REPUBLIC OF MOLDOVA

THE FOURTH NATIONAL REPORT
on
BIOLOGICAL DIVERSITY

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Content

Introduction

For the last decades, the intensification of the natural capital decline process was realised. The main living components of the nature - flora and fauna, that determine the state of biological diversity and comfort of life on Earth, are under continuous anthropogenic pressing. Given this situation, at the Rio de Janeiro Conference (Brazil) that took place on 3-14 June 1992, the United Nations Organisation (UN), by means of its environmental and development programs, has developed and adopted five documents of major significance for the environmental protection and sustainable development:

- Rio declaration on environment and development;
- Agenda 21 – program by the means of which the development can be socially, economically and environmentally viable;
- Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests," – co-called Forest Principles;
- UN Framework Convention on Climate Change;
- Convention on Biological Diversity.

These documents guide the states, governments, international institutions and non-governmental organizations in solving problems on environmental protection, sustainable socio-economical development at national and international levels.

The main objectives of the IVth National Report on Biodiversity Conservation is to present the summary of information on current status of flora, fauna and current status of implementation of Biological Diversity Conservation National Strategy and Action Plan.

In order to complete these tasks, there were gained information on the following aspects:

- flora diversity of forest, steppe, meadow, aquatic, agricultural ecosystems and the trends and risk factors in these areas;
- fauna diversity in different natural and anthropologically created ecosystems;
- danger that threatens the main components of biodiversity;
- implementation' efficiency of Biological Diversity Conservation National Strategy and Action Plan in Republic of Moldova.

Chapter I. General Description of Biological Diversity, Trends and Risk Factors

In order to implement the Convention on Biological Diversity, the Republic of Moldova has developed Biological Diversity Conservation National Strategy and Action Plan, that provides for biological diversity conservation at different levels by means of activities improving policy, legal and institutional framework, territorial planning, research and monitoring, trainings and environmental education.

Flora of the Republic of Moldova comprises 5513 plant species: among which 1989 superior plant species; inferior plants – 3524 species. According to floristic composition, the richest are the forest ecosystems, followed by steppe ecosystems.

Current area of forests and other types of forest vegetation is insufficient to meet needs of maintaining the ecological balance of environment. The gap between the current forest area of about 11% and the optimal level of this indicator (25-30%), explains the ecological imbalance which the Republic of Moldova is facing. The consequences of this situation are climate, hydrologic and geomorphologic hazards (droughts, floods, landslides, erosion, etc.), that directly or indirectly causes the reduction of biological diversity, expressed in a considerable decrease of areas of river formations, including the species of poplars, willows etc. Essential decrease of forestry ecosystems in the rivers' meadows caused not only essential reduction of biological diversity, but also the deficiency of socio-economic sustainable development.

Forest ecosystems of the country encompass deciduous forests formed out of 6 natural forestry formations; beech forests and mixed forests with beech, sessile oak forests and mixed forests with sessile oaks; pedunculate oak (*Quercus robur*) forests and mixed forests with pedunculate oaks; forests of pubescent oak, parks of white poplar, parks of willows and artificial ameliorative formations woodsy cultures.

Within the forestry framework there are identified 28 types of ecosystems that include the following main types of forests: oak forests, sessile oak forests, pubescent oak forests, beech forests, parks, acacia parks and a large variety of them.

Forests are composed mainly of deciduous species (97,8%), including cvercinee – 143,8 thousands of ha (39,6%), ash parks – 16,6 thousands ha (4,6%), carpinets – 9,4 thousands ha (2,6%), acacia parka – 131,0 thousands ha (36,1%), poplars – 5,7 thousands ha (1,6%) etc., resins being present just in a 2,2% proportion.

Flora composition of forestry ecosystems includes more than 1000 species of spontaneous vascular plants.

Cvercinee are the most valuable arbors of the forest fund. 27% out of the total coverage originate from the seed, the other 73% - from sprout. The big percentage of the cvarcinee originated from sprout is one of the consequences of control over their grove over several centuries. This distribution influences the productivity of cvarcinee, 43 % of which are of an inferior.

Ecosystems of *Quercus robur* and *Cerasus avium* are widespread in Northern Moldova and have a surface of 11 600 ha. Flora composition of these ecosystems includes about 350 species of vascular plants and are characterised by mono-dominant arbors of pedunculate oak *(Quercus robur) with a high frequency of cherry (Cerasus avium).* There are about 10 rare species of plants within these ecosystems. Rososeni Forest (forestry haw Briceni) and forest line Mestecanis (forestry haw Ocnita) represent the southern limit of the birch area. Currently, these sectors are drying up and possibly they will disappear due to the lack of their natural regeneration. The same fate has *Gladiolus imbricatus*, which disappeared from the forest and Rososeni and is met just in the Sireuti forest.

Ecosystems of sessile oak, pedunculate oak and beech in the Central area of the Republic have a coverage of about 160 300 ha. Flora diversity is richer than in the forests of the Northern part. Floristic composition has more than 1000 species of vascular plants. The richest floristic diversity is in scientific reserve “Codrii” and in the scientific reserve "Plaiul Fagului” - respectively about 945 and 720 species of vascular plants. There are about 17 species of endangered and vulnerable plants in the forests of central part of the country that are registered with Red Book of Moldova: *Dentaria glandulosa, Dentaria quinquefolia, Lunaria annua, Lunaria rediviva, Euonymus nana, Coronilla elegans, Paeonia peregrina, Crataegus pentagyna, Padus avium, Sorbus domestica, Dophne mesereum, Cephalanthera longifolia, Cephalanthera rubra, Cypripedium calceolus, Epipactis purpurata, Orhis morio, Polystichum aculeatum.*

Currently, it is registered the decrease of the surfaces of fundamental natural brushes, where are recorded the most of the rare, vulnerable and endangered plant communities. In order to avoid the disappearance of the endangered plants and the decrease of biological diversity, it is offered that all fundamental natural brushes to be taken under protection.

Floristic diversity determines to large extent fauna diversity in forest ecosystems. Forests still maintain a satisfactory environmental capacity for many animal species. There are about 172 species or 47,8% of the total number of terrestrial vertebrates of the republic in the forest ecosystems. There are 47 species of mammals (64,4%), birds – 106 (37,9%), reptiles – 9 (64,3%) and amphibians – 10 species. Forests from the southern part have a reduced fauna diversity, there are no acvilas, *Picus viridis, Dryocopus martius, Dendrocopos leucotos, Bubo bubo* etc. among reptile are absent *Elaphe longissima, Vipera berus, Coronella austriaca, Rana temporaria, Rana dalmatina, Bombina verigata*.

Forest ecosystems of Central Codrii, that are richer in floristic diversity than the Northern part have even richer fauna diversity. It is due to the compact surfaces of the forests in the

surroundings of Straseni and Orhei. However, anthropogenic activity in the forest during the breeding period (harvesting of medicinal plants, mushrooms, forest cutting), are bothering animals, as well as the reduction of forage (gopher, small rodents) continue to influence negatively upon birds of day pray species as *Aquila clanga*, *Aquila pomarina*, *Hieraaetus pennatus*, *Falco cherrug* etc. Some of them do not have their eyrie anymore in these areas.

Ecosystems of *Quercus pubescens* and *Quercus pedunculiflora* of Southern part have a coverage of about 7 000 ha. Floristic composition encompasses over 400 vascular plant species. Within these ecosystems were recorded species included into the Red book of Moldova, such as *Centaurea angelescui*, *Gymnospermium odessanum*, *Pulsatilla grandis*, *Pyrus elaegrifolia*, *Chrisopogon gryllus*. The number of gymnosperm is very low within the protected area Misilindra, as well as the number of *Pyrus elaeagrifolia* in the protected area Harbovat. Urgent measures shall be undertaken in order to protect these two plant communities.

Forest ecosystems and grassy axonal ecosystems were formed on limestone slopes of rivers Nistru and Prut and their tributaries. These ecosystems' coverage is about 23 000 ha. Here were discovered 10 species included into the Red Book of Moldova, such as *Schiverechia podolica*, *Gypsophila glomerata*, *Helianhemum cannum*, *Sempervivum ruthenicum*, *Genista tetragona*, *Scutellaria supina*, *Hepatica nobilis*, *Koeleria moldavica*, *Phylitis scolopendrium*, *Gymnocarpium robertianum*. Koeleria moldavica can be registered as endemic part of Moldovan flora. That is why the communities of this species within the protected areas of Tipova, Saharna and other, need an increased level of protection.

Parks formed of willows, poplars and pedunculate oaks from the valleys of rivers Prut and Nistru have a coverage of 15 thousands ha, being 4,7% of the total surface of forests. Floristic diversity of these parks encompasses about 400 species of vascular plants, including 6 species of endangered and vulnerable plants, such as: *Alnus glutinosa*, *Alnus incana*, *Vitis sylvestris*, *Fritilaria melagroides*, *Frangula alnus*, *Ophioglosum vulgatum*. The number of the plant species of *Ophioglossum vulgatum L.*, located within an acacia brushes in scientific reserve „Padurea Domneasca" require a more efficient degree of protection.

Under origin criteria, there are three main categories of arbors in the country's forests: fundamental natural arbors, derivative arbors and artificial arbors.

Fundamental natural arbors are characterised by the richest floristic diversity and by the presence of numerous rare, endangered and vulnerable plants. Derivative arbors have a more reduced floristic diversity than of the fundamental ones. Artificial arbors have even less plant species than the other two arbors.

General trend for these arbors' types is the decrease of fundamental natural arbors' coverage and increase of the artificial arbors surface by means of planting acacias and through the management of technologies for restoration of forest from the category of fundamental natural arbors that achieved the exploitation. This trend leads to the replacement of fundamental natural arbors with the artificial ones, and as consequence it is reduced the forest ecosystems' biodiversity, sustainability and capacity to offer ecosystem services.

Out of the total coverage of forests of 362,7 thousands ha, only 33,4 thousands ha (9,2%) are in the public ownership of the state and local public authorities (city halls). At the same time, Moldova has 49,3 thousands ha of forest vegetation outside the forest system.

According to the Biological Diversity Conservation National Strategy and Action Plan and Strategy on Sustainable Development of the Forest Sector which aims to assure a constant environmental balance and creation of certain environmental corridors of interconnection among forests for a free communication and protection of plants and animals, there shall be planted in future forest vegetation on about 130 thousands ha of land.

Forestation of degraded lands shall be performed in accordance with Law on Forestation of Degraded Land nr. 1041-XIV of 15 June 2000. Until now, „Moldsilva" agency has planted about 60 thousands ha, however the success of planting areas designated for forestation with different tree species is small.

Effective management of newly forested land will allow at the first stage to increase the number of species of animals and their herds, including birds, as: *Perdix perdix, Coturnix coturnix, Alauda arvensis, Galerida cristata, Phasionus colchicus, Melanocorypha calandra, Anthus campestris, Oenanthe ocnanthe, Saxicola rubetra, Saxicola torquata, Miliaria calandra, Emberiza hortulana, Motacilla flava* etc. With the growth of tillers and vegetation succession will appear the species that will nestle in bushes. At the same time, with the appearance of a large number of birds, will increase and the number of mammals (gopher, hamster, mice, microtine, rape), reptiles (lizards, snakes), insects, etc. in these areas.

In the past, steppe communities occupied about 2/3 of the Moldovan territory. Currently natural steppe communities have been preserved only in small and isolated areas. Red Book of Moldova includes 126 species, 40 of which are steppe species. Even the basic steppe species became rare (Stipa L.), and the main species of the relict subtropical steppes, *Chrysopogon gryllus Trin* is included in the Red Book. Among the vulnerable and endangered species shall be mentioned the following: *Crambe tataria, Rindera umbellata, Stipa, Eremogone cephalotes, Eremogone rigida, Paronichia cephalotes, Astragalus dasyantus, Sternbergia colchiciflora, Bellevalia sarmatica, Colchicum fominii, Ephedra distachya.*

The status of flora diversity of steppe ecosystems is unsatisfactory throughout the republic due to the excessive and unorganized grazing and the reduction of lands with steppe vegetation. There have disappeared surfaces with feather grass and other valuable steppe species.

In the protected area Ciumai, where have been identified 422 species of vascular plants, undesirable succession take place, by replacing in vegetal coating the fescue with rhizome poas: Poa angustifolia, Elytrigia repens, Bromopsis riparia etc. In the gills, bushes, by their extending are stifling steppe vegetation.

There are offered two main means of protection of rare steppe plants: preservation of spreading areas and settle them in the area where they disappeared.

Meadows ecosystems, also called meadow steppes, formed of species of hydrophore feather *Stipa pennata, Stipa trisa, Stipa pulcherrima* and *Festuca valesiaca,* with a large number of herbs with flowers are the most characteristic to small glades. The flooded meadows and meadows of hills are largely degraded due to excessive grazing.

Fauna of steppe and meadows ecosystems encompasses about 98 species of vertebrate terrestrial animals. During the XX-th century, the following vertebrate terrestrial animal species disappeared *Aquila rapax, Tetrax tetrax, Anthropoides virgo, Otis tarda, Glareola pratincola, Circus macrourus* stopped to nestle. In a quite difficult situation is *Crex crex, Porzana porzana, Perzana pursilla, Porzana parva* and some other species of limicols. Among mammals of steppe ecosystems have disappeared *Socista subtilis*; *Spermaphilus citellus* and *Mustela eversmanni* became vulnerable and endangered. Among the steppe reptiles are emphasized *Coluber jugularis, Elaphe quatuorlineata, Vipera ursini, Lacerta agilis, Lacerta viridis, Eremias arguta, Lacerta taurica.* The majority lives in the southern steppes and their status depends on the vegetal cover and food sources – rodents, insects, lizards. Some species as four-striped snake and multicolour lizard are represented only by a single population with a small number, steppe vipers has not been met in the last years.

It is proposed that areas of endangered reptile species with low mobility to be included in the area protected by state.

Among the rare species of steppe insects are: *Mantis religiosa, Saga pedo, Iphiclides podalirius, Scolia maculata, Scolia hirta.* Besides these species you can meet in steppe *Callimorpha quadripunctaria, Saturnia pyri,* and *Zerinthia polyxena, Xylocopa valga, Lucanus cervus.* All species are included in the Red Book of Moldova and Ukraine.

The presence of isolated areas populated by rare and endangered species of animals is an obstacle to their communication and spread, thus causing the decrease of their herd. Therefore, in order to solve the issue of biodiversity conservation, it was proposed to create national ecological network that would merge the areas-nucleus populated by vulnerable species of animals and plants.

Floristic diversity of petrophyte ecosystems was formed on lime slopes of Prut and Nistru, and their tributaries. The surface of these ecosystems is about 23,000 ha.

The trees area is dominated by Quercus robur and Quercus petraea. Forests of oak were formed at the bottom of slopes. In these places grow plentifully Carpinus *betulus*. One can also find *Tilia cordata, Fraxinus excelsior, Acer platanoides, Acer campestre* etc. In the bushes area more often dominates *Cornus mas.* In forests and areas with forest and grass vegetation on rocky substrates was identified rare plant species included in the Red Book: *Schiverechia podolica, Gypsophila glomerata, Helianhemum cannum, Sempervivum ruthenicum, Genista tetragona, Scutellaria supina, Hepatica nobilis, Koeleria moldavica, Phylitis scolopendrium, Gymnocarpium robertianum*.

In order to conserve biodiversity of forest and grassy ecosystems on rocky substrates, there were established 28 protected areas with a total area of 8870 ha that constitutes 38% of these ecosystems. For ensuring an effective preservation of forest ecosystems on rocky substrates, it is necessary to create a new petrophyte area with this type of vegetation.

There are 38 species of terrestrial vertebrate animals living on the rocks, mainly mammals and birds. Here, endangered and vulnerable species found their refuge, as *Spermophilus citellus, Neophron percnopterus, Falco peregrinus, Bubo bubo, Columba oenas, Elaphe longissima, Coluber jugularis*), *Coronella austriaca*. It was identified that the number of snakes is in slight increase.

Some of the common vertebrate animals are living on the rocks, like *Martes foina, Phoenicurus ochruros, Columbia livia, Monticola saxatilis, Oenante oenante* etc.

Aquatic and paludous ecosystems have a surface of 95000 ha and present quite various forms. A part of their components are originated in the sub-aquatic soil, the other part is not linked with the soil land and can migrate, the last category is divided into sub-aquatic and natant.

Sub-aquatic vegetation without roots has over 15 species of vascular plants, among which *Ceratophyllum demersum, Ceratophyllum submersum* forms considerable brushwood. Floating vegetation includes 10 species of vascular plants of 5 genes and 5 families.

Rooted aquatic vegetation is represented by submerse, natant and emeritus aquatic species. Submerged vegetation is dominated by different species of pond weed: *Potamogeton pectinatus, Potamogeton perfoliatus*. Hydro-air rooted vegetation includes 22 species of 11 genes and 7 families. The floristic core is formed of *Nymphoides peltata, Nymphaea alba* and *Trapa natans*.

Emerso-hydro-air vegetation includes 24 species of vasculat plants. Dominant species are *Phragmites australis* and *Typha angustifolia*.

In aquatic and paludous ecosystems are living rare plant species that are included in the Red Book of Moldova: *Nymphaea alba, Trapa natans, Salvinia natans*.

According to the research data of lake Cuciurgan, there disappeared communities of *Nymphaea alba* and *Trapa natans*, considerable decreased the number of communities *Salvinia natans*; in the protected area Livada Turceasca disappeared *Trapa natans.* At the same time it was identified an insignificant increase of the number of communities of corns in scientific reserve „Prutul de Jos".

There were identified negative changes in the lake Cuciurgan that lead to the excessive accumulation of organic mass.

A relatively low diversity of aquatic fauna was preserved in pools of the lower Prut and Nistru, but it decreased significantly compared with the past (40-50 years ago). Some pools were dried, the others such as the complex of lakes "Manta" – was water-logged and lost its vegetation and floating islands, on which lots of birds species were resting and nesting. Lake Beleu within the scientific reserve "the Lower Prut" is polluted, as well as is under the anthropogenic influence caused by oil extraction. Riverbed of the blind Nistru from the Nistru meadow has completely degraded and does not function anymore as an aquatic ecosystem, where some species of animals were living and breeding. A big hazard for aquatic and paludous fauna was caused by the floods that occurred in the summer of 2008, after which were destroyed breeding sites of many species of animals.

Relatively large number of bird species in aquatic ecosystems is determined by the migration. In recent years the number of species of aquatic and fenny birds that are nesting, as well as their number was considerable reduced due to droughts and degraded emeritus vegetation Phragmites *australis*, *Typha ssp*, *Typha minima* of coastal lakes and ponds. The large number of domestic cattle, being deprived of food on grasslands are forced to use rush during the fragile period growing at the edge of swamps, thus destroying the habitats of many species of fenny birds - *Gallinula chloropus*, *Fulica atra*, *Acrocephalus arundinaceus*, reptiles, amphibians etc.

Agricultural ecosystems form 1951.8 thousand ha and create optimal conditions for life for about 109 species of terrestrial vertebrates. Species that have adapted to the agrocenocis conditions have a large ecological capacity and may become sinantropic. In agrocenocis predominates small rodents - *Mus spicilegus*, *Mus musculus*, *Microtus arvalis*, *Apodemus sylvaticus* etc., that have favourable food and shelter conditions, *Vulpes vulpes*, *Lepus europaeus*, *Talpa europaea*, *Erinaceus europaeus*, *Galerida cristata*, *Alauda arvensis*, *Coturnix coturnix*, *Perdix perdix*, *Emberiza calandra*. In crops of alfalfa and other forage crops in the river meadows nestle *Crex crex*, some species of surface ducks. During the dry years, when grass vegetation is poorly developed, species of rodents, which feed with succulent vegetation, stop their reproduction process.

Currently in Moldova are about 1033 thousands ha area of land occupied by cereal crops. The largest areas occupy ecosystems of wheat and maize. In 2005 were harvested 2828.1 thousand tons of cereals. Average production of a hectare was 27.4 q / ha. Cereal ecosystems have been affected by drought in the summer of 2007. Another impact of smaller proportions, but which takes place annually, is the burning of stubble that strongly affects flora, fauna and microorganisms from the layer of fertile soil.

