STATE OF THE FORESTRY OF THE REPUBLIC OF MOLDOVA

2006-2010

ANUL INTERNAŢIONAL AL PĂDURILOR • 2011

FLEG Forest Law Enforcement & Governance

AGENŢIA MOLDSILVA

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Abreviations

AEWA	Agreement on the Conservation of African-Eurasian Migratory Water birds
AFLEG	African Forest Law Enforcement and Governance
ALRC	Agency for Land Relations and Cadastre
ASM	Academy of Sciences of Moldova
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoE	Council of Europe
CSM	Common Standards Monitoring
CSP	Community Support Program
DNA	Designated National Authority
ENA FLEG	Europe and North Asia Forest Law Enforcement and Governance
ENPI FLEG	"Improving Forest Law Enforcement and Governance in the European Neighbourhood Policy East Countries and Russia"
EU	European Union
FCA	Forest Certification Association
FE	Forestry Enterprise
FLEG	Forest Law Enforcement and Governance
FLEGT	Forest Law Enforcement, Governance and Trade
FU	Forestry unit
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectares
ICAS	Forest Research and Management Institute
IS	Intreprindere silvica (Forest enterprise)
ISC	Intreprindere silvo-cinegetica (Forest-hunting enterprise)
IUCN	International Union for Conservation of Nature
LPA	Local Public Administration
m^3	Cubic meter
MCFP	Moldova Community Forestry Project
MDL	Moldovan Lie (National currency)
MSCP	Moldova Soil Conservation Project
MTRI	Ministry of Transport and Road Infrastructure
NAP FLEG	FLEG National Action Plan
NCCP	ENPI FLEG Program National Consultative Committee
NGO	Non-Governmental Organization
NPAC	National Program Advisory Committee of ENPI FLEG Program
NTFP	Non-timber forest products
RAMSAR	Convention on Wetlands of International Importance (Also Ramsar Convention)
SEI	State Ecological Inspectorate
UNFCCC	UN Framework Convention on Climate Change
USA	United States of America
WB	World Bank

INTRODUCTION

The General Assembly of the United Nations Organisation declared year 2011 – the International Year of Forests, in order to give an impulse to the efforts of promoting forests sustainable management, conservation and development at the global and local level. This event aims at at drawing attention to the ways in which one can contribute to the enhancement of the forests ecosystems, which represent about 31% of the land surface of the World.

Te issue of forest conservation is not something new. This has always been important and took as reference the level of development of the human society. Certainly, such a problem could not emerge when the human being was an organic component of the forest ecosystem, when he did not dispose of means of destruction. In order to expand to expand over new areas, people destroyed huge surfaces covered with forests, thus reducing their surface in some regions or countries below the limit of an ecological balance. Therefore, if during the gathering and hunting periods the influence was insignificant, during the shepherd and farmer phases, huge areas of forests were subject to deforestation and transformed in pastures and cultivated land. This process culminated in the industrialization and urbanization periods when the natural or cultured plant components were removed almost completely from vast territories. As a result of these developments, huge forest areas from the world have been gradually replaced by means of deforestation, fires, mining, and other actions with land for agriculture, gazing, industrial and transportation, construction and other uses.

In this context, it is important to note that these environmental changes have occurred during a very short period of time (compared to the evolution of life on earth), not always being based on rational grounds coming from knowledge of the laws of nature and human needs. Consequently, replacing forests with other needs generated important climate changes: variations in the temperature regime, rainfall and wind that caused catastrophic draughts or floods, extending desert and steppe areas, as well as areas with intense soil erosion processes, landslides and other.

Forest protection could help humanity achieve its most ambitious plans: reduce poverty, halt global warming and develop in a sustainable manner. Thus, forest play an indispensible role for the everyday life, providing air, food, water and even medicines that people need, support biodiversity, retain carbon dioxide, having a key role in climate change. Forests host about 80% of the variety of genes, species and ecosystems that constitute the life on Earth and provide livelihoods for nearly a quarter of humanity. The year 2011 sends an important message – forests are vital for the survival and wellbeing of people everywhere.

The International Year of Forests requires Agency Moldsilva, as a central forest authority to participate, along with those responsible for forestry activities in other countries of the world, in enhancing the role and importance of forests. In this regard, it calls for measures to strengthen the forest sector in Moldova, supporting entities and public authorities managing and administering forests in a sustainable manner, stopping deforestation, establishing, at the national level of afforestation sites to increase the country's forest area, forming a forest culture among the population in order to establish respect for the forest.

