – 2013) have been calculated based on the need of financing the priority activities of the period. The financial resources and possibilities which can be used for the implementation of the development plan and use of potential economic instruments for achieving the environmental goals have been taken into consideration.

The means of different EU funds have been used successfully for financing of the management of the nature protection besides the state budget and financial resources of the Estonian Investment Centre. The main financing resource has so far been Life-Nature programme through the means of which more than 10 projects have been financed in the years 2000 – 2007. It has been possible to apply the financing of the environmental projects from the environmental-infrastructure measure of the European Regional Development Fund. Environmental protection activities are financed also from the means of INTERREG III and Phare programmes. The objective of the next EU financing period (2007 – 2013) is to integrate the financing of the environment more into other funds. Thus, the environmental protection activities should be financed in comparatively bigger scope from both the structural funds and Rural Development Fund.

There are allocations and funds (foundations) intended for a specific purpose for financing the projects of protecting the biological variety besides financing from the state budget (administrations of the protected areas, etc). Nature conservation subsidy is an annual grant from the state budget for maintaining and restoring the semi-natural communities. The amount of this grant has been so far ca 19 million EEK per year. Nature conservation subsidy is paid for restoring the semi-natural communities (incl. cleaning of the meadows from brushwood, cleaning of the coastal meadows from reed, decreasing of the tree layer at wooded meadows and wooded pastures) and construction of fences at the protected areas, limited conservation areas and species' protection sites (incl. Natura 2000 sites). The nature conservation subsidy has improved the overall attitude of the landowners to the nature protection and increased their interest to the nature and improved environmental awareness besides maintaining and restoring the semi-natural communities.

The European Union finances the rural development from the European Agricultural Fund for Rural Development (EAFRD) in the budgetary period 2007 - 2013 which is co-financed by the member states. It is possible to support the agriculture and rural life in Estonia during the seven years from the Estonian Rural Development Plan (2007 - 2013) with ca 14.5 billion EEK from which the co-financing of the Estonian state forms ca 3.3 billion EEK.

- **Is there a review mechanism for public education programmes to measure if they have been effective in communicating the basic biodiversity values of protected areas?**

- **What education measures and programmes have been developed and implemented regarding protected areas, including for raising public awareness?**

State Nature Conservation Centre has different education programmes, which are offered to the target groups visiting protected areas. There are thematic training programmes, several nature centres, expositions and hiking trails with information stands introducing protected areas and species meant for the visitors. Different information materials are published each year.

- **Has your country evaluated management effectiveness of protected areas in a systematic way? If yes,**

(a) What percentage of national protected area system surface area has been evaluated?

(b) What are the conclusions for the national protected areas system, and to what extent were results incorporated into management plans and strategies?

There has been no systematic assessment of the efficiency of the management of the protected areas as the management reform was carried out in the analyzed period. New State Nature Conservation Centre administered by the Ministry of Environment was established on 1 January 2006. This centre assembled all former administrations of the protected areas. The task of this institution is to organize practical protection at the protected areas. The task of the county environmental administrations, which became the authorities of the protected areas during the reform in 2006, is to issue environmental permits and establish conditions of activities at the protected areas.

In the years 2004–2007 a study "Reform of the administration system of the environmental protection in Estonia and its impact to the division of workforce and financing of the protected areas" (Roasto, 2007) was published. This study analyzed the aspects related to the workforce and financing at the protected areas. The division of workforce and financing from the budgetary means improved to certain state with the reform in 2006 as the authorities are now all the same type and the protection is organized in the whole republic by one organisation – State Nature Conservation Centre. Therefore, it is better to get an overall review of the protected objects in Estonia, make better decisions and divide resources better taking into consideration the needs of the protected areas.

In 2005 the task of one environmental specialist working in the county environmental authority was to administer in average 25 854 ha of the protected area and the task of one worker in the administration of the protected area was to administer in average 3 076 ha. In 2006 when there were no more different authorities and the previously existing administration function had been split into two spheres – administration and management of protection – the protected area to be administered and managed by one environmental specialist in the county environmental authority and State Nature Conservation Centre was in total 8 204 ha. The same tendency was noticed in financing. In 2005 the administrations of the protected areas received from the state budget in average 157 EEK/ha and the county environmental authorities in average 60 EEK/ha (the total budget of the environmental authority has been taken into consideration, not only the part of the environmental protection). In 2006 only the State Nature Conservation Centre received from the state budget 65.5 EEK/ha. Additionally 42.5 EEK/ha (the total budget of the environmental authority has been taken into consideration, not only the part of the environmental protection) was allocated to the county environmental authorities from the state budget for the implementation of the management function.