Currently in Moldova are about 103 thousands ha of orchards. The largest areas are filled with apple plantations. Overall productivity of fruits form orchards was about 383 thousand tones. Average yield of productive orchards is 45.5 q / ha. In the last 15 years many orchards are not neat and consequently, have degraded. There were recorded cases when the among apple trees appeared American maple and other species that invade the orchards and reduce the crop. In respect of conservation of biodiversity, there must be preserved local sorts of apple, pear, etc. Orchards ecosystems in Soroca and Soldanesti districts were affected by hoar-frost in November 2000.

In Moldova plantations of vine occupy about 140 thousand ha. Global production of grapes is about 517 thousand tons. The average production of vines is about 36 q/ha. In the last 15 years many vineyards are not cared for, as a result - they degraded. Between the vine lines appeared a lot of herbs. As regards the conservation of biodiversity, there must be preserved local sorts of vine.

Currently in Moldova are about 79 thousand ha of area occupied by vegetable crops (36 ha of vegetables and 36 ha of potatoes). In 2005 were harvested 384 thousand tons of vegetables and 378 thousand h of potatoes. Average yield for a hectare of vegetables was 104.3 q / ha, and for a hectare of potato - 105 q / ha. I

In Moldova, 67 thousands ha are currently occupied by forage crops. In many places, the forage ecosystems, especially lucerne, have degraded being left untilled. The surface occupied by technical plants is about 355 thousands ha. In 2005 were planted 34 thousands ha of sugar beet, 275 thousands ha of sunflower and 4.7 thousands ha of tobacco. In this year were harvested 989 thousands tons of sugar beet, 336 thousands tons of sunflower and 6 thousands thousand tons of tobacco. The average production was 289 q/ha of sugar beet, 12 q/ha sunflower and 13 q/ha tobacco.

There were underlined several types of vegetation in the urban areas of Moldova: forest, steppe, praticol, aquatic and paludous. The largest areas are occupied by parks-forests, achieving 21,789 ha and 1179 km of paths. Assortment of trees and shrubs do not comply with the stationary conditions, this is why in many places the effect of the environmental sanitation is low. In Chisinau were revealed 220 species and 55 varieties of deciduous or resins, 168 species

of which are trees, 97 species of shrubs and 10 species of lianas. The main negative impacts on forest plantations are caused by illicit cutting and the reduction of green spaces areas for construction purposes. In many forest plantations in Chisinau, Balti, and other communities takes place the replacement of native species with the invasive ones.

As a result of natural ecosystems' degrading, urban ecosystems become more important for the animals'' protection. Many species of terrestrial vertebrate animals have adapted or are passing through sinantropisation stages in the localities. During the recent decades, besides the well known species in the past in towns and villages, appeared *Streptopelia decaocto, Dendrocopos syriacus, Phoenicurus ochruros, Garrulus glandarius, Martes martes etc.*

Climate change impact upon the components of flora and fauna

The climate change is a global issue that threatens natural, social and economic systems as they are vulnerable to climate factors.

Under the current climate conditions, about 512 endangered plant species in Republic of Moldova are within the risk zone, representing 27,4 % of their total number. Out of all species of vascular plants that are in the risk zone, the most dependent on the current climate and weather conditions, are the plants from forest ecosystems – 126 species, steppe – 151 and rocky ecosystems – 68 species.

Climate change has a direct and an indirect impact upon the animals. Direct influence is less pronounced, because animals, unlike plants, can adapt to some changes and behavioural and eco-physiologic mechanisms. Animal world will be influenced indirectly by the degradation of plant associations, shortages of food, water and breeding sites. In a more difficult situation are now the species of endangered, vulnerable and rare categories, which are at their limit of minimal reproductive number. Taking into account the fact that within animal populations, there are some with a greater ecological adaptation, we might admit that common species will have time to adjust themselves to new living conditions. An example may serve the species of birds from Corvidae family - *Corvus frugilegus, Corvus corone cornix, Corvus corax, Pica pica, Corvus monedula* şi *Garrulus glandarius*, Columbidae - *Streptopelia decaocto, Columba palumbus*, *Streptopelia turtur* etc. Unele specii de animale, ca *Streptopelia decaocto, Fringilla coelebs, Phoenicurus ochruros, Columba palumbus, Martes foina, Erinaceus europaeus, Dryomys nitedula* etc. are adapting themselves to the urban environment, and thus are less affected by the environmental changes.

As it was mentioned above, the current situation of animal world and vegetation in the country is quite a difficult one due to the decreased functional capacity of natural ecosystems. Most of the natural ecosystems are degraded and fragmented. Degradation of natural ecosystems, plant and animal communities is determined mainly by the anthropogenic factor which overlaps with the deficit of humidity on the most territory of the republic. It is noticed that in river basins there is intensification of eutrophication process of water, and in the steppe and meadow ecosystems – the process of xerophyitisation and the replacement of plant species characteristic to these ecosystems with ruderal plants. Following the disappearance of species of bulb plants (Poa), the number of Spermophilus citellus and other small rodents is reducing. Taking into account that they are the main source of food for many species of terrestrial vertebrates, as: *Mustela eversmanni, Mustela erminea*, acvilas, pigeon hawk etc, which are endangered and are under the risk of disappearance. Clearing of trees at the rivers' banks led to the increased level of water evaporation and the decrease of environmental capacity of aqua basins to maintain the rich diversity of aquatic animals.

Mezofile forests of Central Moldovan Plateau and the Northern Moldovan Plateau are in the semi-humide climate conditions, where the hydrothermic coefficient is about 0,65. Forest vegetation can be found in dependence of the altitude (oak parks are covering the territories up to 200 m, Quercus petraea parks - 300 m and fagus parks - 350-400 m). Species of forest plants vulnerable to the current climate conditions are: *Anemonoides nemorosa (L.) Holub., Athyrium filix-femina (L.) Roth., Carex brizoides L., Cephalanthera damasonicum (Mill.) Druce.and C.*

longifolia (L.) Fritch), *Dentaria glandulosa Waldst et Kit., Doronicum hungaricum Reichenbach. fil., Epipactis purpurata Smith., Eonymus nana L., Galanthus nivalis L., G. plicatus Bieb., Galium boreale L., Hepatica nobilis Mill., Lunaria annua L., Luzula annua L., L. pallescens Sw.,Ornithogalum flavescens Lam., Polipodium vulgare L., Rhamnus tinctoria Waldst. et Kit., Scopolia carniolica Jacq., Coronilla elegans Panc, Silene multiflora (Ehrh.) Pers., Viola palustris L., V. persicifolia Schreb.*.

Change of environmental conditions under the frequent fluctuation of water current, degradation of trophy basis and malfunctioning of thermo regime led to the decrease of productivity, degradation of reproductive system of reophile species: *Acipenser ruthemes, Vimba vimba vimba, Barbu barbus, Aspius aspius* and to the self-adjustment of psyhoprofile species (animal species living at low temperatures), *Cottus gobio, Pungitus platigaster, Leuciscus leuciscus, Gasterosteus aculeatus,* that are increasing their number and the coverage area.

The dryness of steppes will further cause the decrease of the number of plant and animal species characteristic to this, and not only this, ecosystem. Steppe vegetation is present in all climatic zones of Republic of Moldova. In the Northern part (Balti field) and in the southern part (Bugiac steppe) will be extended the formations of the following herbs: *Stipa capillata, S. pinnata, S. tirsa, S.ucrainica, Festuca valesiaca*. These plant formations are highly influenced by the anthropogenic factor (excessive grazing and ploughing) including the dryness. It is necessary to introduce a protection regime for meadows to restore until its floristic and plants components, i.e. a real meadow. Xerophile meadows (steppes) of Republic of Moldova are strongly connected with current climate and by stopping the massive anthropogenic influence, there still might be chance to extend meadows in a short time on large surfaces, including the raw agricultural lands. A drier and warmer climate is favorable for numerous numbers of endangered species from steppe ecosystems in extending their coverage.

Plant species of steppe and meadow ecosystems that are vulnerable to the climate changes are: *Astragalus ponticus Pallas, Sternbergia colchiciflora Waldst. et Kit. Belevalia sarmatica Woronow, Ornithogalum amphibolum Zahar, Colchicum fominii Bordz, Colchicum triphyllum G. Kunze, Pulsatilla nigricans, Adonis vernalis L., Acorus calamus L., Allium angulosum L., Angelica archangelica L., Asparagus polyphyllus Stev., Asparagus pseudoscaber Grea., Beckmonia erucifornis (L.) Host., Bellis perennis L., Briza media L., Caltha palustris L., Carex paniculata L.*), *Cerastium perfoliatum L., Chamerion dodonaei (Vill) Holub, Equisetum fluviatile L., Eriophorum latifolium Hoppe, Fritillaria meleagroides Patrin. ex Schult. et Schult. fil., Gentianopsis ciliata L., Gladiolus imbricatus L., Gypsophila elegans Bieb.*), *Gypsophila perfoliata L., Hesperis suaveolens (Andrz.) Steud, Hippuris vulgaris L., Hypericum tetrapterum Fries, Leucojum aestivum L., Ophioglossum vulgatum L., Ornithogalum flavescens Lam., Petasites hybridus (L.) Gaerth., Mey et Scherb., Petasites spurius (Retz.) Reichb., Platanthera chlorantha (Cust.) Reichb., Salvia pratensis L., Scorzonera purpurea L., Scrophularia umbrosa Dum., Serratula caput-najae Zahar., Serratula lycopifolia (Will.) A.Kerner, Serratula wolffii Andreae, Seseli libanotis (L.) Koch, Telekia speciola (Schreb.) Baumg., Thelypteris palustris Schott, Typha laxmannii Lepech, Valeriana officinalis L.*.

A part of prey birds that are living in forest ecosystems (acvila, pigeon hawk) and aquatic ecosystems (*Circus aeruginosus*) feed with rodents (gopher, microtine, mice) of steppe ecosystems and in the absence of such sources, they become vulnerable species are doomed to extinction. In the future out of species of animals, especially insects and other local invertebrates, as well as foreign species, will appear new depredators, that will cause considerable crop damage, affecting food security.

In Moldova there are animal species of different zoo-geographical origin. In ornitofauna, the predominant species are those of trans-arctic-pole and west-arctic-pole. In teriofauna prevails European elements, followed by those of arctic-p-ole. In serpentofauna dominate species of European and Ponto-Caspian origin. As a result of climate change and the trend of expansion of the drying process, different structural changes in ecosystems are taking place, particularly in the forest. Consequently the area of animal species of European origin is reducing, and the coverage

of south-eastern species will widen. Gradually are diminishing the populations of animal species of whose eastern limit of the area is passing through the territory between the Nistru and Prut: *Spermophilus citellus, Felis silvestris, Vipera ursini, Elaphe longissima, Elaphe quatuorlineata* etc.

The location of the republic in a region of bio- geographic interference, presence of three types of fauna on a relatively small surface created a rich biological diversity, including. It shall be noted that as natural ecosystems, as well as a lot animal species are at their limits, where living conditions are extreme. These conditions increase the vulnerability of biological resources, the trends of their structural and functional changes. Due to the dominance of southern and south-eastern elements of flora, will increase the number of forms and species of the respective kind. Still, according to the opinion of experts, successions in the respective ecosystems and biocenosis shall be done in slower way during centuries. Many animal species have a high capacity to accommodate to the new living conditions. For example, rodents' preferences towards temperatures vary significantly from one season to another and geographic zones. Preferable temperature during the winter for *Microtus arvalis* is 17-18˚C, during the spring 24-28˚C and summer - 30-32˚C. Animals, unlike plants, due to their mobility, disperses and migrate to more favourable areas. An obvious example is the migration of birds, bats, butterflies, in dependence on the status of ecosystems and conditions of the environment.

The danger of invasive species. Obvious increase of the anthropogenic element in Moldovan flora caused essential changes in the structure of vegetal cover. The invasion of sinatrope species into degraded natural ecosystems hamper the restoration processes of natural biocenosis and affects their capacity to function.

Sinotrop flora is made out of three main groups: ruderal, segetal and adventive, the specific diversity of which encompasses about 460 species and form 43 communities of the classes *Festuceta, Brometa, Secalineta* şi *Chenopodieta*. Weeds of aggressive character are about 114 species, out of which, 11 are identified as being the quarantine plants. Representatives of these species affect mainly natural ecosystems of degraded meadows and agricultural ecosystems. American maple *Acer negundo* represents a significant danger for the forest ecosystems.

Main adventive species are the following: *Acer negundo, Amaranthus albus, A. blitoides, A. crispus, A. cruentus, A. deflexus, A. hybridus, A. hypohondriacus, A. lividus, A. retoflexus, A. powellii, A. spinosus, Asclepias syriaca, Ambrasia artemiisifolia, A. trifida, Artemisia annua, A. argyi, A. dracunculus, A. siewersiana, A. toutrneforiana, Aster salignus, Brachyactis ciliata, Calendula officinalis, Centaurea iberica, Chamomilla suaveolens, Cyclachaena xanthifolia, Erigeron annus, E. Canadensis, Galinsoga ciliata, G. Parviflora, Grindelia squarrora, Helianthus annus, H. Decapetatus, H. tuberosus, Rudbeckia hirta, R. Lacinita, Solidago canadensis, Xanthum albinum, X. brasilicum. X. califonicum, X. rupicola, X. spinosum, X. strumarium, Impatiens parvifflora, Armoracia rusticana, Brasica juncea, B. Napus, Cardaria draba, Diplotaxis viminea, Erucastrum armoracioides, Lepidium sativum, Sinapis alba, Cannabis ruderalis, Atriplex calotheca, A. hortensis, Chenopodium ambrosoides, Kochia scoparia, Camelina communis, Ipomaea hederacea, Ecballium elaterium, Echinocystis lobata, Sicyos angulatus, Cuscuta campestris, C. gymnocarpa, C. gronovii, Euphorbia dentata, E. humifusa, Elodea canadensis, Valisneria spiralis, Dracocephalum moldavica, Abutilon thophrasti, Malva crispa, M. moschata, Sida spinosa, Oxybaphus nyctagineus, Orobanche cumana, O. Ramosa, Peganum harmala, Phytolaca americana, Apera interrupta, Avena sterilis, Cenchrus pauciflorus, Echinochloa frumentacea, Horedeum jubatum, Lolium temulentum, Panicum capillare, P. milliaceum, Phlaris canariensis, Setaria decipiens, S. italica, S. pycnocoma, Sorghum halepense, Fagopyrum tataricum, Adonis annua, Datura stramonim, Hyoscyamus albus, H. niger, Lycium barbatum, Physalis ixocarpa, Solanum cornutum, S. luteum, Zygophyllum fabago.*

Irrational use of natural ecosystems caused their fragmentation, the considerable reduction of the number of animals and even the disappearance of certain species. In the absence of

competition and the presence of free ecological niches, there are prerequisites for the emergence of foreign species that duet o their increasing number can become invasive. Among local animal species which are invasive are: *Microtus arvalis, Rettus norvegicus, Mus musculus,* several dozen species of insects - major pest of crops and forestry, and invasive alohtone species are: *Leptinotarsa decemlineata, Hyphantria cunea, Ceratitis capilata, Quadraspidiotus perniciosus etc.*. In republic are living about 150 species of invasive animals, among which about 130 species damaging crops, 15 species – damaging forests. It was found that annual losses in agriculture is from 5 to 10% of cereal crops, 15.2% in weeding plants and 25% of multi-cultures.

The main factors affecting biological diversity in Republic of Moldova are the following:

- infringements of environmental legal provisions by legal entities and individuals;
- lack or ineffective implementation of measures preventing the degrading of biological diversity;
- insufficient economic incentive measures for achieving the Convention on the conservation of biological diversity;
- insufficient use of scientific results and of traditions in the process of biological diversity conservation;
- unsatisfactory integration of requirements of biological diversity conservation in economic and sector policy;
- high degree of agricultural use of the country's territory, and as a consequence, disturbance of ecological balance of landscapes;
- pollution of natural habitats; intense exploitation of vegetal and animal resources;
- significant reduction in budgetary allocations for the reproduction and regeneration of flora and fauna;
- unsatisfactory level of people's environmental knowledge.

Chapter II. Current Status on Implementation of Biological Diversity Conservation Strategy and Action Plan

As a result of the assessment of current situation and of the trends characteristic to Moldovan biodiversity, are identified the following priorities:

- strengthening structures and procedures necessary for evaluating the impact upon biodiversity, including in the trans-boundary context;
- elaboration of the relevant legislation;
- further improvement of communication strategies on the policy benefits in the area of biological diversity conservation and environmental education, offering support to civil society and local public authorities;

The strategy (BDNCNSAP) provides for realization of 263 actions. Main executors are: Ministry of Environment and Natural Resources, Academy of Science of Moldova, Ministry of Agriculture and Food Industry, Ministry of Education and Sport, Forestry Agency „Moldsilva".

In order to perform the tasks provided by BDNCNSAP, central public authorities, local public authorities and other involved institutions have performed certain actions during the reporting period, according to the directions-priorities:

- improvement of policy, legislation and institutional framework;
- territorial planning, programs of biodiversity conservation;
- research and monitoring;
- environmental training and education of people and other activities.

General Action Plan on biodiversity conservation

Taking into account that continuous development of legislative framework is the main prerequisite and a priority direction, during the implementation of the plan's activities, there were identified the following:

- identified operating possibilities guarantied by the national legislation and international conventions (those ratified and not ratified by the Republic of Moldova);
- identified overlapping, contradictions and gaps within the policy and sector legislation of the country;
- highlighted the policies and legal provisions through which a significant impact (positive or negative) is caused upon the biodiversity;
- established national priorities towards the improvement of legislation and normative acts;
- developed the pack of measures on the improvement of national legislation in the biological conservation area;
- identified a range of international conventions and international treaties offered for being ratified;
- it was published the Red Book of Moldova (second edition, 2002), a series of 4 volumes „Vegetal world of Moldova" („Lumea vegetală a Moldovei") and 4 volumes of „Animal world of Moldova" („Lumea animală a Moldovei") , a set of works on the use of economic tools and mechanisms in the conservation of biological diversity.
- the legislative and normative framework on biodiversity conservation was completed by new laws.

It is worth mentioning that institutional and legislative basis for development of cooperation at national, regional and global level is sufficient at this moment in time. Republic of Moldova joined the main conventions and international treaties that provide for biodiversity conservation.

There were developed and approved by the Ministry of Environment, Construction and Territory Development and sent to Secretariat of Convention on Biological Diversity the first, the second and the third National report of Republic of Moldova on conservation of biological diversity.

In the 3rd National report are reflected the actions undertaken by Republic of Moldova aiming at *implementation of the Convention's and Strategy's goals for 2010.*

Activities undertaken at that point were the following:

1. It was insured the protection of 18,8% of the total surface of forest ecosystems, of 0,40% of steppe and meadows ecosystems and 2,1% of aquatic and paludous ecosystems.

Note: Steppe, meadows, aquatic and paludous ecosystems are not effectively protected and consequently, their biodiversity is in a continuously degrading state.

2. There were identified, assessed and valuated the information sources with the aim to underline the priority level, promoted measures, types of undertaken activities and allocated sources for implementation the provisions of the Convention on biological diversity (CDB) starting form the first Report.

3. It was developed and approved the „List of criteria and indicators of sustainable management" for forest ecosystems (Decision of the Government of republic of Moldova nr. 618 dated 04.06.2007)

4. There was assessed the necessity of extending the network of natural protected areas and developed the set of measures necessary for the institutional development and improvement, as well as the management capacity in the sector of management of natural areas protected by the.

5. At the beginning, there are activities linked with implementation of the ecosystem approach to the activities of biodiversity conservation.

As a result of extension, the system of the natural areas protected by the state stat achieved the surface of 157227,4 ha or 4,65% (in 2001- 66476,7 ha or 1,96%) of the country's surface, thus exceeding a lot the percentage (2,4%) provided by Millennium Development Goals in Republic of Moldova.

Recent designation of three wetlands of international significance (site nr.1026 „Lower Prut Lakes", surface of 19 500 ha, site nr. 1316 „Lower Dniester" –60000 ha and site nr. 1500 „Unguri-Holosnita" – 15553 ha) will contribute to the increase of biodiversity conservation.

Biologic resources of Republic of Moldova as a source of economic, environmental and social benefits are limited. Due to the increased level of vulnerability of biodiversity caused by natural and anthropogenic factors, there is a big difference between the genetic potential and utilisation potential of biodiversity.

In 2001-2008 were prepared the following reports:

- Thematic Report on invasive species;
- Thematic report on forest ecosystems;
- Report on revealing the representative sectors of meadows to be taken under state protection
- Report on the development of basic elements for extending the protected areas network and improving management tools according to the dangers that threaten biodiversity and objectives of National Strategy, as well as the provisions of the Convention on biological diversity;
- Report on the improvement of legal framework and institutional infrastructure related to biodiversity conservation and sustainable use of natural resources;
- Report on the evaluation of the capacity of no-governmental organizations (NGOs) to work in the domain agro-biodiversity conservation and identification of development necessities of their capabilities;
- Report on the preparation of proposals for improving the institutional framework in the area of biodiversity conservation;
- Report on the design of the database structure and monitoring system of biodiversity. Identifying the sources and existing facilities, as well as development needs in perspective;
- Report on the development of mechanisms and means for stimulating the practices of sustainable use of renewable natural resources in the economic and social transition circumstances specific Moldova;
- Report on the assessment and mitigation measures of the impact on forest biodiversity components.

Action Plan on creation of National Ecological Network

Creation of the National Ecological Network (NEN) is a component part of the territorial arrangements and has to be included into the General Plan on Territory Arrangements of Republic of Moldova.

One of the priority measures is optimizing the ratio between transformed ecosystems and the ones stabilizing the environment, particularly forest ecosystems.

Expanding the lands stabilizing environment should be as indispensable part of the activities related to the creation of NEN. The achievement of this action plan will ensure the protection of biodiversity at geo-system level. Implementation of the Action Plan of NEN creation requires the allocation of U.S. $ 1.183 million.

In order to implement the plans' provisions, were performed the following:

- developed and approved the Law on Forestation of Degraded Land (nr. 1041-XIV dated 15.06.2000);
- developed the Concept on creation of Ecological Network of Republic of Moldova;
- developed and approved the Law nr. 94 - XVI dated 5.04 .07 on ecological network;
- developed the draft law on landscapes;
- developed and edited the territorial scheme of national ecological network at a scale of 1: 500 000;
- developed and presented to GEF for funding project TF 020392 "Development of ecological network in the accumulation basin of the middle course of river Prut";

- developed the MENR Order nr. 20 dated 3.07.07 on the implementation of law on ecological network;
- developed the Program on NEN creation;
- publication of brochure "Ecologic Network – the way to the environmental protection";
- organising seminars as integrant part of the educational programs;
- under construction are the methodical guidelines on the creation of ecological network at different levels;
- there were undertaken fundraising activities for the Project on creation of ecologic network in the Middle Prut.

Action Plan on protecting forest ecosystems

Activities included in this section are aimed at preventing further degradation of forest ecosystems and species through the wise use and restoration of forests, training and maintaining their optimal structure. There was developed the set of proposals on development of institutional capacity and norms of forest biodiversity conservation, as well as were identified the needs of development and improvement of human resources from institutions specialized in education of the public on the role of forest biodiversity.

- Forestry Code provides the main moments on maintenance and conservation of forest biodiversity at ecosystems, habitats and genetic levels;
- There is developed the general program on implementation of the National Strategy for Sustainable Development of Forestry Fund adopted by the Government decision nr. 739 dated 17.06.2003;

Botanical Garden (institute) of Academy of sciences offers methodological assistance in the correct management of protected natural areas (their ecological reconstruction, planning regulated activities, authorize cutting, performing checks, etc.). There have been scientifically assessed and developed for the allocation of the forest site Luparia, Riscani district, the status of protected aria. There have been conducted investigations (including partial mapping) upon the diversity of floristic and phitocenotic diversity in natural forest reserves: Riscani sector: *„Pociumbeni", „Lucaceni*", *„Stinca" „Saptebani";* Singerei district: *„Radoaia";* Nisporeni district: "*Selişte-Leu*" şi "*Coba*c"; Hancesti district**: "***Nemţeni"*, *"Sărata Galbenă", "Vila Caracui", "Bujor*", representative sector with forest vegetation *"Călineştii Mici ", landscape reserves "Saharna", "Tipova", "Dolna", "Valea Mare"*.

There were also evaluated the costs and developed measures of organizational, methodological and territorial development in order to extend forest coverage up to 15% of the national territory.

As a result of carrying out critical analysis of the legislative framework and the capacity of institutions specializing in implementation of provisions on forest biodiversity conservation, assessment of the capacities of forest users, identifying legal gaps and constraints that limits the application of BDNCNSAP and of Convention on Biological Diversity was established the following:

- Normative documents on the forest regime do not ensure full completion of measures on forest biodiversity conservation;
- Within the Forestry Agency "Moldsilva" there is no subdivision responsible for conservation of forest biodiversity.
- Forest Biodiversity is not sufficiently researched;
- Lack of mechanism for financing the activities related to forest biodiversity conservation;
- Insufficient financing of objects protected by the state, including scientific reserve;
- The protection of objects and complexes protected by state, placed in the forest fund, is partially observed.

According to estimations, for implementing the action plan in the field of forest biodiversity are needed USD 5592 thousands. National Ecological Fund allocates annually about 1 million MDL for activities related to new forest planting.

Action Plan on protecting steppe ecosystems

Currenly is implemented the project on "Sustainable and integrated use of steppe sites in the Eurasia area", designed for three countries - Russia, Ukraine and Moldova.

Within the project "Restoration of steppe habitat as biotops for vulnerable species of snakes in the meadow Nistru", funded by the Zoology Organisation from Frankfurt, were developed measures for improving the habitat and recommendations for grassland restoration.

Within the project "Identifying agricultural lands of a natural high value: supporting countries that do not adhere to the European Union" was determined the share of steppe ecosystems, that maintains natural high value (only 5%) and those who have the biologic ability to restore spontaneously (30%), in case of grazing reduction.

In order to protect effectively steppe ecosystem, the territory of Moldova was evaluated and there have been highlighted 16 areas of interest for being taken under state protection.

Action Plan on protecting meadow ecosystems

Currently, the wide lands from Lower Nistru meadows, medium and lower Prut, Raut, assessed in the past with the aim to extend the agricultural lands, are abandoned and need to be ecologically restored.

In order to protect meadow ecosystems, Ministry of Ecology and Natural Resources has prepared the proposal on the creation of ecological network in the Middle Prut basin, which will contribute to the conservation of natural habitats in this area.

REC Moldova has developed a geographical information system of Inferior Prut, promoted activities of biocenosis restoration from Andrusul-de-Jos/Vadul-lui-Isac sector (Cahul Area - Vulcanesti), as a priority condition for conservation of biological diversity and landscapes from the meadow and aquatic ecosystems of Inferior Prut.

Ecological Movement of Moldova in cooperation with REC Moldova and supported financially by the European Union Commission have realized the project "Assessment of ecological status in the basins of tributaries of river Prut in the North-Western part of the Republic of Moldova. The main aim of the project was to enhance the environmental awareness of the population in villages located in the basin of the Prut River and its tributaries. The project initiated a study on the means of implementing the Protocol on strategic environmental assessment, adopted in Kiev in 2003. Implementation of the Action Plan on protection of meadows ecosystems requires USD 1100 thousands.

It was also prepared the Regulation - framework of wetlands of international importance, NGO "Ecospectr" developed with the support of WWF (Romania) the Management Plan of the scientific reserve "the Lower Prut" and organized the seminar on examining the plan, it was also developed the conception on creation of Biosphere Reserve "the Lower Prut".

Action Plan on protecting petrophyte ecosystems

As a result of the research of petrophyt*e* steppes sectors in the Middle Nistru canyons, there were identified 6 valuable sectors with steppe vegetation with a total surface of 960 that can be proposed for being taken under protection.

Action Plan on protecting aquatic and paludous ecosystems

In 2000, four countries - Moldova, Bulgaria, Romania and Ukraine - have drafted the Declaration on the creation of the Green Corridor of Lower Danube aimed at protecting and restoring flooded fields and wetlands along the Danube River.

Parliament of Moldova adopted the Law no. 149 dated 08.06.2006 on piscicultural fund, fishing and pisciculture in order to develop and protect fish reproduction, growth and acquisition of hydrobionts, to improve fishery aquatic sites and the development of fishery, to establish management principles of aquatic biologic resources. There was approved Government Decision no. 888 of 06.08.07 on authorizing fishing in natural aquatic objects.

Under the process of approval are:

- Draft law on amending the annex 7 of the Law nr. 1538-XIII as of 25.02.98 *on Natural Areas Protected by the State* (nr. 3650 as of 01.11.05) – inclusion of aquatic ecosystem *„Lacul Dubasari";*

By Decision of Scientific Council of the Institute of Ecology and Geography of the ASM of 29 March 2007 were approved "The technical norms on the quality of surface waters", which require protection, and improvement aiming to support fish life, adjusted to the EU Directives.

It was implemented the project "Save our small rivers" („Salvați Rîulețele noastre".). Under this project there were funded projects in 15 localities in Moldova, which had the objective to plan vegetation on the banks of small rivers Botanical Garden (Institute) of ASM assessed the state of aquatic, meadow and paludous ecosystems of rivers Delia, Nirnova, Lapusna, Cogilnic and other representative natural sites of the centre-western part of the Republic of Moldova (hydrological monument of nature – the spring from Nemteni village).

Based on these research, were developed proposals to increase the protection of existing ecosystems, taking under the state protection certain important areas.

Action Plan on protecting biodiversity of agricultural ecosystems

For Republic of Moldova, the issue of agro-bio-diversity conservation is a priority, as there are large surfaces occupied by the agricultural ecosystems (about 75,6% of total country's surface). Due to the economic activities there was a massive destabilization of agro-bio-diversity.

Returning to a stable situation requires considerable efforts for:

- restoring meadows, springs, arbors, marshes etc.
- introduction of local traditional methods of conservation and management of agrofitocenosis;
- restoration of the diversity of the local species in agrofitocenosis etc.
- restoration of the mechanisms of balance's formation and maintenance between insects shedding pollen and plants, natural entomofagi of plant pests.

On this purpose the following actions were performed:

- were identified legal, conceptual, institutional and management gaps that limit the capacity to implement Biological Diversity Conservation National Strategy and Action Plan, convention on Biological Diversity and other international conventions in the agricultural sector;
- were assessed the necessities of development and improvement of human resources of the specialized institutions and people education in respect of the agricultural biodiversity role and conservation and development necessities;

In Republic of Moldova is implemented the project „Pollution control in agriculture", supported by World Bank, that provides for actions on reduction of nutrients in the Danube Basin and Black Sea Basin by means of an integrated management of the land and aquatic resources; consolidation of national policy, institutional capacity in the domain of pollution control in agriculture.

MENR and REC Moldova, as well as other international organisations support and promote the above mentioned activities by offering funds to small NGOs. Thus, in Falesti district were performed activities on the capacity development on promoting organic agriculture methods; on reducing the level of nitrates pollution of hydrographical Danube Basin by planting protecting forest lines on the banks of the river Sovatul Mic; liquidation of six unauthorized garbage dumps an two chemicals storages; public awareness by means of organising an international conference and a regional seminar.

I order to assess the organizational capacities of governmental (GO) and non-governmental organisations (NGO) in the area of bio-agro-diversity conservation, MENR by means of its office on Biodiversity, assessed the approach and interpretation of issues related to the conservation and restoration of the bio-agro-diversity under the restructuring conditions that take place in agricultural domain.

The Government of Norway has financially supported the implementation of the project „Identification of the agricultural lands with a high natural value" within which was identified the share of these lands, types and exact surface of agricultural lands of a high natural value, criteria and indicators for their identification, as well as necessary measures for improving the current situation.

In order to implement the Action Plan on protection of agricultural biodiversity are required USD 2303 thousands.

Action Plan on protecting biodiversity of urban ecosystems

Urban ecosystems are an important element for environmental establishment of the territory and formation of the national environmental network. In the past, a particular attention was paid to the creation of green spaces in towns and villages, but starting with the privatization processes, this tradition was forgotten.

Now we can see the trend to reduce the green area spaces by means of deforestation, construction of various buildings in squares and alleys, of houses and garages in urban green areas.

In order to implement the provisions of Action Plan on protecting the biodiversity of urban plan, the following actions were performed:

- there was developed a single procedure on keeping record of green spaces of urban communities, approved by Government decision nr. 676 dated 11.07.2000;
- there was developed Government decision nr.978 dated 02.09.2004 on establishing moratorium on changing of streets' network and location of building in the historical centre and green spaces of Chisinau
- it was modified the Code on administrative contraventions, aiming at increase of the fine for unlawful vegetation' cutting in green spaces and for construction and conveying into use of the buildings that are incompatible with the destination for green spaces;
- was modified the Law on green spaces of urban and rural communities, thus prohibiting the privatisation or lease of the sites within the green spaces;
- it was created the Commission on reviewing the borders of green spaces that are in Chisinau (Order of the minister of environment and natural resources nr. 64 dated 30.11.2004);
- register of green spaces is formed annually on the basis of generalised and systemised obtained in the territory (for green spaces monitoring);
- the park of culture and rest "Valea Morilor" from Chisinau was given the status of landscape monument and it was included in the Law on the natural areas protected by state;
- it is estimated that the Municipal Design Institute "Urbanproiect" will develop the branch scheme "Creating the system of green spaces in Chisinau" that would be the basis for development of General Urban Plan;
- state Environmental Inspectorate performs the control over the status and protection of green spaces in the country (especially the requirements related to constructions' location). Northern Environmental Agency together with the council of Soldanesti district organized seminars on the protection and expansion of green spaces in the district. There were organized „environmental classes" in schools and lyceums;
- MENR offered financial support form the National Environmental Fund for the projects providing for rehabilitation or creation of new green sites. Only in 2005, 16 projects received financial support in the amount of MDL 1 million 500 thousand.

According to the estimates, the implementation of the Action Plan on the protection of biodiversity in urban ecosystems requires USD 593 thousands.

In order to implement the programs on biodiversity conservation, Botanical Garden (Institute) of ASM has developed and implemented projects of dendrology and floristic arrangements of green spaces (squares, parks and gardens) in urban and rural areas: Zimbreni village, Ialoveni district; village Oniscani, Calarasi district; village Vasilcau, Soroca district; village Cirpesti, Cantemir district; Art Lyceum "M. Berezovschi", Chisinău; theorethic lyceum "Ginta Latină", Chisinau.

It was developed and published the Register of green spaces of urban and rural areas for 2007.

Action Plan on species protection

In order to protect the species, the following actions were performed:

- it was developed and approved by the Government decision nr. 1094 dated 22.09.2006 the Regulation on special use of the objects included in the Red Book of Republic of Moldova;
- Were organised seminars with Customs Service on implementation of the provisions of CITES Convention;
- It was published the second edition of „Red Book of Republic of Moldova", series of 4 volumes „Vegetal world of Moldova", series of 4 volumes „Animal world of Moldova", „Medicinal plants", „Identifier of plants from the flora of Republic of Moldova" etc.
- was highlighted the taxonomic composition, and bio-morphology and chorology particularities of *Bryophyte* (157 species), *Ecvizetophyte* (8 species), *Polipodiophyte* (23 species) of spontaneous flora.
- were established keys for determining taxons and was prepared for publication „Flora of Republic of Moldova" in 6 volumes, were underlined 12 new plant species.
- was completed the register of valuable species of flora and fauna, as well as were established new habitats and sites of certain species of national and international status of protection (*Leucojum aestivum L., Tulipa biebersteiniana Schult. et Schult*), *Lilium martagon, Cephalanthera sp., Neottia nidus-avis, Coenagrion mercuriale, Ciconia nigra,* etc.).

Action Plan on *ex-situ* protection of biodiversity

Under the elaboration process are the draft law for amending the Law on Biological Security and the draft law amending the Law on environmental protection (to supplement the section "genetically modified organisms").

- it was adopted the Law nr. –XVI dated 14.06.07 on zoological gardens (developed in accordance with the provisions of Directive 99/22/CE)
- it was developed the draft Government decision on creation of Botanical Garden in Balti and Cahul, as well as restoration of dendrology park „Taul".

In the Botanical Garden (Institute) of ASM are based collections of local and foreign fit-genetic-basis, which encompasses about 11 thousand species and varieties.

Special and complex activities

The implementation of the project "Conservation of biodiversity in the ecosystem of "Lower Nistru"(grant GEF/WB amounting to USD 975 thousand) provide for the establishment of the National Park "the Lower Nistru" on an area of 51 thousands ha. On the basis of the assessment and planning in terms of site division and various ecosystems management, there was developed local ecological network. Since the legislative act on the creation of the park in due time, was not approved, project's financing was suspended by the World Bank.

It was developed the management plan for the territory "Lunca Talmaza" of Ramsar area "the Lower Nistru" (with the financial support of Michael Otto Foundation, Germany) and approved by the National Ramsar Committee on coordination of the activities. Within the development program of the green corridor of Lower Danube, with the financial support of WWF, was developed management plan for Scientific Reserve "the Lower Prut" (OO "ECOSPECTR).

At the same time, there was prepared Management Plan for Ramsar area 1500 "Unguri-Holosnita" (within the project of SE „BIOTICA" supported by the Ramsar Convention) and adopted by the National Ramsar Committee. The plan includes site division by zones, organizational, economic and management measures for different ecosystems: forests, steppe, meadow and aquatic.

In accordance with the objectives of the Action Plan on the creation of the database, conducting research and monitoring in the area of biodiversity conservation, there has been

carried out deep analysis of the historical data sources and the methods by means of which was obtained data on biodiversity, has been assessed the degree of processing data (the existence of specific indicators). The experiences and international trends were also assessed in the terms of possibilities for development of databases and monitoring system of biodiversity, were identified current gaps and constraints in respect of the quality and production system of information on biodiversity, was developed the set of recommendations on the further removal of barriers.

Consequently, was elaborated the report encompassing the inventory of data sources on biodiversity and access requirements, was developed the data base on biodiversity of Republic of Moldova and placed on the web page of the Biodiversity office (http://bsapm.moldnet.md)

Informational and educational activities

A report was prepared that includes the set of measures aimed at increasing the capacities of GOs and NGOs:

- to ensure the conservation, rehabilitation and development of agro-bio-diversity;
- to integrate issues of biodiversity conservation with economic and social issues and support the sustainable development of the agricultural sector.

The following was published:

- Botanics (agricultural and forest), p. 455;
- Dendrology, 500 p.
- Monographs:

- Environmental economy and sustainable development. Chisinau, 2003. 189 p.
- Genetically modified plants (benefits and risks), Chisinau, 2003. 90 p.
- Status of environmental factors in Republic of Moldova. 80 p.
- Biodiversity assessment, monitoring and ecosystem. Chisinau, 2002. 167 p.
- Red Book of Republic of Moldova, second edition, Stiinta, 2002. 275 p.
- Vegetal world of Moldova, vol. 1.Mashrooms. Flowerless plants. Stiinta, 2005. 202 p.
- Vegetal world of Moldova, vol. 2. Plants with flowers-I. Stiinta, 2005. 199 p.
- Vegetal world of Moldova, vol. 3. Plants with flowers -II. Stiinta, 2006. 203 p.
- Vegetal world of Moldova, vol. 4. Plants with flowers -III. Stiinta, 2007. 182 p.
- Animal world of Moldova, vol. 1. Invertebrates. Stiinta, 2007. 197 p.
- Animal world of Moldova, vol. 2. Fishes, amphibians, reptiles. Stiinta, 2003. 151 p
- Animal world of Moldova, vol. 3. Birds. Stiinta, 2006. 217 p
- Animal world of Moldova, vol. 4. Mammals. Stiinta, 2004. 131 p
- Medicinal Plants, Litera International, Chisinau, 2008. 336 p.
- Identifier of plants from the flora of Republic of Moldova, Chisinau, 2007. 391 p.
- Environment Protection in Republic of Moldova, Chisinau, 2007.

- Other publications:

- The First National Report on Biological Diversity, 2000. 68 p.
- Biological Diversity Conservation National Strategy and Action Plan (English and Romanian version). Stiinta, 2001.104 p.;
- Management Plans for natural and agricultural habitats of the Purcari-Crocmaz sector within the humid area of Nistru. Chisinau. 2002. 80 p.
- Law on natural areas protected by the state. Chisinau, 2002. 102 p.,
- Strategy on sustainable development of forest sector in Republic of Moldova. Chisinau, 2002. 28 p.
- Global Biodiversity Forum. Report of the First Regional Session for Eastern Europe, 23-25 April 2003, Chisinau, 2004. 61 p.
- Agro-forest practices in Moldova and climate change. Stiinta, 2008, 95 p.