Appendix 4

National indicators used in the report

List of Estonian national biodiversity indicators, as they exist in Estonian Environment Information Centre – institution that is keeping a national environmental register at state level:

Indicator (Title in Estonian)	Definition	Latest known status	Trend	Data source
Red listed vascular plants (Punase raamatu soontaimed)	Percentage of red listed vascular plant species (with red list categories 0 to 3 – extinct to rare) to total registered vascular plant species number	Latest data from 1998: 12,5 %	+	Red data book of Estonia and list of vascular plant species registered in Estonia
Protected vascular plant species (Kaitsealused soontaimed)	Percentage of protected vascular plant species number per protection category to total registered vascular plant species number	Latest data from 2005: Category I: 2,07 % Category II: 7,80 % Category III: 4,40 %	+	Annexes of Nature Conservation Law and list of vascular plant species registered in Estonia
Red listed mosses (Punase raamatu sammaltaimed)	Percentage of red listed moss species (with red list categories 0 to 3 – extinct to rare) to total registered moss species number	Latest data from 1998: 27,8 %	+	Red data book of Estonia and list of moss species registered in Estonia
Protected moss species (Kaitsealused sammaltaimed)	Percentage of protected moss species number per protection category to total registered moss species number	Latest data from 2005: Category I: 0,76 % Category II: 4,95 % Category III: 3,05 %	+	Annexes of Nature Conservation Law and list of moss species registered in Estonia
Red listed lichens (Punase raamatu samblikud)	Percentage of red listed lichen species (with red list categories 0 to 3 – extinct to rare) to total registered lichen species number	Latest data from 1998: 11,1 %	+	Red data book of Estonia and list of lichen species registered in Estonia
Protected lichen species (Kaitsealused samblikud)	Percentage of protected lichen species number per protection category to total registered lichen species number	Latest data from 2005: Category I: 0,13 % Category II: 4,05 % Category III: 2,28 %	+	Annexes of Nature Conservation Law and list of lichen species registered in Estonia

Indicator (Title in Estonian)	Definition	Latest known status	Trend	Data source
Red listed fungi (Punase raamatu seened)	Percentage of red listed fungi species (with red list categories 0 to 3 – extinct to rare) to total registered fungi species number	Latest data from 1998: 1,64 %	+	Red data book of Estonia and list of fungi species registered in Estonia
Protected fungi species (Kaitsealused seened)	Percentage of protected fungi species number per protection category to total registered fungi species number	Latest data from 2005: Category I: 0,36 % Category II: 1,04 % Category III: 0,40 %	+	Annexes of Nature Conservation Law and list of fungi species registered in Estonia
Red listed algae (Punase raamatu vetikad)	Percentage of red listed algae species (with red list categories 0 to 3 – extinct to rare) to total registered algae species number	Latest data from 1998: 0,52 %	+	Red data book of Estonia and list of algae species registered in Estonia
Protected algae species (Kaitsealused vetikad)	Percentage of protected algae species number per protection category to total registered algae species number	Latest data from 2005: Category I: 0 % Category II: 0 % Category III: 0 %	0	Annexes of Nature Conservation Law and list of algae species registered in Estonia
Red listed invertebrates (Punase raamatu selgrootud)	Percentage of red listed invertebrate species (with red list categories 0 to 3 – extinct to rare) to total registered invertebrate species number	Latest data from 1998: 2,31 %	+	Red data book of Estonia and list of invertebrate species registered in Estonia
Protected invertebrate species (Kaitsealused selgrootud)	Percentage of protected invertebrate species number per protection category to total registered invertebrate species number	Latest data from 2005: Category I: 0,01 % Category II: 0,04 % Category III: 0,33 %	+	Annexes of Nature Conservation Law and list of invertebrate species registered in Estonia
Red listed fishes (Punase raamatu kalad)	Percentage of red listed fish species (with red list categories 0 to 3 – extinct to rare) to total registered fish species number	Latest data from 1998: 13,1 %	+	Red data book of Estonia and list of fish species registered in Estonia

Indicator (Title in Estonian)	Definition	Latest known status	Trend	Data source
Protected fish species (Kaitsealused kalad)	Percentage of protected fish species number per protection category to total registered fish species number	Latest data from 2005: Category I: 0 % Category II: 2,70 % Category III: 6,76 %	+	Annexes of Nature Conservation Law and list of fish species registered in Estonia
Red listed amphibians (Punase raamatu kahepaiksed)	Percentage of red listed amphibian species (with red list categories 0 to 3 – extinct to rare) to total registered amphibian species number	Latest data from 1998: 18 %	-	Red data book of Estonia and list of amphibian species registered in Estonia
Protected amphibian species (Kaitsealused kahepaiksed)	Percentage of protected amphibian species number per protection category to total registered amphibian species number	Latest data from 2005: Category I: 18,18 % Category II: 18,18 % Category III: 63,64 %	+	Annexes of Nature Conservation Law and list of amphibian species registered in Estonia
Red listed reptiles (Punase raamatu roomajad)	Percentage of red listed reptile species (with red list categories 0 to 3 – extinct to rare) to total registered reptile species number	Latest data from 1998: 20 %	0	Red data book of Estonia and list of reptile species registered in Estonia
Protected reptile species (Kaitsealused roomajad)	Percentage of protected reptile species number per protection category to total registered reptile species number	Latest data from 2005: Category I: 0 % Category II: 20 % Category III: 80 %	0	Annexes of Nature Conservation Law and list of reptile species registered in Estonia
Red listed birds (Punase raamatu linnud)	Percentage of red listed bird species (with red list categories 0 to 3 – extinct to rare) to total registered bird species number	Latest data from 1998: 16,5 %	-	Red data book of Estonia and list of bird species registered in Estonia