- *Conferences and other activities:*

- International Conference „Theoretic basis for rural and urban communities greening and development" Chisinau, 2000.

- International Conference "Sustainable development of the forestry sector of the Republic of Moldova". Chisinau, 2003.
- I International Symposium „Conservation of the diversity of the „*in situ*" and „*ex situ*" plants (role of botanical gardens)". Chisinau, 2003
- International Conference: Global Biodiversity Forum. The First Regional Session for Eastern Europe. Chisinau, Moldova. 2003.
- International Conference: Integral management of natural resources of the transboundary basin of river Nistru, 2004.
- National Conference: Capacity building in biodiversity conservation. Chisinau, 2003.
- Regional Conference: Conservation of biodiversity in the scientific reserve "the Lower Prut" ('Prutul de Jos") and transboundary cooperation in protected natural areas of the Lower Danube Euro-region (Romania, Moldova, Ukraine). Chisinau, 2004.
- Organisation of the round tables on the implementation of the Biological Diversity Conservation National Strategy and Action Plan (3 round tables, in cooperation with MEM). Article published in magazine "Natura", 72 thousands copies.
- Annual open day at the Botanical Garden of ASM.
- Open day at the faculties of biologic specialization of the Moldova State University (together with the vegetal biology faculty of MSU).
- School republican contest on biology.
- Creation of the centre for continuous training and improving of the staff working within the environmental protection domain.
- Trainings on the use of Geo-informational systems (together with REC Moldova), amounting to 45 academic hours.
- Thematic radio shows "Conservation of biologic diversity".
- Film shooting: Biodiversity conservation – achievements and barriers.
- Strengthening the inter-sectorial dialog on the implementation Biological Diversity Conservation National Strategy and Action Plan together with REC Moldova .
- Current situation in districts and assessment of the possibilities for extension of forest sites, together with "Moldsilva".
- development of the civil society's capacities for the activities of restoration and conservation of the biodiversity; together with NGO "Ecospectr".
- International meetings organised by the Ministry of Environment and Natural Resources.

A generalization of the results and obstacles encountered during the work and gained experience

Components of biodiversity at ecosystem, species and genetic level are still not sufficiently investigated.

Reductions in fauna and flora in Moldova have not been fully assessed, but the estimations of certain taxonomic groups indicate the loss of 20%. Loss of endangered species at national, European and global levels are probably high, but they are not evaluated by means of modern methods.

Biological diversity research at the genetic level is at the initial stage. ASM research institutions have developed monitoring programs, but due to poor funding, their implementation is performed only within state protected natural areas.

Bio-geographical evaluation (complex) of the territory has not been performed yet.

Moldova initiated activities on the establishment of the National Ecological Network. The main barrier to the implementation of research and monitoring programs are limited financial resources and shortages of specialists in the field. Although the funding of research on biodiversity has increased 4 times in recent years, they provide only 1/3 of the present needs.

In the terms of the impact upon biodiversity, the most important factors are the following:

I. In the absence of a state regulatory, internal undeveloped agricultural market and the foreign market's pressing led to:

- unstable structure of agricultural use of land;
- decrease in soil fertility and consequently,
- loss of agricultural biodiversity, particularly soil biota and meadows.

II. Inadequate financial motivation of the market economy in respect of sustainable forestry, lack of budget funding for forest management with functional purpose, such as those from Republic of Moldova, cause:

- a continuous decrease in biodiversity of forest ecosystems;
- issues' accumulation, that lead to the instability of forest ecosystems;

III. Poorly developed system of administration and finance of biological diversity conservation activities led to:

- under-development of the differentiated tax system and economic stimulation in the field of biodiversity conservation and sustainable use of natural resources;
- decrease of administrative possibilities and other measures of the central environmental body, including the staff reducing by about 4 times.

Assessment of the BDNCNSAP (conclusions)

Changes and trends in the biodiversity domain, the outcomes of the undertaken actions on implementing the provisions of BDNCNSAP and Convention

As a result of the assessment at national level of the current state of biological diversity conservation in the Republic of Moldova were established the following:

1. It is noted that Republic of Moldova, being in the transition to market economy and being affected by global economic crisis has taken policy, legislative, financial, scientific-organizational measures in order to stop biodiversity's degradation and initiate the biological monitoring;
2. Policy framework has been developed in accordance with the biodiversity conservation objectives and sustainable use of biological resources. It is necessary to increase the integration of CBD requirement into the sector policies and activities of local public authorities;
3. Normative-legislative framework has been developed and it ensures the realization of strategies and plans for the conservation of biological diversity, but requires improvements in order to be adjusted to the recent international acts, such as:

- compensation procedure for natural persons and legal entities - victims of environmental pollution;
- increase responsibilities at all levels and increase the level of incentive mechanisms implementation for CBD;
- improve normative regulations related to sustainable use of biological resources and the enforcement of adopted legislation;

4. The existing institutional framework is sufficient to achieve the priority objectives in the CBD domain. Institutional framework effectiveness in the CBD domain can be increased by increasing financial support and integration requirements of CBD in sector policies and action plans of the Local Public Administration;
5. Scientific research in this area has been intensified but they still do not cover the whole spectrum of biodiversity, and the gathered information is sometimes fragmentary. These factors are caused by insufficient research' funding of and insufficient scientific equipment and machinery of the institutions, as well as the lack of specialists in the field. Research in genetic engineering in the Republic of Moldova is at an initial stage. Policy, legislative and institutional frameworks are in the consolidation period. It was created the Centre for Biological Safety. There is noticed a weak participation of specialists in international projects (FP7, CRDF, MRDA, REC, USAID, GEF, etc.), in the innovation processes and technology transfers in the field.
6. Management of biological resources is, a a certain measure, regulated by law and existing institutional structures (MENR, IES, AS, "Moldsilva", "Apele Moldovei", etc.), but due to a

poor environmental education and a still low level of population's living, it is premature to talk about the principles of sustainable use of biological resources.

7. Systemic planning of the system of natural areas protected by the state is sufficiently ensured from political, legal and institutional point of view. The main impediments to the achievement of these requirements are:

- the poor inclusion of the requirements towards environmental protection in the territorial planning of the Republic of Moldova;
- low level of planning and control upon the performance of activities on biodiversity conservation;
- insufficient financial resources for these activities.

8. The development of the information system, biological monitoring and databases elaboration is provided from political and legal point of view. The institutional framework is poorly developed. Funding for these activities is insufficient and does not allow the full realization of those requirements.

The shortcomings mentioned in the Biological Diversity Conservation National Strategy and Action Plan

1. Activities' coordination within the framework of those three environmental conventions is at an incipient stage.
2. Financing of actions on biodiversity conservation does not cover all country needs in this area.
3. Integration of the biodiversity conservation requirements in sectorial and inter-sectorial programs requires a further continuous development.
4. Although scientific research, biodiversity monitoring, staff training and improvement have been improved in the last 4 years according to current requirements, the provision with scientific equipment is still at a very low level.
5. The protection regime of the natural areas protected by the state is not fully respected as the management does not correspond exactly to the contemporary requirements of planning, execution and organizational support. Management plans shall be developed in accordance with international standards.
6. Informational activities, public participation in the decision making process, training and population's environmental education in the field of biologic diversity are not sufficient to achieve the national and international commitments undertaken by Moldova.

Proposals on the possible means and sources for removing the identified obstacles

Means include a set of amendments to the BDNCNSAP for:

1. A more active integration of requirements of Biologic Diversity Conservation in the environmental protection policy, in the strategies and development programs of the country's economy;
2. Improvement of BDNCNSAP at the chapter of relationships strengthening between environmental sector (including biodiversity conservation) and other branches of national economy, adjusting BDNCNSAP requirements to the EU practices on promotion of a holistic approach of CBD management;
3. Assessment of the programs of Convention on biological diversity shows the necessity of recalculation for identifying necessary means at the scale of recent costs, a more active participation at these programs.
4. Intensifying scientific research in the field, preparing of young highly qualified scientific staff, establishment of scientific centres in this area and providing them with necessary equipment, training of specialists in the field;
5. Institutional and financial strengthening of the Office of Biodiversity within MENR through allocation of financial budgetary resources for improving and development of its capacities.

6. Allocation of sufficient financial resources from the state budget, and creating appropriate mechanisms for BDNCNSAP implementation.

Chapter III. Thematic inclusion on bioligical diversity at sectoral and intersectoral levels

3.1. Institutional Framework

Ministry of Ecology and Natural Resources (MENR)

MENR is the central national environmental authority which exercises function of quality monitoring of environmental components and regulates use of natural resources. According to MENR Regulation the main duties are as follows:

- to develop and promote policies and strategies in the field of environmental protection, rational use of natural resources, biodiversity conservation, and participate in the development of the environmental component on predictions related to socio-economic development of the country;
- identification of priority issues, developing and promoting of national action programs and plans in its fields of activity, coordination of actions of the ministries, departments and local governmental authorities to formulate and implement national, branch and local programmes and plans, and exercises control over achievement;
- integration of environmental policies in the socio-economic processes and in sections of sectoral policies based on principles of sustainable development and harmonization of legal and normative framework according to the EU legislation;
- monitoring and presentation to hierarchy superior bodies information on execution of legal and normative acts, plans, programmes, conventions and international treaties;
- carrying out state control over the State of the Environment and use of natural resources;
- provision of functioning of state control systems in its fields of activity;
- carrying out inventory of natural resources, regulates their use, establishment limits of use of natural resources as well as their discharges and pollution with hazardous substances of environment, as well as limits on storage of waste;
- elaboration and application of economic instruments related to reduction of pollution, phase out of toxic substances and use of raw materials with reduced environmental impact;
- elaboration in cooperation with co-interested institutions of strategy and approval of measures for conservation of biodiversity, on extension of state protected areas funds, on prevention of effects on global warming, etc.

Ministry has the right to:

1) elaborate, approve, issue, modify, abrogate within its limit normative actes, to issues instructions in its activity sphere for legal entities and natural persons with any type of property and legal form of organization, to provide expertise of project and attestation of specialists according to legal provisions;
2) to carry out state ecological expertise, to issue authorizations, permits/certificates within the limits of its field of activity, according to current legislation and international conventions ratified by the Republic of Moldova;
3) to review departmental normative acts of ministries and departments within its field of activity, to issue proposals on suspension of actions with negative impact on environment or their cancelling in case of certifying their incompliance with current norms and standards;
4) to control compliance with current legislation in its field of activity;

5) to submit for consideration proposals regarding abrogation of decisions of public administration authorities which contradict legal and normative acts within it activity areas;

Institutions subordinated MENR are following:

1. State Ecological Inspectorate
2. State Hydrometeorologic Service
3. State Agency on Geology of RM "AGeoM"
4. Institute of Ecology and Geography
5. Î.S. “Expediția Hidrogeologică “EHGeoM”
6. National Agency of Regulation of Nuclear and Radiological Activity

Ministry of Agriculture and Food Industry (MAFI)

Ministry of Agriculture and Food Industry is the central national authority promotion state policy in the field of agriculture and food industry, being responsible for development of these branches as well as their economic and social infrastructure.

MAFI main duties are as follows:

- stimulates and monitors the use of sustainable and efficient farming systems, based on maintaining and enhancing soil fertility through the application of agro-technical, agrochemical methods and measures of land reclamation, through land planning and organization, including maintenance and development of hydro-ameliorative and soil conservation systems, and of systems aimed at maintaining ecological balance and recovery of water reserves;
- promotes policy oriented towards rational use of energetic sources of existing park of agriculture vehicles and tractors in order to introduce new modern technologies in agriculture and increase the efficiency of agricultural products;
- administration of use of economic and environmental components of agricultural potential of the state through regulation of application of standard projects of territorial arrangement depending on economic-social category of each agricultural producer and agro-climacteric zone of soils;
- harmonization of legislation on agriculture and food industry according to EU requirements;
- execution of provisions and articles of National Program "Satul Moldovenesc-Moldovan Village" and of Economic Growth and Poverty Reduction Strategy in the field of agriculture;
- analyses, monitoring and evaluation of policies elaborated the ministry and other public authorities, ensuring of its compliance with existing documents;
- adjustment and harmonization of acts related to existing policies based on the evaluation of national, regional and local programmes on development.

State forestry agency "Moldsilva"

State forestry agency “Moldsilva” is subordinated to the Government of Republic of Moldova and is the central public authority in the sphere of forestry and promotes state policy in forestry sphere – extension, regeneration, conservation, ecologic reconstruction and rational use of forest resources, guarding, protection and development of national forest and cynegetic fund.

Agency promotes state policy in forestry sector having as objective implementation of National Strategy of Sustainable development of forestry sector in the Republic of Moldova, implementation of State Program of regeneration and afforestation of forestry fund, Programme on validation of new lands and increase of soil fertility as well as implementation of activities related to development of rural and forestry tourism, development of beekeeping.

Moldsilva main duties are as follows:

- administration and management through subordinated institutions and organizations of forestry and cynegetic fund as state public property;
- organization of forestry monitoring;
- regeneration of forests and afforestration of managed forestry fund, extension of lands covered with forest vegetation and creation of protective forest belts of lands and water basins, antisliding bands on a contract basis;
- recovery of domestic forest biocenosis through ecological reconstruction;
- strict observance of regulation on state protected areas fund;
- conducting scientific activities in reservations and other state natural protected areas according to programs coordinated with central environmental authority, Academy of Science of Moldova, profile institutions and preparing of nature research publication;
- ensuring stability and natural biodiversity of forests;
- organization and maintenance of cynegetic fund as well as control on use, regeneration, guard and protection of forestry and cynegetic fund;
- rational use of forestry products.

Ministry of Local Public Administration (MLPA)

The Ministry is the central specialized body of public administration and undertakes the following main duties: monitoring the enforcement of the provisions enshrined within the programs for enhancing and fortifying local public administration developed in line with Government Activity Program, European Council standards and assuring the fulfillment of strategies and programs in its field of activity.

MLPA exercises the following main duties:

- fulfills the objectives of Government Activity programs and strategies in the field of local public administration, including the ones that derive from the international commitments of the Republic of Moldova and from the European Integration Strategy;
- set up new development policies in local public administration;
- to develop legislation related to local public administration field;
- to monitor the enforcement of regional development legislation by local public administration authorities;

Local public authorities (LPA)

Law nr. 436 from 28.12.2006 regarding local public administration and Law nr. 435 from 28.12.2006 regarding decentralization of administration provided local authorities extensive functions related to local development, natural resources management and environmental protection. Clear and define missions in the field of biodiversity are set in the following legal acts: Forest Code, Vegetal Kingdom Law, Animal Kingdom Law, Law on State protected natural areas; Law on Green Spaces of Urban and Rural Localities; Law on badlands improvement by the afforestation; Law regarding natural resources.

Raional councils have sections for agriculture which are responsible for issues related to use of land and agricultural products. Their activity is oriented towards increase of efficiency of agricultural products including support of unification of lands. An important direction in their activity is support of farmers in use of market mechanisms. Raional sections as well are involved in land use control. Local and raional authorities employ cadastre-engineers which deal with land disputes, conduct anti-sliding works and other activities related to use of lands and soils. However LPA capacities are not structures for implementation of objectives of National strategy and Action plan in the sphere of conservation of biological diversity.

As a rule at local level there are few qualified personnel in the sphere of biodiversity. As an exception can be named Chisinau municipality and several raional centers. There is limited

planning of ecological activities, especially afforestation works and creation of new green spaces; monitoring and evaluation are either limited or lack along with human, technical and financial resources for the implementation of Strategy's objectives.

Other authorities from the sphere

Agency „Apele Moldovei" - created according to Governmental Decision nr.904 from 09.08.2008 is the central authority of unified water management throughout entire territory of the country (previously division within MAFI). Within agency 20 state enterprises are working. Agency exercises the following main duties:

- administration and state control in the field of water management and protection for ensuring its complex use;
- provision with water all sectors of national economy and population;
- protection of localities and agricultural lands of freshets and floods;
- construction and exploitation of irrigation systems, hydro-technical facilities and ameliorative arrangements, etc.

Agency „Apele Moldovei" along with MENR are responsible for state control over observance of legislation in the sphere of water management, etc.

Presently the responsibilities on water management are dispersed among different public administration bodies, fact which leads for inefficient general water management, especially water supply for population.

Agency of Agricultural Relations and Cadastre - is one of the Governmental institutions, having its main responsibilities in administration of land, cadastre and programmes on improvement of soil fertility. Agency includes two research institutions working in the field of agricultural research and works on map-making and geodesy. State Republican Association for Soil Protection within the Agency is responsible for anti-sliding works and activities for protection and improvement of soil fertility. Association includes 12 regional centers on soil protection which are financed from funds obtained through transactions with state-owned land.

Cooperation and coordination among authorities is not always at adequate level, especially can be improved cooperation among MAFI, MENR and Moldsilva. Information exchange between institutions is limited but regulations which different state authorities follow are not entirely coordinated. Each organizations is more focused upon implementation of own programmes and plans without clear commitment to look for join opportunities and integration of financial and human resources with other institutions in order to achieve more efficient implementation.

3.2. Legal framework, strategies, programmes and their implementation in the sphere of conservation of biological diversity.

3.2.1. Crosssectoral level

During the last period at cross-sectoral level were elaborated and approved several important policy document, such as: ***Economic Growth and Poverty Reduction Strategy (EGPRS), Action Plan Moldova-EU, National Program "Satul Moldovenesc/ Moldovan Village"(2005-2015), National Program and National Development Strategy (2008-2011)***

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Economic Growth and Poverty Reduction Strategy (EGPRS) Parliamentary Decision nr. 398 from 02.12.2004

Economic Growth and Poverty Reduction Strategy (EGPRS) is the overarching policy framework for the sustainable development of the Republic of Moldova in the medium term. Strategy establishes objectives and priorities implementation of which shall not only possible in the medium term but it is necessary for implementation of long-term objectives of country's socio-economic development. (p.138) Chapter on Environmental protection and sustainable use of natural resources of the strategy emphasizes the need of integration of sustainable development principles in socio-economic activity. The state of the environment and the efficient use of natural resources affect economic growth conditions and the level and quality of life of the population. The irrational use of natural resources over the decades, first of all, the intensive exploitation of agricultural lands, the use of ecologically harmful technologies in agriculture and industry, and air and water pollution, have led to significant reduction in productivity of natural potential and a destructive impact on the environment, especially on water resources, air, soils and biodiversity.

Main objectives are as follows:

i) prevent and reduce the degradation of natural resources and increase efficiency of their use;
ii) maintain the quality of the environment as a factor that ensures health and quality of life;
iii) create an effective natural disaster monitoring, prevention and damage compensation system.

Long-term strategy has many priority direction for activity among which the following related to conservation of biological diversity can be mentioned:

iii) the protection and increase of the forestry fund;
iv) the protection and extension of areas of natural reserves protected by the state;
v) the reduction in the speed of soil degradation;
vi) the improvement of the system of natural disasters monitoring, and the provision of information and education to the population in this area;
vii) the improvement of the administrative, economic and financial mechanisms for environmental protection and sustainable management of natural resources;
viii) the increase in the level of ecological knowledge of the population, the facilitation of access to information on environmental issues, and the participation of the public in decision-making regarding the management of natural resources.

Actions envisaged for the period of 2005-2006 directed towards conservation of biological diversity were implemented in a limited manner, because of lack of financial resources.

National Programme "Satul Moldovenesc"(2005-2015) Governmental Decision nr. 242 from 01.03.2005.

Present document was elaborated for the implementation of Economic Growth and Poverty Reduction Strategy and serves as a basis for fulfilling its priority objectives in the rural areas.

Among priority objectives of the activity in the field of environmental protection and sustainable use of natural resources can be mentioned the following:

(i) the reduction of the pollution of environmental components (water, air, soil)
(ii) the protection of biodiversity and extension of state protected natural areas;
(iii) the reduction of erosions and in the speed of soil degradation;
(iv) the improvement of the administrative, economic and financial mechanisms for environmental protection and sustainable management of natural resources;
(v) the increase in the level of ecological knowledge of the population,

Action Plan "Republic of Moldova – European Union Governmental Decision nr. 356 from 22.04.2005.

Action Plan Moldova – EU is the policy document which laying out the strategic objectives of cooperation between Moldova and EU. This includes as well issues related to sustainable development and provide measures which must be taken in order to better integrate environmental aspects in other sector policies, especially in industry, energy sector, transport, regional development and agriculture.

As well Plan provide measures for strengthening of administrative structures in the field of environment and establishment of procedures regarding access to environmental information and public participation according to European standards. Among environmental priorities can be mentioned the following: strengthening of structure and procedures necessary for performing of environmental assessment, including trans-boundary context; harmonization of legislation; continuation of adoption of legislation in main sectors of environment, including adoption of legal framework on flora, fauna and environmental networks.

National Development Strategy 2008-2011. Law nr. 295-XVI from 21.12.2007.

Strategy is composed of two parts:

1) The strategy itself, which presents direction for activities which will be fulfilled on medium term scale and identifies ways and mechanisms for realization of proposed objectives and

2) Action plan for implementation of Strategy, which includes specific tasks for fulfillment of identified objectives.

One of the main objective of the National Development Strategy consists of ensuring of balanced regional development.

At national level activities related to implementation of policy framework shall be based on the following spheres: infrastructure, public services, business, tourism, environment, agriculture and rural development.

The objective of ensuring of impartial regional development includes the prevention of environmental pollution and efficient use of natural resources in line with improvement of life quality. The fulfillment of these objectives envisages that environmental policy will be implemented with active involvement of local public authorities in the system of management of natural resources. In this context measures related to clear division of tasks among local and central authorities shall be taken in order to strengthen the capacities of responsible public authorities as well for increase of public awareness regarding negative impact of some activities upon the quality of environment.

Among planned activities related to protection of biological diversity can the mentioned the following:

i) prevention and reduction of degradation of natural resource and their more efficient use with emphasis on measures on prevention of soil degradation;

v) multilateral cooperation on monitoring and protection of Prut and Nistru basins, including water management, fishing and irrigation;

vii) modernization and improvement of national monitoring system on status and evolution of hydrometeorological conditions, including natural disasters and environmental quality;

viii) extension of state protected natural areas fund and protection of flora and fauna;

ix) increase of afforestation degree through forestation of degraded agricultural land including planting of forest bands for agricultural land protection;

x) improvement of state control for execution of legislation in the field of environmental protection and sustainable use of natural resources.

3.3. Sector level

3.3.1. Agriculture

Agriculture in the Republic of Moldova has a significant impact upon biological diversity at all levels: genetic, species, population, ecosystems. That's why it is very important in integrate aspects of conservation of biological diversity in the field of agriculture. Activity program in the field of agriculture as a part of Convention on Biological Diversity (Decision V/5) has the main goal reduction of impact of agriculture upon biological diversity.

Similar to other countries in the Republic of Moldova agricultural sector has a significant impact upon environment. Market of ecological products is in constant increase. This has become the basis for integration of environmental aspects into agricultural policy and practice.

With this purpose during the last three years were elaborated several legal and normative acts: *Law on ecological agricultural and food production (2005); National strategy of sustainable development of agricultural complex of RM (2008-2015); National Programme of protection of ecological agricultural and food production (2006); Regulation on methods and principles of ecological agricultural and food products (2006); Regulation on system on inspection and certification of ecological agricultural and food products (2006); Rules on import and expert of ecological agricultural and food products (2006); National programme on development of beekeeping of RM (2006-2015); Programme on agricultural land consolidation (2006) and other.*

Currently are already drafted and in process of approval the following legal and normative acts: *Land Code, Law on Soil, Law on zootechny; Regulation on pasturing and mowing; Technical regulation on "Croustaceos, molluscoid and other aquatic invertebrates prepared or canned"; sanitary veterinary regulation on hygiene of nutrition and unsought substances in forage"; Technical regulation "Mushrooms. Products from mushrooms"; Technical regulation "Legume products. Production and commerce"*.

Mentioned above normative acts include activities which are directly related or support general priorities of environmental protection.

Law on ecological agricultural and food products nr. 115/09.06.2005 includes provisions on certification of ecological products. Law regulates social reports related to obtaining of ecologic agricultural products without use of synthesis chemicals as well as commerce of ecological phytogenic products. Main principles of law are:

a) Realization of balanced, sustainable and diverse agricultural system, which will ensure protection of natural resources, heath and life of consumers;
b) Banning of application of pollutant technologies, restrictive regulation of use of synthesis chemicals and of potentially destructive agricultural practices;
c) Continuous maintenance and improvement of natural soil fertility as well as integration of plant cultivation system in animal husbandry;
d) Fulfillment of mechanisms of placing ecological agriculture which will ensure balanced and sustainable agricultural systems which will contribute to the natural processes of soil's self-purification and regeneration.

Land Code (nr.828-XII din 25.12.1991) determine categories of agricultural and forest land. Code stipulates that ecological protection of land is the superior form of other activities and includes provisions on depriving of the right of using land in situation which it provokes land degradation. The Code is very restrictive regarding opportunity to change the category of agricultural or forest land's destination. Draft of New Land Code will regulate land relations in the field of agriculture and forest in the context of environmental protection.

Problems with excessive pasturing are stipulated on *Law on Plant Kingdom (2007),* Concept on Environmental Policy (2001), provisions in the field are as well included in draft of other normative acts: *Law on soil, Law on zootechny, Regulation on pasturing and mowing.*

During the last decades the Republic of Moldova has become a pioneer in use of biological and integrated methods of protection of agricultural cultures from pests. Currently only one percent from plant protection systems are based on biological methods but system of prognosis

of pestholes, which represent basis for integrated plant protection basis are poorly applied. Phytosanitary products and fertilizers can be introduced on market, transported or used in manner established in *Law on phytosanitary products and fertilizers (2004), Regulation on appraisal and approval of phyto-sanitary products and fertilizers and fertilizers used in agriculture and forestry (Gov. Dec. nr. 1307 din 12.12.2005).* It is prohibited to put on the market phyto-sanitary products and fertilizers which are not introduced in State Registry of plant protection products and fertilizers.

Protection of agriculture in RM from introduction and spreading of pest plants and organisms is mainly based on *Law on phytosanitary quarantine (1995); Law on plant protection (1999); Law on phytosanitary products and fertilizers (2000); Hygiene norms on residues of phytosanitary products in environmental objects (2003)* and other. Normative acts set protective legal framework but their observance ensure adequate protection from introduction of pests from exterior sources. Legislation foresees application of quarantine upon materials and objects which can contribute to pesthole, pathogen agents or weeds and placement of quarantine has the main objective of prevention of introduction at the territory of RM from other state different pest cultures.

In general methods and mechanisms of phytosanitary regulation in the Republic of Moldova are similar to the EU ones, however there are still numerous discrepancies. EU phytosanitary regulations regarding preventive phytosanitary measures which anticipate crisis situation are much more detailed.

The National Strategy for Republic of Moldova Agro-Industrial Complex Sustainable Development (2*008-2015) (nr. 282 from 11.03.2008)*

Present document stipulates strategic coordination at national level of the main political, economic and social actions for agro-industrial sector development. The General Objective of the strategy refers to ensuring a sustainable increase of agro-industrial sector with a consequent improvement of life quality in rural area by increasing sector's competitiveness and productivity.

Among strategic objectives of sustainable development of agro-industrial complex related to biodiversity conservation can be mentioned the following:

- *Aligning national standards to EU ones and ensuring food harmlessness*, the priority directions in this objective are: development of the phytosanitary strategy on protection of plants, prevention of noxious organic structures' entry and dissemination on country's territory in line with communitarian legislation and its implementation;
- *Preserving Soil Quality* – Agricultural Production Fundamental Means and namely: a) ecological reconstruction of degraded soils; b) preventing and combating landslips; c) ecologic reconstituting of meadowland vegetation; d) extension of afforested areas and protection forest bands for setting up green carcass for soil protection; e) reestablishing and extending humid zones; f) promoting ecological and genetically unmodified agriculture.

Complex program on soil protection from erosion for the period of 2003-2012 , financed from state budget and implemented by Republican State Association for Soil protection. Programme envisages fulfillment of works on planting of forest bands with the support of *"Moldsilva"*

Program on amelioration of lands and increase of soil fertility for the period of 2003-2010 is not really detailed, however the responsibility for its implementation is divided among State Agency on Land Relations and Cadastre, MAFI, Moldsilva, MENR as well as local authorities. Programme is financed from extra-budgetary funds.

National Action plan on combating of desertification (2000) is the ambitions programme which includes series of measures, however up till today their implementation is not sufficient.

Acts related to agriculture include some aspects of protection of biodiversity and sustainable use of resources, especially regarding soil, meadowland, forest protection bands as well promotion of ecological agriculture. At the same time there are some lacks regarding promotion of environment-friendly agricultural practices, management of degraded soils, such as

pastures, adaptation to climate change, identification and conservation of agricultural lands of high natural value.

3.3.2. Forestry

Besides the fact that timber mass and obtaining of its accessory products contributes to development of national economy – forests represent important factor of maintenance of ecologic balance. In conditions of Moldova with big alternant temperatures, with often drought, water deficit, soils exposed to landslides and with tendency of diminution of soil fertility the role of forest protection is the one of significant importance.

Thus country's forestry has a positive impact upon development of all important sectors and fields of activity of national economy, such as agriculture, hunting, orchard, phytotechny, zootechny, etc.

Legislation of the Republic of Moldova has many acts which refer to forestry, including laws, Governmental Decisions, strategies.

For ensuring of ecological balance and broader influence upon climate and hydrologic regime of the territory, for creation of ecological corridors for interconnection among forest bands and increase of productivity of agricultural land in the Republic of Moldova it is necessary to plant about 128 thousands ha lands with forest vegetation by year 2020. Extension of surfaces covered with forest vegetation is foreseen by *Law on amelioration through afforestation of degraded lands nr. 1041-XIV, 2000; Governmental Decision nr. 595 din 29.10.96 (p.2 and 4), nr. 107 din 1.02.2001 (p.7, al.2); State program on regeneration and afforestation of forestry fund lands for the period of 2003-2020; National Strategy and Action plan on conservation of biological diversity; Strategy of sustainable development of forest sector of RM; General action plan on implementation of National Strategy of Sustainable development of forest sector of RM* as well other multilateral international treaties to which Moldova has adhered.

Forest Code *(Nr.887 from 21.06.1996)* represents legal framework on general management of forests fund in RM. Main principles of Code are sustainable use of forests and protection of their biodiversity. The Code stipulates responsibilities of central forest authorities and other authorities and co-interested stakeholders and sets rules of use and protection of forest resources. It stipulates that in Moldova forests can be public or private property.

Law on amelioration through afforestation of degraded lands *nr. 1041-XIV, 2000* describe procedures of afforestation of public or private degraded lands. Moldsilva is responsible for afforestation of degraded lands, application of activities in limits of Law. In cases when landowner takes measures stipulated in Law for creation and maintenance of forest lands it can be exempt from land tax for the period of 24 years.

Program on amelioration of lands and increase of soil fertility *(2003)* foresees afforestation of 128.0 thousands ha, including by zones: north – 42.7 th. ha, center – 64.1 th. ha, south – 24.4 thousands ha. For implementation of mentioned Program Moldsilva annually plants about 7500 ha of forest cultures at degraded and strongly degraded lands, landslides, ditch, et. In total during the period of 2002-2008 besides forest fund were afforestated about 53 th.ha of degraded lands.

According to State Programme on regeneration and afforestation of forest fund land for the period of 2003-2020, *approved through Governmental Decision nr. 737 from 17.06.2003,* during the period of 2002-2008 works on regeneration of forests were performed at surface of 20 th. ha.

Still the process of forest certification and establishment of indicators is quite problematic. According to the provisions of art. 32 of Forest Code: Forest products are subject of certification. Organization of certification of forest products is performed according to mode, conditions and list approved by the Government." However de-facto certification of forest products hasn't been introduced in the country. Presently there is a draft normative act on certification of forest products (at concordance stage). However cutting of forest fund and vegetation around it are

obligatory the subject of authorization according to art. 40 of *Law on environmental protection and Law on Plant Kingdom*, however the possibility of harvesting of timber mass is established according forestry arrangements and being approved by Governmental Decision nr. 737 from 17 June 2003.

For collection of auxiliary products (medicinal plants, fruits and other parts of plants), the special authorization from MENR is being issued according to provisions of Law on Plant Kingdom. Export and import activities of forest products are performed through obtaining of permission from MENR or permit/certificate CITES – for species regulated by Convention on international trade of endangered species of wild fauna and flora *(Washington, 1973)*, according to normative act: Procedure of authorization of import and export activities of plants and animal from wild flora and fauna, of their parts or derivations as well as import/export or re-export of flora and fauna species regulated by Convention CITES (2000).

Regulation on authorization of cutting of forest fund and exterior forest fund vegetation (Nr. 27 from 19.01.2004) doesn't include special provisions regarding cutting in protected areas with exception of cases of natural disasters. In this case cutting is authorized by central public authorities responsible for natural resources and environmental protection, based on recommendations of special commission established for each individual case and composed of representatives of central authorities responsible for management of natural resources and environmental protection and namely State Ecological Inspectorate, ecologic agencies, Academy of Science of Moldova, central or territorial units of forest authorities.

Strategy of sustainable development of forest sector of RM (Nr. 350 from 12.07.2001)

In frames of this document are presented key issues of national interest in the forest sector: 1) conservation of biological diversity of forests; 2) rational use of forest resources; 3) extension of surfaces with forest vegetation.

Objectives of the strategy which stipulate conservation of biological diversity of forest are:

a) extension of natural regeneration of arbores through application of treatment which permit conservation and creation of tress with varied optimal horizontal and vertical structure;
b) adjustment of system of protected areas with the requirements of entire spectrum of forest ecosystems, establishment of forest ecological network with better protection and forest sectors of special interest for conservation and regeneration of representative forest ecosystems;
c) application of methods and techniques on treatment of trees based on adequate ecological basis, adjusted to objectives of conservation and amelioration of forest biological diversity, protection of vulnerable and endangered forest ecosystems (beech, oak, gorunete petrofite, Quercus pubescens forest);
d) conservation and improvement of relief forms through afforestation on stationary-type bases of lands affected by landslides or pluvial badlands;
e) amelioration of biological diversity of degraded forests from silvic-biological point of view through application of technologies based on ecological reconstruction of forests;
f) integration of issue on conservation of biological diversity of forests in concept and practice of forest arrangements;
g) supplement criteria on functional zoning of forests with components regarding conservation of biological diversity, including generic forest resources;
h) prohibition of replacement domestic forest through introduction of exotic species without their profound preliminary testing;

i) gradual receding on chemical control of forest pests and prudent application of biological methods of control;
j) banning of unjustified clearing of forests and exterior forest vegetation;
k) surcease of fragmentation or destruction of silvic habitat which lead to reduction of number of survived species, provokes negative consequences of inbreeding, genetic drift and loss of genetic diversity;
l) maintenance of diversity of species through implementation of specialized programs on conservation of rare and endangered taxons by creation of normative framework on their efficient protection;
m) assuring of conservation of global value species;
n) avoidance of destruction of migration ways for fauna species;
o) elaboration and implementation of public awareness campaigns and information of decision-makers on importance of conservation of biological diversity, active participation of non-governmental organization in this activities.

Still doesn't exist the sectoral mechanism for realization of mentioned objectives as well there is no mechanism for intersectoral cooperation. Besides that aren't promoted efficient measures on combating of species aggressively introduced, such as *Acer negundo,* and in some cases plantation of acacia are placed instead of domestic forests, including in valuable habitats.

Some main components of complex of actions needed for promotion of agro-silvic practice implemented by Moldsilva are included in projects "Soil conservation in Moldova" and "Development of public forests".

In frames of project "Soil conservation in Moldova" within the context of prevention of climate change and soil degradation for the period of 2002-2008 were afforested about 20.3 thousand ha of degraded lands. Project implementation has contributed to the reduction of negative impact of economic activity, diminishing of degradation processes and amelioration of environmental factors with direct impact on population health and ecological security of the country.

The legislation of the Republic of Moldova in the field of forest fund includes provisions related to conservation of biological diversity, which unfortunately are not always respected. It is necessary to pay more attention to implementation of activities in the field of minimization of consequences of climate changes, to elaborate other type of activities within forest fund besides the harvesting of timber mass, such as development of tourism, collection of non-timber products, etc.

3.3.3.Rural Development

The state of the environment is the subject of continuously increasing anthropogenic pressing due to irrational use of natural resources, the intensive exploitation of agricultural lands, the use of ecologically harmful technologies in agriculture and industry, and air and water pollution. As a result it have led to significant reduction in productivity of natural potential and a destructive impact on the environment, especially on water resources, air, soils and biodiversity.

At present soils erosive processes are a serious threat which considerably decreasing the development of agriculture because the agricultural soil yield potential is declining.

Stringent state of rural sector requirement the need of application of new form and methods of strategic planning, monitoring and evaluation of strategies and sectoral programs in the field of agriculture and rural sector, essential changes in state policy regarding rural communities, profound changes in legal and institutional framework.

Rural development is one of the priorities of ***Moldova – EU Action plan*** along with activities in the field of environment, agriculture, etc with the objective to improve food security and trade.

National programme „Satul Moldovenesc" represents a political frame for sustainable strategic planning, including financial elaborated for implementation of EGPRS and includes

principles of sustainable development and parameters of Millennium Development Goals. Environmental Protection is one of objectives of program and includes activities of soil protection and creation of forest bands (3.6 billion US dollars for the period of 10 years).

Main objectives of ***Law on regional development of RM*** (Nr. 438 from 28.12.2006) is support of the local public administration and local communities in social economic development of territory and coordination of interaction of it with national, sector and regional development strategies and programmes.

According ***Law nr. 436 from 28.12.2006 regarding local public administration and Law Nr. 435 from 28.12.2006 regarding administrative decentralization*** local public authorities are responsible for administration of local private and public goods; urban planning and management of green spaces of local interest as well as administration of any issue of local interest which is not excluded from their competences and it not subordinated to other authority.

Efficient solution of set of social, ecological, economical and political problems at rural level presents process of sustainable development of agriculture through increase of ecological agricultural and good productivity. With this goal the draft ***Law on facilitation of rural entrepreneurship*** has been elaborated.

There are still some problems related to forest and other forest vegetation administrated by primarias. For forest fund and vegetation administrated by primarias and other landowners there isn't trustworthy statistics on harvested timber mass in the process of application of forest cutting. According to data presented by State Ecological Inspectorate during the period of 2004-2007 were authorized for cutting the volume of 30 thousands m^3.

Presently MAFI implements the project "Pollution control in agriculture". One of project objective is the promotion of adoption of environment-friendly practices by some farmers from pilot area as well as strengthening of national policy, legal and institutional capacities which will ensure pollution control with nutrient.

As conclusion it is necessary to mention that issue of biological diversity isn't fully reflected in documents related to rural and regional development.

3.3.4. Trade

The Republic of Moldova has adhered to Convention on international trade of endangered species of wild fauna and flora (CITES, Washington, 3 March 1973) through Law nr.1246-XIV from 28 September 2000. Articles regarding import and export activity of endangered species of wild fauna and flora, their components and by-products as well as import/export or re-export, transit of flora and fauna species regulated by Convention on international trade of endangered species of wild fauna and flora (CITES) were included in: Law on animal kingdom nr. 439-XIII from 27.04.95 (amended and modified in years 2005, 2007, 2008); Law on Plant Kingdom nr. 239 - XVI from 08.11.2007, Law nr.325-XVI from 15.12.2005 regarding Red Book of RM, Governmental Decision nr. 1107 from 11.09.2003 regarding approval of present regulation and procedure of authorization of activities according Convention CITES (Official monitor of RM, 2000, nr. 96-99, art. 221).

Import or export activities of endangered species of flora and fauna can be organized and performed by legal entities and natural persons only on the basis on CITES Permit/certificate or environmental agreement according to provisions of normative acts mentioned by present Procedure as well as customs, veterinary and phyto-sanitary norms and procedures.