Indicator (Title in Estonian)	Definition	Latest known status	Trend	Data source
Protected bird species (Kaitsealused linnud)	Percentage of protected bird species number per protection category to total registered bird species number	Latest data from 2005: Category I: 4,01 % Category II: 10,03 % Category III: 19,20 %	+/-	Annexes of Nature Conservation Law and list of bird species registered in Estonia
Red listed mammals (Punase raamatu imetajad)	Percentage of red listed mammal species (with red list categories 0 to 3 – extinct to rare) to total registered mammal species number	Latest data from 1998: 20 %	+	Red data book of Estonia and list of mammal species registered in Estonia
Protected mammal species (Kaitsealused imetajad)	Percentage of protected mammal species number per protection category to total registered mammal species number	Latest data from 2005: Category I: 2,90 % Category II: 18,84 % Category III: 8,70 %	-	Annexes of Nature Conservation Law and list of mammal species registered in Estonia
Abundance of top-predators: Golden Eagle (Tippkiskjate arvukus: kaljukotkas)	Number of nesting pairs of avian top predator per 10 000 km^2	Latest data from 2005: 10,17 pairs per 10 000 km^2	+	National environmental monitoring programme
Abundance of top-predators: Osprey (Tippkiskjate arvukus: kalakotkas)	Number of nesting pairs of avian top predator per 10 000 km^2	Latest data from 2001: 11,1 pairs per 10 000 km^2	+	National environmental monitoring programme
Abundance of top-predators: Brown bear (Tippkiskjate arvukus: pruunkaru)	Number of individuals of terrestrial top-predator per 10 000 km^2	Latest data from 2007: 128,2 individuals per 10 000 km^2	+	National environmental monitoring programme
Abundance of top-predators: Lynx (Tippkiskjate arvukus: ilves)	Number of individuals of terrestrial top-predator per 10 000 km^2	Latest data from 2007: 163,6 individuals per 10 000 km^2	+	National environmental monitoring programme

Indicator (Title in Estonian)	Definition	Latest known status	Trend	Data source
Abundance of top-predators: Wolf (Tippkiskjate arvukus: hunt)	Number of individuals of terrestrial top-predator per 10 000 km^2	Latest data from 2007: 24,3 individuals per 10 000 km^2	+	National environmental monitoring programme
Density of road network (Teedevõrgu tihedus)	Density of state road network, given as number of road km per km^2	Latest data from 2006: 0,39 km/km^2	+	Statistics Estonia
Designated areas (Kaitstavad alad)	Total and terrestrial area that is designated by law for protection of biodiversity components	Latest data from 2007: Total: 1513340 ha Terrestrial: 775096 ha	+/-	Estonian National Nature Information System – EELIS
Strictly protected area (Rangema kaitsekorraga vööndid)	Total area of strictest management zones of designated areas – IUCN categories Ia and Ib	Latest data from 2007: 176127 ha	+	Estonian National Nature Information System – EELIS
Expenditure for nature conservation and -protection at state level (Kulutused loodushoiule ja –kaitsele)	Expenditure is given as total per country on thousands EEK per year	Latest data from 2005: 2842	+/-	Statistics Estonia
Expenditure for nature conservation and -protection at municipal level (Valla- ja linnavalitsuste kulutused loodushoiule ja –kaitsele)	Expenditure is given as total per country on thousands EEK per year	Latest data from 2005: 915	-	Statistics Estonia
Area of drained land (Kuivendatud alade pindala)	Total land area under drainage for whole country, given in thousand hectares	Data only available since 2007: 1314,4	N/A	Estonian Land Board

Table 1 Status of indicators to assess progress towards the 2010 Biodiversity Target at national level in Estonia