Procedures applied for organization and performing of import/export activities of:

a) medicinal, aromatic, food, forage, gambier, tinctorial or ornamental plant from spontaneous flora, integrally or by roots, rhizophorus, bulb, stalk, branches, strips, flowers, leaves, fruit, seeds and berries in living state, fresh or half-black;

b) mushrooms, ferriage, mussels, branches of mistletoe as well as other wild plants, their parts or products in living state, fresh or half-black;

c) stickseeds, shell snails, frogs, crustacea, serpentine, birds, fish and mammal, as well as other wild fauna terrene and aquatic or their parts and by-products;

d) species of wild plants cultivated with commercial purposes for export as well as wild animals grown in captivity for commercial purposes of export.

Through approval of Law nr. 201 – XVI,03.10.08 the Republic of Moldova has accepted the provisions of Amendment to CITES convention adopted at Gaborone, (Botswana, 30 April 2003). But on 31.05.2009 will enter into force new Code of Administrative Violations nr. 24.10.2008 which includes separately article with sanctions related to "collection or picking of plants, capturing or killing of animals included in Red Book of RM and annexes of CITES convention".

3.3.5. Industry

Given the fact that industry being one of the most important sectors of Moldova which must be developed it has been included as the main subject in several development strategies.

National Industrial Development Strategy until 2015 (Nr. 1149 din 05.10.2006)

Main objective of present Strategy is creation of advanced technologically industrial sector of economy, efficient and competitive adjusted to European standards. For implementation of objective, Strategy stipulates elaboration and use of mechanisms and instruments oriented towards environmental protection and rational use of natural resources, such as:

- support of complex legislative system, harmonized with EU legal framework and requirements of multilateral international conventions and protocols to which the Republic of Moldova is a party;
- ensuring control upon rational use of natural resources through implementation of new mechanisms on regulation – authorizations and license which are based on principle "polluter pays".
- Provision of necessary assistance to the enterprises for elaboration of own environmental protection programmes;
- Introduction of pure technologies and products, ensuring of optimal balance of costs/benefits, as well as elaboration of new modes of production and consumption through support of implementation of environmental management system (ISO 14001).

Among primary measures in the field of industrial ecology can be mentioned:

- harmonization of national ecological norms and standards to international ones, and at first to the EU;
- implementation of ecological audit of enterprises;
- obligatory provision of state ecological expertise of schemes, programmes and plans for development of industrial sectors/branches, investment projects, project documents of all industrial enterprises.

Energy Strategy of the Republic of Moldova until 2020 (Nr. 958 from 21.08.2007***)***

Present Strategy refers to objective, measures and activities directed towards creation of more efficient, competitive and certain energetic complex, which will ensure energetic security of country, modernization of existing energetic infrastructure, improvement of energetic efficiency, use of renewable energy sources and integration on European energy market.

Among main objectives of environmental policy within energy development strategy can be mentioned the following:

- reduction of negative impact of economic activity upon state of environment in the context of sustainable country development;
- increase of public awareness regarding the need of environmental protection;
- diminishing of negative impact upon human health.

Strategy envisages adoption of systems on integrated management according to international standards for better monitoring of environmental impact such as:

- environmental management systems according to standard ISO 14001;
- management systems of health and occupational safety according to standard OHSAS 18001.

Another measure of environmental protection is the promotion of energy system based on conversion of energetic potential of renewable sources, energetic efficiency and technology of clean fuel. Implementation of national programme of energy conservation and National program on improvement of renewable energy sources will significantly contribute to the decrease of harmful emissions.

As a conclusion we can state that inclusion of issues related to biological diversity in the field of industry is very limited and requires more profound activity for its application.

3.3.6. Health

In the field of health were analyzed Strategy of development of health system for the period of 2008-2017 (nr.1471 from 24.12. 07), National Health Strategy (nr.913 from 26.08.05), Anticorruption strategy in the field of healthcare (approved by Decision of College of Ministry of Health nr.6 din 06.11.07), Communication strategy on European integration of RM (nr.1542 from 29.12.2007). All these strategies do not include any activities in the field of conservation of biodiversity.

According to Parliamentary decision nr.112-XV din 27.04.2001 regarding national strategy and action plan in the field of conservation of biological diversity lit. F pt.2.6. of General Action plan in the field of conservation of biological diversity is planned elaboration of regulation on provision of biological security, use of GMO and biotechnologies. In this context Ministry of Health has elaborated ***Law nr. 78-XV din 18.03.2004 regarding food products.*** This law regulates food products from genetically modified organisms. Unfortunetely the issue of biological diversity isn't reflected in programs and strategies related to health, even through population's health at large extend depends on healthy environment and maintenance of ecological system functioning.

3.3.7. Research and education

Scientific research in the sphere of conservation of biological diversity is performed by Academy of Science of Moldova through its affiliated institutions: Botanical Garden (institute), Institute of Zoology, Institute of Microbiology, Institute of Ecology and Geography. At the same time research in present field are performed by State University of Moldova (faculty of ecology, botany and pedology), University of Tiraspol (faculty of biology), institution of Ministry of Agriculture and Food Industry (stations „Porumbeni", „Selecția", „Horticultură" and other). Botanical Garden (Institute) of Academy of Science of Moldova research flora and vegetation of RM, evaluates taxonomic and phytocenotic capacities of state natural protected areas and elaborates proposals regarding its protection. Two first volumes of book "Flora of the Republic of Moldova" are prepared for publishing. Institute of Zoology research fauna complex of natural ecosystems and suggests measures on conservation of diversity of fauna species. Although the financing of research institutions has been considerable increased, mentioned institutions are poorly equipped with scientific equipment, scientific filed visits and complex expeditions lack financing.

According to performed analysis in the educational sphere, the main objective of educational system of RM is – formation of active and responsible citizen – which perfectly complies with idea of 2005-2014 decade on "Education for sustainable development".

Pre-school education: for children at age 3-7 year new curriculum is implemented which includes curriculum part on "Science, environment and ecological culture". In frames of this program they acquire special knowledge and skills in this sphere.

Pre-university education: at current state of education the objectives of ecological education are integrated in obligatory disciplines: “Science”, “Biology”, “Chemistry”, “Physics”, “Geography”, “Spiritual and moral education”, native language and literature, foreign language and in optional disciplines: “Ecology and environmental protection”, “Ecological education”, “Environmental protection”, “Civic education”, “Moral and civic education”, “We and Law”, etc.

Presently has been published manual “Ecology and environmental protection” with the financial support from UNESCO. This manual has been disseminated in all pre-university institutions and is used as support material for optional classes.

Institute of Science of Education has elaborated Curriculum for optional discipline “Ecological education and environmental protection” for all education levels.

Non-formal and informal education. Ministry of Education and Youth supports state initiatives of state institutions and NGOs on organization and implementation of special activities in the field such as drawing competitions, interactive games, debates, information campaigns, ecological hours on issue, bi-monthly ecological activities of community interest (cleaning of rivers, planting of green spaces, arrangements of parks, wells, etc).

Starting with 1995 on the basis of Cooperation agreement signed between the Government of RM and US Government pupils, students, academic faculty and scientists are working together on environmental studies in frames of GLOBE program.

During 2007-2008 at all pre-university institutions were organized 4 thematic hours of ecological topics related to conservation of biological diversity of flora and fauna and environmental protection.

Although ***Economic Growth and Poverty Reduction Strategy (EGPRS)*** stipulates preparing of national strategy on ecological education in 2005-2006 up till today this hasn’t been approved. Strategies in the field of education do not include, unfortunately provisions relate to biological diversity and its conservation event through CBD includes integration of biodiversity in the educational system in all countries parties of Convention.

3.4. Conclusions and recommendations on integration of biological diversity issues at sectoral level.

In frames of this report were analyzed cross-sectoral and sectoral strategies and programmes. It is necessary to mention that there is few transparent official data on monitoring of application of these programs and their outcomes. Even if some aspects related to biological diversity are included in the document, such as forestry of agriculture it is difficult to evaluate their implementation due to lack of clear system on monitoring and reporting.

Hereinafter are presented some recommendation regarding integration of aspects of biological diversity in some sectors of economy.

- ***in forestry***

Forest ecosystems of Moldova are constantly under high anthropogenic pressure. Current efforts on extension of forest surface are important because of their contribution to land and soil protection, to prevention of diffuse pollution and biodiversity protection.

High prices on energy sources along with low income of large portion of population are the main reasons for illicit cutting of forest for firewood. Due to this situation as well as due to privatization consequences anti-sliding forest bands have suffered a lot and were practically destroyed. With all this official data indicates decrease of illicit cutting at the last years.

Forest extension. It is necessary to increase the proportion of forest zones, especially to diminish the phenomena of erosion and prevention of washout of nutrients from agricultural lands. Resources available for planting forests are limited, sometimes it is difficult to obtain agreement of local authorities for planting of new forest on their lands. Big number of private

animals while pasturing destroy seedling plants. At the same time it is recommended to use domestic species instead of introduced ones in the process of forest extension.

Natural state protected areas are mostly afforested zones and are managed by "Moldsilva". Lack of stage budget financial resources prevent creation, regeneration and protection of forest, including protected areas. *"Moldsilva"* cannot provide sustainable management of forest resources in current conditions of financing. Supervision and inspection possibilities are very limited. Penalties for illicit cutting are small and biggest share of them isn't collected.

Main objectives for solution of problems in the forestry sector can be:

- improvement of management of existing forests;
- conservation of forest's biodiversity;
- extension of afforested zones;
- improvement of forest protection;
- integration of forest management in other sectors.

Creation of national ecological network (NEN) is currently at its concept state and presently there isn't any available source of financing. NEN is still a concept through creation of which ones can extent the existing forest zones for creation of more coherent network of natural areas. In this case it is necessary to identify the zones at critical stage of degradation and establish administration practice of lands.

It is necessary to introduce legal and organizational measures for forest protection from atmospheric pollution, or fires, etc. For fulfillment of this objective it is necessary to elaborate monitoring system of forests and their evolution.

For improvement of forest management it is necessary to divide responsibilities depending of exploitation of forests. Forest management plans are not the subject of ecological expertise or procedure of environmental impact assessment. In case when environmental authorities are involved in approval of forest management plans the balance between forest protection and exploitation can be more unbiased.

- ***In agriculture***

Policy in the field of agriculture and rural development not always is well coordinated with environmental policy. In current economic situation it is difficult to include complex environmental protection programs in agricultural sector. Planned re-assessment of agricultural subsidies must take into consideration their possible negative effects on biodiversity state. There is a clear understanding of soil protection, being the only real natural resource of the country. With all this big efforts are taken in order to minimize negative impact of agriculture upon environment. The following measures are considered to facilitate environmental considerations in agriculture, and namely:

- development of services on agricultural consultancy;
- projects on decrease of diffuse pollution from agriculture;
- promotion of ecological agriculture;
- promotion of best agricultural practice.

Land consolidation for protection of biological diversity shall be organized based on a special study performed with logistical assistance from scientific institutions of the country. It is necessary to develop consulting system on opportunities of land consolidation through afforestation and social benefits which can be obtained through reestablishment of land and biological resources. It is necessary to include biological conservation requirements in documents on territorial arrangement.

Anti-sliding protection is another measure necessary from ecological point of view. It is considered that combating of sliding is possible only through common efforts of all state institution through systematic monitoring of evolution of this process and creation of common

digital maps for territorial arrangements. Elaboration of unified Informational Geographic System represents an important step for better planning and cooperation.

Two categories of lands require special attention: *pastures affiliated to local authorities (primaria) and water protection zones.* Drafts of two legal acts on improvement of land management, Law on soil protection and Regulation on pasturing and mowing were elaborated but not yet applied.

Land irrigation and draining Presently irrigation has slowly stopped to become the significant issue for environment because it doesn't impose strong pressure upon available aquatic resources. It is probable that lands subject of irrigation will extend in the future and as a result will cause appearance of problems at level of water and soil resources. Creation of national parks will contribute to rational use of water and soil resources of the country.

In frames of phyto-sanitary control are suggested to include the following priorities:

- improvement and introduction of legal framework regarding regulation of circulation on market of plants and plant products (some draft normative acts were already elaborated and currently are at the stage of concordance);
- implementation of preventive practice and of conservation of phyto-sanitary purity in the Republic of Moldova;
- organization of training of phyto-sanitary customs and territorial inspectors;
- improvement of methods and diagnostics equipment, etc.

For identification of *agricultural lands of high natural value* is necessary monitoring of biocenotic oasis from agrocenoces and elaboration of efficient mechanism of sequestration of unprocessed private lands, which are unproductive and those in danger of sliding. Such mechanism can contribute to the creation of new pastures and forages, to reconstruction of lands and reestablishment of tumble-weeds of different type and creation system of its planning as well as practice of population involvement in execution of such works.

- ***in rural development, science and education***

Local authorities are not always well informed regarding current legal acts and programs that's why it is very important to initiate a dialogue with population regarding administration of lands and territorial arrangement. An important objective of consultancy services is the promotion of positive agricultural practice which contribute to decrease of soil degradation, or safety and more efficient use of pesticides and fertilizers. In order to success it is necessary to have a solid scientific basis, educational capacity and adequate financing. Applied scientific research in agriculture require improvement. Best agricultural practices must be in the center of consultancy service. It is necessary to support the positive tendency of MENR to provide financial support in the future for solution of issues related to land consolidation, especially on the initiative of local authorities.

In rural areas it is necessary to increase the forest zones, especially for diminishing of land-sliding phenomena and to prevent wash out of nutrition from agricultural lands. Forest surface which remain unchangeable during 1990s has entered in increasing trend after year 2000. It is a positive trend however present process meets difficulties. Resources available for planting of primary forest are small, sometimes it is difficult to obtain LPA agreement to plant at their lands.

Efficient conservation of biological diversity is impossible without profound research of legislation and mechanism applied at genetic, species, ecosystems and habitat levels. In this context it is recommended to continuously develop fundamental and applied research, supply with modern scientific equipment, preparing of highly qualified staff, increase of contribution of innovation and technologic transfer for the development of branches of national economy, including conservation of biological diversity.

Public awareness activities were necessary for supporting of forest protection and guard workers can be the following:

- informing public about sustainable development in the field of forest plantation and forest band, about the real state of biodiversity and surcease of soil degradation, ensuring free access to information and participation in decision-making;

- informing about rational use of natural resources;
- informing of relevant persons regarding procedures of taken under protection level of some valuable and representative ecosystems;
- promotion of programmes of cooperation in the field of planning sectors fore recreation, liquidation of natural disasters' consequences;
- elaboration and implementation of programs and promotion materials for increase of public ecological, agrarian and forestry knowledge, creation of favorable image for activities on conservation of biological diversity for next generations;
- editing of didactic materials, which reflect specifics of conservation of biological diversity and including in general education programme several obligatory topics in the ecologic, forestry profile, involvement of population, especially children, pupils and students in the works on planting of forest bands and natural ecosystems with the purpose to teach ecological spirit of next generations.

Chapter IV. Results of implementation of objectives stipulated for year 2010 and their inclusion in strategic plans of Convention.

Main goals and objectives in the field of conservation of biodiversity planned for 2010 were included in National strategy and action plan in the field of conservation of biodiversity. With all this in frames of this document were introduced modifications requested by Decision of COP CBD which were introduced after approval by the Parliament of RM of present document. Modification of BDCNSAP, adopted by the Parliament of RM in 2008 stipulates postponement of execution of BDCNSAP and Convention programs (due to lack of financial resources necessary to implementation).

For fulfillment of objectives and goals stipulated in Convention and in BDCNSAP different activities were implemented regarding the improvement of legal and institutional framework such as elaboration of some legal documents: Law nr. 265 – XVI from 28.07.06 regarding use of animals in scientific purposes and other experimental purposes; Law nr. 149-XVI from 8.06.06 regarding piscicultural fund, fishing and pisciculture; Law nr. 94 - XVI from 5.04 .07 regarding ecological network; Law nr. –XVI from 14.06.07 regarding zoological gardens (with modifications and amendments from 2005, 2007, 2008); Law on Plant Kingdom nr. 239– XVI din 8.11.07; Law nr.325-XVI from 15.12.2005 on Red Book of RM as well as modification and amendment of existing legal acts such as Law on Animal Kingdom nr. 439 from 27.04.95 and Law on state protected natural areas fund nr. 1538-XIII from 25.02.98. At the same time were elaborated different programs of conservation of biodiversity, were organized actions on public awareness in present field.

The Republic of Moldova has implemented the requirements of Resolution VII/8, (COP 7 2004) and Resolution VIII/15 (COP 8, 2006) which required elaboration of set of national indicators of biodiversity from all member states in order to fulfill the objectives of Global Strategy on Plant protection and Goal for year 2010.

Regarding objectives and goals in the field of conservation of biological diversity at local level it is necessary to mention the similarities with goals of Global Strategy on Plant Protection and Goal for year 2010 as well as other goals and objectives divided by spheres and included in BDCNSAP along with other sectoral and cross-sectoral programmes and strategies such as EGPRS, national action plan on combating of desertification in RM, Strategy of sustainable development of forest sector of RM, etc (Table 1).

The following efforts regarding achievement of goals and objectives for year 2010 were made and namely:

- protected area fund was extended up till 4,65% of state territory (were included in protected areas fund three wetlands of international significance at the territory of RM, which will contribute considerably to the increase of biological conservation);

Some progress in the field of conservation of biological diversity performed by "Moldsilva" is the development of legal framework and extension of activities of planting of forests.

However there are several shortcomings in implementation of objectives for year 2010. Among which can be mentioned the following:

- financing of activities on conservation of biological diversity is insufficient;
- scientific research, monitoring of biodiversity, staff training according to current requirements is performed with limited resources;
- natural state protected areas management is at unsatisfactory level due to the fact that LPA and economic operators do not respect the requirement of legislation and regulations in the field;
- limited financing, cooperation and coordination of different activities is at its initiation state, week integration of biological conservation requirements in some sector programs (agriculture, rural development, et);

Conclusions

1. Objectives of Convention of Biological Diversity are well known in the country. For implementation of the first two objectives (conservation of biological diversity and sustainable use of biological resources) certain efforts are being taken by Ministry of Ecology and Natural Resources, central public authorities, Academy of Science of Moldova, local authorities, NGOs, et. Fewer attention is paid to implementation of the third objective – fair and equitable sharing of the benefits arising out of the utilization of genetic resources. Regarding goal and objective for year 2010 they are known only to limited number of specialists in the field;
2. Legal and institutional framework in the field of conservation of biodiversity in RM has been developed during the last years and complies with the current requirements however implementation of legal provisions is weak;
3. Integration of requirements on conservation of biological diversity in sectors of economy is at its initial state. It is necessary to mention that forest sector respects (with some exceptions) requirements on conservation of biological diversity. In other sectors this part of nature is given less priority;
4. Biological diversity of the Republic of Moldova is vast at all levels – genetic, population and species however such biodiversity cannot provide stability of natural ecosystems due to its vulnerability to anthropogenic factors (agriculture, silviculture, invasive species);
5. During the period of 2000-2008 the decline of plant species' population from spontaneous flora and wild animals species wasn't stopped which lead to increase of number of endangered species;
6. Fund of state protected natural areas has been extended, however still the measures for observance of legislation in this sphere are necessary;
7. Works on ecological reestablishment are performed at limited volume;
8. Level of scientific research in the sphere of conservation of biological diversity has considerable increased according both quantitative and qualitative indicators, however the supply of scientific research units with equipment is limited;
9. Biologic management is performed only in scientific reservation. Some works on establishment of "zero level" in some protected areas has started.
10. Possible impact of climate changes upon flora and fauna of RM has been evaluated, however measures for increase of adaptability hasn't been taken.
11. Limited financial allocations and week participation of national and international organizations in activities related to conservation of biological diversity in some cases impede implementation of BDCNSAPD.

Table 1. Global goals and targets set for year 2010 and national relevant targets

Global goals and targets 2010	National relevant goals and targets	Indicators used in Moldova
Protection of biodiversity components		
Goal 1. **Promote the conservation of the biological diversity of ecosystems, habitats and biomes**		
Target 1.1. At least ten percent of each of the world's ecological regions effectively conserved	Figure included in BDCNSAP, EGPRS is 2.4%. Currently state protected areas scale 4.65% of total territory of the country.	Total surface of ecosystem; the surface of ecosystem from the respective zone; the protected surface of the respective ecosystem. In the same order is reflected the biological diversity, specifying the endangered species.
Target 1.2. Areas of particular importance to biodiversity protected.	Stipulated in BDCNSAP and other programmes and strategies, such as The National Action Programme on Combating the Desertification (NAPCD) or Strategy on Sustainable Development of the Forest Sector. Respective areas are: Inferior Prut, Lower Nistru, Central Codrii.	Total surface of the area; surface of the protected area; presence of separated administration for the protected area; attribution of the respective protection category according to IUCN requirements; presence of management plans; realization of the requirements of management plans.
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	BDCNSAP provides protection measures for plant and animal endangered species at a national and regional level. The list on plant and animal species of international and national importance, which require prior protection, has been elaborated. According to Law on state protected areas (1998) the natural state protected areas fund assures in-situ protection for about 250 plant species, including 224 species of superior	Binary name of species; statute according to IUCN requirements; spreading; habitat; quantitative aspect of populations; limitative factors; state and measures of protection.

	plants, 9 species of mussels and 17 species of lichen At the same time are taken under state protection 169 animal species, including 89 mammal species, 9 species of reptile, 4 species of amphibians 1 specie of cyclostomatous, 15 species of fish, 1 specie of crustacee, 3 species of mollusks, 1 specie of polichen, 34 species of insects.	
Target 2.2. Status of endangered species improved	BDCNSAP, SSDFS and PNACD stipulate conservation of vulnerable species. The Second Edition of the Red Book of the Republic of Moldova stipulates the protection of about 116 animal and 126 endangered and endangered plant species. For these species there are protection measures established.	Binary name of species; protection statute; spreading; habitat; quantitative aspect of populations; limitative factors; state and measures of protection.
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**	Targets for genetic diversity conservation were included in BDCNSAP, in chapters related to in-situ and ex-situ protection of species. In the field of agriculture National target foresees the conservation of species and autochthon varieties and the ameliorated ones used in agriculture. A series of documents related to forest management describes the goals for genetic diversity conservation; in particular concerning the trees selected as genetic sources.	For spontaneous species: name of specie; studied population; the abundance of population; the structure of population (genus, age). For genetic collections of agricultural cultures: specie; population carrying a gene; description of gene; place of location of this specie.
Promotion of 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	National target is established in conformity with global target for forest, steppe, meadow, aquatic and paludous ecosystems and petrophyte ecosystems (BDCNSAP, SSDFS)	List of criteria and indicators of sustainable use of forests is elaborated and approved by Governmental Decision

Target 4.2. Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced	Is included in BDCNAP and other acts in the field. Currently are at stage of elaboration legal acts such as: Law on soil, Law on zootechny, Regulation on pasturing and mowing.	Law on animal kingdom (1995); Law on Plant kingdom (2007).
Target 4.3. No species of wild flora or fauna endangered by international trade.	BDCNSAP stipulates the requirements for protection of species. By the Law nr.1246-XIV of 28 September 2000 the Convention on the prevention of illegal trade in endangered species of plants and animals (CITES) has been ratified. Has been elaborated the Regulation on authorization of export and import activities of plants and animals from wild flora and fauna, their parts and derivatives, as well as the import/export and re-export of flora and fauna species. At the same were elaborated and adopted: Law on animal kingdom (2007) and modified Law on Animal kingdom (2005, 2007,2008), Forest Code (1996) which stipulate protection of wild flora and fauna species through regulation of their trade.	Number of permits/certificates and elaborated environmental agreements. Number of species and quantity of imported/exported plants.
Liquidation of factors which bring prejudice upon biodiversity		
Goal 5. **Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.**		
Target 5.1. Rate of loss and degradation of natural habitats decreased	BDCNSAP provides actions for stopping of degradation of existent natural ecosystems and initiation of processes for ecological restoration of habitats, most important for biodiversity.	Extension of protected area of steppe and meadow , creation of national parks „Orhei" and „Codrii Tigheciului".
Goal 6. **Control threats from invasive alien species.**		
Target 6.1. Pathways for major potential alien invasive species controlled	BDCNSAP and SSDFS include measures for watching the ways of penetrating of alien and invasive species. The project on combating of invasive species and ecological reconstruction of meadow forests from scientific reservation „Pădurea Domnească".	The surface of natural ecosystems affected by invasive alien species, the surfaces of restored ecological ecosystems
Target 6.2. Management plans in place for major	Global goal is reflected in NDCNSAP. Was elaborated the	Total number of invasive species;

alien species that threaten ecosystems, habitats or species	programme for combating of Acer negundo specie in forest ecosystems. Exist annual plans for American Maple extraction from the natural forest ecosystems.	surface affected by these species; applied measures.
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	Impact of climate change is evaluated, some measures were taken – afforestation of degraded lands; capacities of plant and natural ecosystem adaptation are evaluated; only some measures on maintenance of resilience of components of biodiversity – stopping of assessment meadows of small rivers and renewal of affected natural ecosystems.	Indicators are reflected in action plan on diminishing of impact of climate changes.
Target 7.2. Reduce pollution and its impacts on biodiversity	There are objectives established in National strategy on reduction and elimination of POPs in RM and NIP of Stockholm Convention on POP.	Indicators are reflected in National implementation plan of Stockholm Convention.
Maintenance of products and services provided by biodiversity with the goal of support in increase of population's welfare.		
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	Objectives included in NDCNSAP and in Strategy of sustainable development of the forest sector in the Republic of Moldova specifies obtaining of products of vegetal origin, protection of courses of water reservoirs. National strategy of agricultural and food industry sector development for the period of 2006-2015 stipulates promotion of obtaining of ecological products.	Functional structure of forests; conservation of genetic fund, protection of lands, water protection
Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained	Objective is stipulated in NDCNSAP: protection of natural forest resources, cynegetic resources, piscicol resources, genetic resources, resources of medicinal plants from spontaneous flora, resources of agricultural plants and domestic animals.	Number of used species, volume of collected products.
Protection of traditional knowledge, innovation and practice		
Goal 9. **Maintain socio-cultural diversity of indigenous and local communities.**		
Target 9.1. Protect traditional knowledge, innovations and practices	Global objective is reflected in NDCNSAP and other sector strategies for development of agriculture.	

	Protection of traditional knowledge, innovation and practices are assured in traditional agriculture of RM. The Nut Law was elaborated; the Programme of viticulture restoration for the years 2002 – 2020 is being implemented.	
Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing	The right of common use of benefits offered by forest ecosystems is stipulated in "Forest Code" – firewood, recreation, mushroom and medicinal plant gathering.	
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.**		
Goal 10.1. All transfers of genetic resources are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements	Law nr. 39 from 29.02.08 regarding protection of plant seeds creates legal framework necessary for application of International conventions for protection of plant seeds, agreements on commercial aspects of intellectual property rights. Law nr.293-XIII from 23.11.94 regarding copyright and Law nr. 412 from 27.05.99 regarding zootechny of the Republic of Moldova – animal's complement, banks of genes, genes.	The Republic of Moldova is member of FAO. MAFI is responsible for executing of requirements regarding fair use of genetic resources of plants and animals.
Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared with the countries providing such resources according to Convention on Biological diversity and related regulations.	Fair use of benefits arising from the commercial use of genetic resources is regulated according to Law nr. 39 din 29.02.08 regarding protection of plant seeds and Law nr. 412 from 27.05.99 regarding zootechny	
Provision of adequate services		
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**	The Republic of Moldova has benefited from financial support from GEF, Government of Netherlands, Denmark, Federative Republic of Germany, Japan in the process of implementation of CBD in a total	

of their commitments under the Convention, in accordance with Article 20	amount of 2500 thousands USD. NDCNSAP stipulate attraction of financial resources from donors in amount of 5799 thou. US dollars, including protection of forest ecosystems – 1734 thou. USD, protection of steppe ecosystems – 1197 thou. USD.	
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	To Republic of Moldova were transferred technologies of use of eolic energy, of purification of waste water use of which reduce impact upon biodiversity.	

Annex I. Country data and the details on the origin of present report

A. Republic of Moldova

Contracting Party	The Republic of Moldova
National Focal Point	
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Contact officer for national report IV (if different)	
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Submission of report	
Signature of officer responsible for submitting national report:	
Date of submission:	

Annex II. Information regarding process of elaboration of present report

The Fourth National Report on Biological Diversity in the Republic of Moldova has been elaborated by Biodiversity Office by the Ministry of Ecology and Natural Resources with financial support of United Nations Development Program.
In the process of elaboration of National Report IV have contributed the experts from Academy of Science of Moldova (Botanical Garden, Institute of Zoology, Institute of Ecology and Geography, Institute of Genetics), State University of Moldova, Ministry of Ecology and Natural Resources, Ministry of Agriculture and Food Industry, State Agency for Forestry "Moldsilva", non-governmental organizations (Ecospectru, Ecological Movement of Moldova, REC-Moldova, Ecomedia, Ecotera, Biodiversity Protection, "Natura" newspaper, NGO Biotica).

The main specialists involved in the process of elaboration of the National Report are as follows:
PhD. Alexandru Teleuta, project manager, generalization of the information, Botanical Garden (Institute) ASM
PhD. Andrei Munteanu, chief of the synthesis group; Institute of Zoology, ASM
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Alexandru Rotaru, local expert, Biodiversity office
Ion Cotofana, local expert, NGO "Ecospectru".
Liliana Josan, synthesis of information, NGO "Biotica".
Alexandru Galupa, local expert, Institute of Forest Research and Arrangements

Annex III – Results of achievement of objectives in the context of Global Strategy for Plant Conservation.

In the Republic of Moldova the objective of Global Strategy for Plant Conservation are implemented according objectives of NDCNSAP and SDDSF.

Target 1. A widely accessible working list of known plant species, as a step towards a complete world flora.

National Strategy and Action Plan in the field of biological diversity conservation stipulates the protection measures for vegetal world. The data base http://bsapm@dnt.md reflects the total list of plant and animal species from the territory of the Republic of Moldova. The Botanical Institute and (Academy of Science of Moldova) performed research on composition of spontaneous flora of RM and have initiated the works on editin of series of books on "Flora of RM" containing 6 volumes.

During the period of 2005-2008 the Ministry of Ecology and Natural Resources in common with the Academy of Science of the Republic of Moldova and "Stiinta" Publishing House, published four volumes from the series "Vegetable World of Moldova"; first volume "Mushrooms. Plants without flowers" and second "Plants with flowers –I", third - "Plants with flowers –II", fourth - "Plants with flowers –III".

Botanical Institute of ASM published monograph "Medicinal Plants" which includes description of widely spread medicinal plants from spontaneous flora of Moldova.

Legal measures for achievement of target are: adoption of Law nr. 1538 – XIII of 25 February

1998 on State Protected Natural Areas Fund provides protection for 269 rare floristic species in accordance with IUCN classification. Was adopted Law on vegetal kingdom nr. 239-XVI from 8.11.2007

As indicators for monitoring of progress made towards target is used research programme of flora and calendar of publishing of series « Flora of RM» composed of 6 volumes. Accumulated materials will be used for new edition of European Strategy on Plant Conservation (2008-2014).

Among major obstacles for achievement of progress in fulfillment of present task can specify lack of financial and logistical resources, including means and soft programs for compiling of database on taxonomic inventory of flora in RM.

Target 2. A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.

Scientific institutions of the Academy of Science of Moldova are conducting researches in scientific and natural reserves towards the conservation of plant species. Thus the taxonomic composition of spontaneous flora has been determined and published "Determinant of spontaneous plants of Moldova " (2007)

BDCNSAP stipulate measures for protection of plants known at national and regional level.

The list of plant and animal species of national and international importance, which need prioritized protection, has been elaborated. In this list there are plant and animal species included protected also by the Convention on the conservation of wild flora and fauna and their habitats (Berna, 1979), Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979) and Convention on the prevention of illegal trade in endangered species of plants and animals (CITES, Washington, 1973). As for the national level – the endangered species and those included in the Red Book of the Republic of Moldova.

The Red Book of the Republic of Moldova (second edition from 2001) includes 117 plant species, 9 mushroom species. From the total number of endangered species, 48 species are characteristic for forest ecosystems, 32 – for steppe ecosystems, 19 – for petrophyte ecosystems, 18 – for meadow ecosystems and 4 for aquatic and paludous ecosystems. Some of plant species, leaving on the territory of the Republic of Moldova, are included in the European Red List: Maidenchock (Cypripedium calceolus L.), Water chesnut (Trapa natans).

According to the Law nr. 1538 – XIII of 25 February 1998 on State Protected Natural Areas Fund, about 269 rare floristic species, delimited according to the IUCN classification, have been taken under protection.

Target 3. Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.

This target is reflected in Law on Plant kingdom nr. 239-XVI from 08.11.2007, which establish legal framework in the field of conservation, protection and use of objects of vegetal kingdom as well as duties of public authorities and scientific institutions in the sphere. Botanical Garden (Institute) of ASM has elaborated new modes and procedures of more efficient protection of plants from state protected natural areas and valuable natural ecosystems.

Target 4. At least ten percent of each of the world's ecological regions effectively conserved.

BDCNSAP stipulate the extension of network of natural areas protected by state up to 2,36% out of the total territory of the country (80 thousand ha) that can assure the protection of 50% from the total of species reflecting the taxonomic diversity of the structure of biological systems. At present 4.65% of country's territory consist of protected areas, such extend was possible due to addition of 3 wetlands of international significance. At the same time it is planned in the next 3 years to create first national park in Moldova which will lead to increase of system of natural protected areas with about 20000 ha.

According to the Law nr. 1538 – XIII of 25 February 1998 on State Protected Natural Areas Fund, the fund of natural areas protected by state, delimited according to the IUCN classification, includes 5 scientific reserves with a surface of 19378 ha, 130 monuments of nature with a surface of 2906,8 ha, 63 natural reserves with a surface of 8009 ha, 41 landscape reserves with a surface of 34200 ha, 13 resource reserves with a surface of 523 ha, 32 areas with multifunctional management with a surface of 1030,4 ha and 3 wetlands of international significance with total surface of 90750.8 ha.

Target 5. Protection of fifty percent of the most important areas for plant diversity assured.

Level of protection of existing natural ecosystems in Moldova represents the following: forest- 18,8%; sttepe and meadow – 0,40%; meadows – 19,6%; aquatic and paludous ecosystems – 2,1%.

The total surface of forests in the Republic of Moldova is 362,8 thousand ha, from which natural forests occupy a surface of 175 000 ha or almost 42% of precious sectors, which need to be taken under the state protection.

Characteristic for the national network of protected areas is the fact that 89,5% from its total surface, respectively 59495 ha, are situated in the forest sector, representing 18,8% from the total surface of the national forest fund.

BDCNSAP and the First National Report on Biological Diversity stipulate an increase of the forest surfaces from 9,6% to 15%, of steppe ecosystems - from 1,92% to 2,5%, of meadow ecosystems - from 3,0% to 3,52%, of aquatic and paludous ecosystems - from 2,8% to 3,3%.

There are measures undertaken for extension of natural areas protected by state in steppe and meadow ecosystems.

At the same time are undertaken measure for extension of forest surface which during the period of 2002-2008 has been extended with 60 000 ha.

Target 6. At least thirty percent of production lands managed consistent with the conservation of plant diversity.

As national objective this target is not stipulated, however in the Republic of Moldova there are measures undertaken for implementation of biological agriculture methods and integrated technologies, withdrawing of degraded fields from the agricultural circuit and their amelioration. It is being practiced the alternation of annual and multi-annual crops, of weeding and non-weeding crops, of grained crops with beans etc.

BDCNSAP stipulate actions for stopping of agricultural fields extension, increase of the mosaic of agricultural ecosystems by practicing mixed crops, application of optimal ecologic alternation of annual and multi-annual crops, creation of biocoenotic oases and forest bands for protection.

By practicing crop rotation introduction of some untraditional agricultural crops created live conditions for diverse taxonomic groups of wild animals – about 109 species. In agrocoenoses prevail rodents, which have adapted well, have enough food and their effective is increasing. Lots of birds are nestling in open fields.

Activities on ecological resoil of some abandoned quarries, of elimination of unused agricultural objects, etc. Forest surface has increased with 60000 ha. Obstacles: unstable policy regarding use of agricultural lands: initial tendency on parceling, then – tendency on consolidation of agricultural lands.

Target 7. Sixty percent of the world's endangered species conserved *In-situ*.

In-situ conservation of plant species in stipulated in BDCNSAP. The vegetal world of the Republic of Moldova includes 5513 plant species. From the total number of 250 endangered species in The Red Book of the Republic of Moldova (2002) were included – 117 plant species and 9 mushrooms species. From the total number of endangered species, 46 species are characteristic for forest ecosystems, 31 – for steppe ecosystems, 18 – for petrophyte ecosystems, 18 – for meadow ecosystems and 4 for aquatic and paludous ecosystems.

The state of vulnerable and endangered plant populations is in continuous decline. Lots of plant species growing on the territory of the Republic of Moldova become more and more endangered and need state protection. Also, there are irreversible phenomena of degradation of genetic variety at the level of specie and population that conducts to total disappearance of some taxonomic forms from habitats.

In BDCNSAP exists a list of species of international and national importance that need prioritised protection. The Republic of Moldova lacks state cadastre on vegetal kingdom and collection of plants from natural ecosystems is poorly monitored.

Target 8. Sixty percent of endangered plant species in accessible *Ex-situ* collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programmes.

BDCNSAP stipulates ex-situ conservation of biodiversity outside of their natural habitats, including museum collections.

Prioritized measures taken are:

- registering and evaluation of cultivated plants, domestic animals and microorganisms, their certification and providing with necessary funds;
- optimization of institutional capacities of cultivated plants banks of genes;
- conservation of species in botanical and zoological gardens, assurance of their survival and reproduction in natural ecosystems, especially, of rare and endangered species.

Currently evaluation and ex-situ conservation of species of plants and animals is done by Botanical Garden (institute) of ASM and other affiliated institutions. Collection of Botanical Garden (institute) of ASM includes approximately 10.000 of taxons, including 150 rare species from natural ecosystems of RM.

Collection of agricultural plants is composed of about 70 thousands of seeds, hybrids, lines and local forms. National collection of microorganisms is composed of 500 taxon-bacteria, mushrooms and algae.

Obstacles: Limited financial support for collection, maintenance and research in the field of rare plants in ex-situ collections.

Target 9. Seventy percent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained.

BDCNSAP stipulates conservation of genetic fund. Conservation of genetic variety is made possible trough two ways: in-situ and ex-situ. Conservation of genetic resources of cultivable plants and domestic animals is the objective of the respective sectoral institutions (species collections, sorts, forms, races etc.). Population in individual agricultural farms realizes conservation of local genetic resources. Preferable are local forms of beans, corn, sunflower, grapes and fruit trees resistant to negative biotic and abiotic factors. Normally, this process is passive and some forms get lost. In frames of Institute of Genetics and Physiology of Plants of ASM performs its activity Center of Vegetal Resources, which duties include collection and storage of seeds of different culture's species.

It was revealed that 43 species of spontaneous flora represent close relatives of plants cultivated in the country.

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

BDCNSAP describes alien invasive species.

Presence of invasive species in the natural ecosystems indicates the tendency on synantropisation of the flora of the Republic of Moldova. Intense human activity provoked the invasion of synantropic species in agricultural ecosystems and in degraded natural ecosystems, which slows down the processes of natural development and restoration of natural biocenoses. Synantrope flora is consisted by 3 main groups: ruderal, segetal and adventive. The specific diversity of these groups counts about 463 species. Weeds – plants with an aggressive character – constitute 114 species. The group of quarantine species (11 species) affects, especially, the natural terrestrial ecosystems, pastures, and degraded and agricultural ecosystems. A considerable treat for forest ecosystems presents the American Maple (*Acer negundo*).

In the Republic of Moldova there is no national policy concerning alien invasive species and the eventual risk for natural ecosystems, habitats and native species has not been estimated.

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

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, Washington, 1973) was ratified by Law nr.1246-XIV of 28 September 2000.

The Ministry of Ecology and Natural Resources on 25.01.2002 approved the Procedure (regulation) on authorization of export and import activities of plant and animals from wild flora and fauna, of their parts and derivatives, as well as of import/export and re-export of flora and fauna species regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Activities for export or import of plants and animals from the wild terrestrial and aquatic flora and fauna, of some of their parts and products alive, fresh or semi-fabricated, can be organized and carried out by physical or judicial persons on a base of the respective environmental CITES Permit/license, issued according to the provisions of the Procedure (regulation) on authorization of export and import activities of plant and animals from wild flora and fauna, of their parts and derivatives, as well as of import/export and re-export of flora and fauna species and according to current procedures and norms for customs, veterinary and phytosanitary control.