Goals and targets	Relevant indicators	Status in Estonia
Protect the components of biodiversity		
Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes		
Target 1.1: At least 10% of each of the world's ecological regions effectively conserved.	• Coverage of protected areas • Trends in extent of selected biomes, ecosystems and habitats A. Trends in abundance and distribution of selected species	• In use, value in Estonia is 17,9 % • In use, trends evaluated for habitats of red listed species and land cover classes • In use, trends evaluated for selected birds and top predators
Target 1.2: Areas of particular importance to biodiversity protected	B. Trends in extent of selected biomes, ecosystems and habitats C. Trends in abundance and distribution of selected species D. Coverage of protected areas	E. Look target 1.1 above
Goal 2. Promote the conservation of species diversity		
Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	• Trends in abundance and distribution of selected species • Change in status of threatened species	• In use as trends for top predators • In use for species groups of Red Data Book
Target 2.2: Status of threatened species improved.	• Change in status of threatened species • Trends in abundance and distribution of selected species • Coverage of protected areas	• In use as trends for top predators • In use for species groups of Red Data Book • In use, value in Estonia is 17,9 %

Goals and targets	Relevant indicators	Status in Estonia
Goal 3. Promote the conservation of genetic diversity		
Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.	• Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance • Biodiversity used in food and medicine (indicator under development) • Trends in abundance and distribution of selected species	• Not in use within official list of indicators
Promote sustainable use		
Goal 4. Promote sustainable use and consumption.		
Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the conservation of biodiversity.	(1)Area of forest, agricultural and aquaculture ecosystems under sustainable management (2)Proportion of products derived from sustainable sources (indicator under development) • Trends in abundance and distribution of selected species • Marine trophic index • Nitrogen deposition • Water quality in aquatic ecosystems	(3)In use as water quality of rivers (4)In use as swimming water and drinking water quality measures (5)In use as pollution load for water-bodies, incl. total nitrogen deposition (6)In use as exploitation indicators for peat, fish, forest and game resources, but not directly indicating amount of sustainable use
Target 4.2. Unsustainable consumption, of biological resources, or that impact upon biodiversity, reduced.	• Ecological footprint and related concepts	• Not in use within official list of indicators
Target 4.3: No species of wild flora or fauna endangered by international trade.	• Change in status of threatened species	• Not in use within official list of indicators
Address threats to biodiversity		
Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.		

Goals and targets	Relevant indicators	Status in Estonia
Target 5.1. Rate of loss and degradation of natural habitats decreased.	• Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species • Marine trophic index	• Indirectly in use through top predators abundance and trough trends in lists of species groups in Red Data Book • Missing for biomes, ecosystems, habitats and also for Marine ecosystem
Goal 6. Control threats from invasive alien species		
Target 6.1. Pathways for major potential alien invasive species controlled.	• Trends in invasive alien species	• Not in use within official list of indicators
Target 6. 2. Management plans in place for major alien species that threaten ecosystems, habitats or species.	• Trends in invasive alien species	• Not in use within official list of indicators
Goal 7. Address challenges to biodiversity from climate change, and pollution		
Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change.	• Connectivity/fragmentation of ecosystems	• Indirectly in use as trends in density of main roads • Indirectly in use also as carrying capacity of nitrogen dioxide by different ecosystems
Target 7.2. Reduce pollution and its impacts on biodiversity.	• Nitrogen deposition • Water quality in aquatic ecosystems	• In use as water quality and pollution load of rivers • In use as swimming water and drinking water quality measures • In use as pollution load for water-bodies, incl. total nitrogen deposition

Goals and targets	Relevant indicators	Status in Estonia
Maintain goods and services from biodiversity to support human well-being		
Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods		
Target 8.1. Capacity of ecosystems to deliver goods and services maintained.	• Biodiversity used in food and medicine (indicator under development) • Water quality in aquatic ecosystems • Marine trophic index • Incidence of Human-induced ecosystem failure	• Not in use within official list of indicators • In use as water quality and pollution load of rivers • In use as swimming water and drinking water quality measures • In use as pollution load for water-bodies, incl. total nitrogen deposition • In official list exists also indicator as total area of drained land, but it does not have any realistic value yet
Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.	• Health and well-being of communities who depend directly on local ecosystem goods and services • Biodiversity used in food and medicine	• Not in use within official list of indicators
Protect traditional knowledge, innovations and practices		
Goal 9 Maintain socio-cultural diversity of indigenous and local communities		
Target 9.1. Protect traditional knowledge, innovations and practices.	• Status and trends of linguistic diversity and numbers of speakers of indigenous languages • Additional indicators to be developed	• Not in use within official list of indicators
Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.	Indicator to be developed	• Not in use within official list of indicators

Goals and targets	Relevant indicators	Status in Estonia
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.	Indicator to be developed	• Not in use within official list of indicators
Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions	Indicator to be developed	• Not in use within official list of indicators
Ensure provision of adequate resources		
Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention		
Target 11.1. New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	• Official development assistance provided in support of the Convention	• Not in use within official list of indicators
Target 11.2. Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.	Indicator to be developed	• Not in use within official list of indicators