Target 12. Thirty percent of plant-based products derived from sources that are sustainably managed.

Increase of plant-based products derived from sources that are sustainable management is reflected in BDCNSAP. At the same time cultivation of grains, viticulture and fruit-farming widely applies advance technologies, which include components of ecologic agriculture with sustainable management.

The Strategy on Sustainable Development of the Forest Sector in the Republic of Moldova (SSDFS) provides the obtaining of products of vegetal origin.

Subordinated institutions of the Central authority for forestry process 25 thousand cubic meters per year, or 7% out of the total timber mass ingathered in forests of the Republic of Moldova. The variety of timber products are limited to parquet, technologic matchwood, planking, charcoal, barrels, pliers and other similar objects that can not bring essential profit for the branch and national economy in general.

The annual potential of forests of the Republic of Moldova regarding accessory products, as fruit and forest berries, nuts, mushrooms, medicinal plants etc., are estimated at about 4 thousand tones.

Annually, the forest sector brings to national economy an income of 34-35 millions is about 0,3-0,4 % of (Gross Domestic Product (GDP).

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.

Implementation of this target is not actual for the Republic of Moldova, however Governmental Programme „Satul Moldovenesc" include some separate parts relevant to the target.

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

The diversity of plants has been described in "Vegetal World the Republic of Moldova" in 5 volumes (1986-1989), "Botanical researches" in 9 volumes (1981-1990) and "Vegetation of the Republic of Moldova" (1995), "Plant kingdom of Moldova" in four volumes (2005-2007), Medicinal plants (2008), Dendrology (2009).

BDCNSAP and SSDFS of the Republic of Moldova include educational activities and activities for public awareness.

The Law nr.982-XIV of 11.05.2000 on access to information constitutes the general normative

framework of the access to official information.

There have been approved: the Regulation on public involvement in the process of elaboration and approval of environmental decisions and the Regulation on consulting the population in the process of elaboration and approval of documentation for territory planning and urbanism.

Mass-media published sets of laws in Romanian, English and Russian languages. The Convention on Access to Information, Public Participation in the Decision-Making and Access to Justice in Environmental Matters (Aarhus, 1998), ratified by Parliament Decision nr. 346-XIV of 7.04.99 is applied.

Newspapers „Natura" and „Mediul ambiant" are specifically dedicated to environmental protection and biodiversity. Annually take place different olimpiads and local, raional and national contests on environmental protection including the role of plants and their conservation.

The access to the information is not completely assured, because of the lack of complete database concerning the environmental information.

Target 15. The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.

BDCNSAP and SSDFS of the Republic of Moldova stipulate modernization of the system for professional training and increasing of qualifications of personnel.

Linked to the Moldova State University, there has been created a National Centre for training of the personnel from the environmental field. There are programmes elaborated according to the respective curricula.

Training of personnel in the field is possible in the institutions for superior education: the Moldova State University, the Tiraspol State University located in Chisinau, the Agrarian State University of Moldova, the State Medical and Pharmaceutical University of Moldova „Nicolae Testemițeanu", Technical University of Moldova and the Free Independent University of Moldova (ULIM).

Every year there are specialists instructed in the following fields: biology-134; pedology-17; geografy-117; ecology-30; water protection- 14; environmental law-13; forestry-15; pisciculture-12.

The Ministry of Ecology and Natural Resources in cooperation with the international institutions (World Bank, TACIS Programme) organises trainings for specialists from different environmental protection and biodiversity areas. The realization of different projects for implementation of international conventions, to which the Republic of Moldova is part, also includes seminars and trainings.

Recently were founded Lyceum and University of Academy of Science of Moldova which prepare qualified staff in different field, including in ecologic sphere.

Professional training of forestry workers according to modern requirements oblige support of formed recently educational system in silvic sector, provision of educational institutions with venues, modern equipment, experimental facilities, manuals and other didactic materials.

Target 16. Networks for plant conservation activities established or strengthened at national, regional and international levels.

Implementation of this target is stipulated in BDCNSAP chapters "Improvement of policies, legal and institutional framework".

At present international relations regarding conservation of plants is extending and becoming diverse. Scientists and academia from the Republic of Moldova participate in implementation of European Strategy for Plant Conservation through European organization

„Planta Europa". Successfully being implemented international projects in the sphere of biodiversity conservation and reduction of environmental pollution from agriculture and other.

It is necessary to continuously develop international cooperation and coordination in this sphere, especially with the neighbor countries.

Annex IV – Activities implemented for fulfillment of goals and objectives of Working Programme on Protected areas, adopted by COP Decision VII/28

According to Convention on Biological Diversity requirement the Republic of Moldova has created a system of state protected natural areas, elaborated regulations regarding organizational structure and field of activities, adopted classification of state protected natural areas according to IUCN criteria which were introduced based on the Law on Natural Areas Protected by the State (1998).

BDCNSAP outline as objective development of protected area system, optimization of its management, inventory of biodiversity of protected areas and evaluation of efficiency of activities for its protection.

In Moldova the first official list of zones with the status of reservations appeared in 1993. During Soviet period environmental protection duties were executed by special state committee, founded in 1968. First natural reservation "Codrii" was founded in 1971. Presently protected area fund consists of 157 227 ha which represent only 4,65% of total country's territory. Wetlands of international significance occupy predominant position from surface point of view (57,72%), followed by Landscape Reserve (21,76%) and scientific reservation (12,33%).

Protected areas in the Republic of Moldova are classified according to IUCN categories and namely:

I: Scientific reservation: protected area administrated mainly with scientific purposes;
II: National park: protected area administrated for protection of ecosystems and recreation
III: Natural Monument: protected area administrated for conservation of specific natural characteristics and trends;
IV: Nature Reserve: protected area administrated for conservation through intervention;
V: Landscape Reservation: protected area administrated mainly for conservation of landscape of recreation zones;
VI: Resource reservation: protected area administrated mainly for sustainable use of natural ecosystems;
VII Multifunctional management area.

Conservation of natural ecosystems, biological and landscape diversity will be assured through National Ecological Network (NEN) which is presently in the course of establishment in RM. Placement of main components of ecological network is defined by Ecological Network Scheme, elaborated by Ministry of Ecology and Natural Resources.

Main ecosystem components of protected areas system.

1. Forest ecosystems

In habitat of forest ecosystems there is a significant number of rare species. Under state protection are taken 151 species out of which 58 are included in the Red Book of Moldova (2002): critic endangered (CR)- 21 species, endangered (RO) – 18 species, vulnerable (VU) – 19 species. Special significance represent 18 species which area rare for Black Sea region (north) and are included in the Red Book of Moldova and Ukraine and the Red List of Romania - *Astragalus dasyanthus* Pall., *Bulbocodium versicolor* (Ker-Gawl.) Spreng., *Cephalanthera damasonium* (Mill.) Druce, *C. longifolia* (L.) Fritsch, *Cephalanthera rubra* (L.) Rich, *Colchicum triphyllum* G. Kunze, *Cypripedium calceolus* L., *Euonymus Nana* Bieb., *Galanthus elwesii*

Hook.fil. , *G. nivalis* L., *G. plicatus* Bieb., *Gymnospermium odessanum* (DC.) Takht., *Leucojum aestivum* L., *Nectaroscordium bulgaricum* Janka, *Orchidee morio* L., *O. purpurea* Huds., *Ornithogalum oreoides* Zahar., *Pulsatilla grandis* Wend . The habitat of forest ecosystem includes 38 relict species.

Out of total surface of protected areas from forest fund, share of naturally found forest is only 42%. From derived forests (30,3%), approximately 50% are completely derived which practically have none of silvoformant species (oak, fagus, etc). This data confirms the need of execution of complex of works related to reconstruction of arbors situated at inadequate station, based on protected area management objectives.

2. Steppe ecosystems.

In the Republic of Moldova natural or virgin steppe were widely spread and occupied in the 19th century about 80% of country's territory. Presently the natural steppes are practically destroyed due the agricultural use of these territories. Currently in frames of some agricultural lands (declines, inaccessible lands for agricultural equipment, degraded or inefficient for cultivation) can be found small sectors with steppe vegetation with the total surface of 80000 ha.

In ecological legislation of the RM as sectors of primary or virgin steppe vegetations are indicated Bugeac (4 ha), from village Dezghingea ATU Găgăuză (15 ha), village Vinogradovca raion Taraclia (50ha), Forestry Copanca and Forestry Bender from raion Căuşeni (71 ha). As well ecologic legislation stipulate sectors of steppe vegetation as "reservations of medicinal plants" – from village Bugeac UTA Găgăuză (56 ha), Foresty Larga, ForestryCahul (343 ha).

In special literature are presented other territories with steppe vegetation, which are not protected by state and namely: Kneazevca II (15,25 ha), Hănăsănii-Noi (20 ha), Stoianovca (5 ha) and Toceni (10 ha), villages from raion Leova , Cantemir and other.

Sectors of steppe vegetation are presented by thermopile species from Eurasian zone. The Republic of Moldova represent the far eastern flank of Eurasian steppes. Main species of steppe ecosystem are: *Stipa capillata* L, *S. Lessingiana* Trin. Et Rupr, *S. ucrainica* P. Smirn., *S. dosyphylla* Liudm, Trautv., *S. pennata* L., *S. pulcherrima* C Koch, *S. tirsa* Stev., *Festuca valesiaca* Gandiu. Dominant abundance of poacee indicate level of degradation of steppe ecosystem's vegetation. There are *Botriochloa ischuemum*, (L.), Keng, *Poa angustifolia* L, *Elytrigia repens* L. Nevski, *Bromopsis riparia*, Relim, *B. inermis*, Leys). Flora of natural protected steppe areas includes 422 species of vascular plants, 42 of which are rare or endangered, and 10 are included in the Red Book of RM. Landscape value of Moldovan steppe can be completed with rare species of plants, included in Red List of Europe: *Colchicum fominii* Bordz, *Galirun moldavicum* - Dobcescu, Franco, *Pulsatilla grandis* Waut, *P. patens* (L.) Lill, *Veronica luxina* Turril, (Pînzaru, 2002).

3. Meadow ecosystems.

Presently surfaces with primary meadow ecosystems doesn't exist. Within the past 40 years the natural meadow ecosystems have been destroyed on a surface of about 200 thousand ha. At present they only occupy about 101 thousand ha (3% of the total area of the republic). The rest of primary meadow vegetation can be found only alongside rivers Prut and Nistru.

Flora is composed of approximately 650 species, more widely are present the following: *Poa, Alopecurus, Gliceria, Carex, Medicago and Trifolium*. As a result of anthropogenic activity 28 species became rare and is constantly increase the number of *Asteraceae ruderale*, which contribute to the decline of diversity of species and forage value of meadows. Approximately 70 associations have registered in meadow ecosystems.

The total number of 647,7 ha of meadow and steppe vegetation is taken under state protection which forms about 0.40% of total meadow ecosystems. Main impact of anthropogenic activity upon meadow biodiversity and biocenosis is the drainage of wetlands for excessive agriculture and pasturing purposes. M The great part of meadow ecosystems that remained on fragmented territories are strongly degraded and are often occupied by secondary biocenosis with ruderal and halophytic plants.

Approximately 88 species of terrestrial vertebrate (23,2% of total number in RM) are registered in meadow ecosystems. As a result of loss and degradation of habitat a certain number of vertebrate such as *Aquila rapax*, *Tetrax tetrax* and *Anthropoides fecioara* has disappeared from meadow and steppe ecosystems at the territory of RM. Other species *Otis tarda*, *Glareola praticola* and *Circus macrourus* do not longer nest in Moldova. Due to negative impact a series of species such as *Crex crex*, *Porzana porzana*, *P. pusila, P. parva, Circus cyaneus, Spermophilus citellu*s şi *Mustela eversmanni* became rare in steppe and meadow ecosystems of RM and were included in the Red Book of Moldova.

Extension of protected areas system.

BDCNSAP stipulate extension of surface of PAS section up till 80000 ha until 2015, in reality this indicia has been already exceeded, currently the surface of PAS consists of 187 227 ha. Until today were included or suggested for inclusion in the Law on Natural Protected Areas by State the following objects: agreement and recreation park „Valea Morilor" from mun. Chişinău, Cave Surprizelor from town Criuleni and one sector of reservoir lake Dubăsari. Currently are at scientific evaluation stage on assignation of PAS statute are 4 forest sectors. Great share of BDCNSAP priorities were implemented by Biodiversity Office within Ministry of Ecology and Natural Resources. The project on "***Improving coverage and management effectiveness of the Protected Area System in Moldova"*** was elaborated, which has the main objective of extension of surface of PAS in Moldova with about 20000 ha through creation of First National Park in raion Orhei through consolidation of fragmentary protected areas.

The zone of National Park Orhei is situated in Codrii region at central part of Moldova. In this zone the main protected areas are the following: natural forest rezervations - Cobîleni (33,5 ha), Vîşcăuţi (24 ha); Landscape reservations Pohrebeni (1049 ha), Trebujeni (500 ha); Resource reservations - cernoziom of central silvic zone (4 ha); representative meadow sector with coppice (10 ha), park in village Ivancea (3 ha); nature monuments (geological and paleontological): settlements of reliquae vertebrate from Pocşeşti (2 ha), clough Orhei (100 ha), stone reef (3 ha), Stînca Mîgla (3 ha); hydrologic monuments –spring from village Cucuruzeni (0,5 ha), spring from village Izvoare (0,5 ha), spring from village Jeloboc (10 ha), with total surface of approximately 1742,5 ha. Mentioned above reservations represent natural complex of regional and global significance for conservation of numerous species of endangered plants and animas which are protected by State according to provision of Berna Convention (1979), Ramsar Convention (1971), Bonn Convention (1979), Habitat Directive of EU (1992).

At present in the Parliament is submitted the draft of law on inclusion in state protected area sector of the stream of Nistru river from town Dubasari until village Oxentea with the total surface of 1800 ha for attribution of status of state protected multifunctional area .

As a outcome of inventories and scientific evaluation of protected areas a number of proposals on extension of existing protected areas were made, including conducting of research and meetings with population from adjacent settlements to wetland from town Straseni regarding attribution to this sector of statute of wetland of local significance. However disagreement of population regarding this issue has postponed the process of establishment of new reservation.

With the goal of strengthening of regional network of protected areas in 2007 has been elaborated and approved *Law nr.94-XVI regarding ecological network*, along with elaboration and submission to Government of National Programme on Establishment of Ecological Network.

With the purpose to confirm the scientific value of protected areas the scientific reevalution of protected areas at raions Briceni and Ocnita was conducted. Were elaborated passports for each protected object, which soon will be published.

From National Ecological Fund were financed projects on renovation of parks from v. Ţaul and v. Mîndîc and project of scientific evaluation of new territories suggested to be taken under state protection.

Academia of Botanical Garden (Institute) of ASM have identified a set of natural areas from steppe and meadow ecosystems, which represent interest for biodiversity conservation and have proposed measures for their protection. Draft of national programme on creation of Ecological Network in RM envisages significant extension of natural protected areas fund.

Objectives and indicators regarding protected areas

Objectives regarding protected areas, stipulated in BDCNSAP are as following:

- extension of protected areas fund of RM with approximately 15 000 ha until 2015;
- observance of protection regime of protected areas of II-VI IUCN categories;
- extension of protected areas fund at steppe, meadow and paduous ecosystems;
- improvement of representation and compliance of protected areas to the requirements on conservation of biological and landscape diversity;

In Regulation, approved by Governmental Decision nr. 803 din 19.06.2002 is stipulated procedure on institution of natural area protected by state.

Main indicators on attribution of statute of state protected natural area are: number of rare species of plants and animals included in the Red Book of Moldova, relief and landscape representative from ecologic and esthetic point of view, presence of unique elements on its territory.

For some protected objects are elaborated programs and plans on recovery and conservation approved by Governmental Decisions. Similar plans were approved for scientific reservations „Codrii", „Pădurea Domnească", „Plaiul Fagului", „Prutul de Jos", park in village Mîndîc, park in village Țaul, Landscape reservations „Țipova" şi „Saharna", „Țigăneşti", „Căbăieşti - Părjolteni", „Temeleuți", „Trebujeni", „Dolna", „Cantemir", „Antoneşti", and other.

Plans include restoration of native vegetation, reconstruction of lakes and affiliated territories, dendrological inventory of forest vegetation and elaboration of measures for restoration of vegetation according to initial state. Plans include terms for taking measures, responsible institutions and necessary financial sources.

Methods, standards, criteria and indicators necessary for evaluation of efficiency of protected areas management and their regulation.

An important role in evaluation of efficiency of protected area management belongs to ecological monitoring. As the method for evaluation of efficiency in monitoring of protected areas is used monitoring of vegetation dynamics, abundance and vitality of populations of endangered plants and animas and other dominated species on respective ecosystems.

One of the instruments of ecological management used in the Republic of Moldova is standards ISO 14000 which directly or indirectly include management of protected areas and biodiversity in ensemble. For evaluation of efficiency of protected area management there is a set of other tools however the main are the following: surface of protected area and regulation on protection according to law.

State control on observance of protection regime in protected areas is conducted by State Ecological Inspectorate jointly with local public administration, legal and internal affairs bodes. In case when contravention are revealed special protocols are elaborated and presented to party.

The principle "Polluter Pays" has been introduced.

At the same time is it necessary to continue research in the sphere of evaluation of impact upon biodiversity, methods of management of protected areas, including elaboration of recommendations regarding restoration of degraded natural areas taken into consideration their value and possibility of population's involvement in such activities as well as other modifications in national legislation.

Sustainable financing of national system of protected areas.

At present the Republic of Moldova lack plan on sustainable financing of protected areas. According to current national legislation financing of objects from protected areas fund (scientific reservations, national parks, biosphere reservations) is performed from state budget,

from extra-budgetary sources, from ecologic fund, from donations of legal and physical entities, including foreign and from other special sources. Other categories of protected areas are financed from local budgets, from national ecological fund, from sources of public landowners, from donations of legal and physical entities, including foreign and from other sources allowed by legislation. Annual scientific research programs of scientific reservations, national parks, biosphere reservations as well other categories of protected areas are financed from state orders and from special budgetary funds administrated by General scientific council of fund of natural state protected areas

It is necessary to mention that from state budget are allocated financial sources only for conducting scientific research. In general, protection, scientific reevaluation, inventory of protected areas as well as recovery in case of some situation were financial supported only from National ecological fund and from Global Environmental Facility.

Principles of conducting ecologic impact assessment (EIE) for projects and plans with the purpose of assessment of impact of present projects and plans upon protected areas.

Environmental impact assessment as well as evaluation of impact upon biodiversity is mandatory for all projects which intend to take complex and potentially hazardous for environment activities at the territory of RM.

Regulation on environmental impact assessment stipulate mode of elaboration, coordination and approval of documents and includes List of objects and activities for which is necessary to conduct environmental impact assessment is elaborated mandatory at initial state of project drafting.

Facilities designed or put into commission without having positive feedback of state ecological expertise and for which the impact upon environment and population health is present will become a subject of ecologic audit according to provisions of Regulation on ecologic audit of enterprises. At the same time there is a procedures of ecologic express – audit at potentially hazardous enterprises, given to privatization or in case of change of owner. (according to Regulation on environmental impact assessment, approved by Governmental Decision nr. 394 din 8.04.1998). The main purpose of such audit is to evaluate and compensate damage caused to environment by previous activity of enterprise, elaboration of investigation plans and implementation of measures to avoid negative impact upon environment in the future. It is necessary to mention that all this document include special chapter which stipulate compulsoriness of environmental impact assessment upon protected areas and conservation of biological diversity.

Obstacles and barriers in implementation of working programme on protected areas.

In the Republic of Moldova the regime on protection of objects and complexes of state protected natural areas is not fully observed due to negative impact of cattle pasturing, mineral substances extraction, mowing, illicit cutting and poaching and because of following reasons:

- irresponsibility of local public administration and landowners regarding correct management of protected areas;
- low level of public awareness;
- lack of working places for local population from settlements near protected areas;
- contradictions in environmental legislation;
- reduced sanctions and penalties for committed violations;
- privatization of lands from natural protected areas;
- insufficient financing of activities in protected areas;
- disagreement of population (in some cases) regarding extension of protected areas;
- lack of lands for pasture extension;
- lack of integrated monitoring of objects of respective protected areas.