Currently, the forest area of the Republic of Moldova constitutes only about 11%. Consequently, an intensification of the soil erosion and land sliding processes is recorded, unfavourable change of the hydrological regime, continuous desertification of the environmental conditions. Forests are the main element of ensuring the ecologic balance in this region. That is why, the conservation and sustainable development of existing forests, as well as forest land extension, through afforestation of new areas not suitable for agriculture, is proposed to be a matter of national interest.

For the Republic of Moldova, the year 2011 offers the opportunity to appreciate and respect the forests created, managed and protected, sometimes even at the cost of life, by generations of foresters.

This report presents the situation registered in the national forest sector during the period 2006-2010, current problems as well as priorities and options recommended to improve the situation in the field.

1 GENERAL DESCRIPTION OF THE CURRENT STATUS OF THE NATIONAL FOREST LAND

1.1 Forest area

Human influence during the centuries on the world forest land led to their constant reduction. The history of forests in Moldova is slightly different from most countries in the world. The process of forest area reduction in Moldova was more intense. Since the existence of man, there have been destroyed about half of all forests on the earth, while in Moldova only the fourth or fifth part of the original forest area was preserved. Thus, the proportion of land area covered by forests evolved during the last two centuries from 30% to about 6% (year 1918), this being partially recovered after the war up to 11.4% (Figure 1). This indicator is well below the European average (about 30%), being close to the medium-term objective, set in a number of national policy documents and strategies (15%).

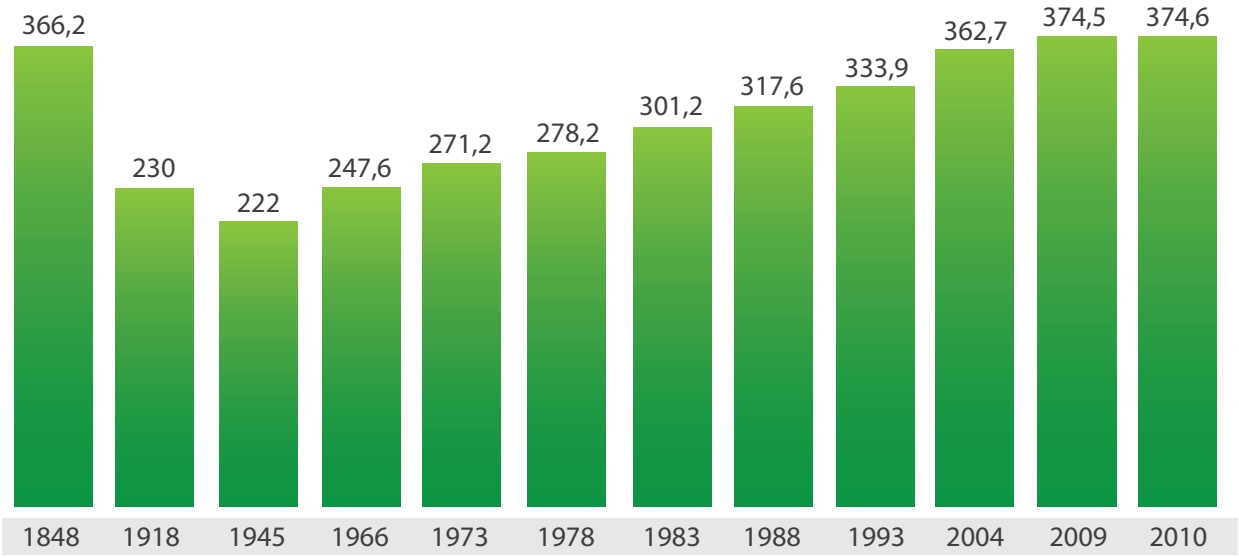


Figure 1. Evolution of land areas covered with forest in Moldova, thousand ha

Forests are currently estimated to cover 12.7% of the country territory (Table 1). Most of the land covered by forests (87.2%) is state-owned, the rest being owned by municipalities (12.2%) and only 0.6% - by private owners. Although, it has a relatively insignificant participation, the share of privately owned forests is constantly growing, this being effectively tripled as size and weight compared to year 2005.

The dispersion and fragmentation of forest resources, their uneven distribution across the country is a negative factor for exercising eco-protective influences that would be beneficial for the environment, creating comfortable living conditions for the population and providing wood and non-wood products.

Forests under management in administrative-territorial units (54500 ha or 13% of the national forest land) are of the category of forests for land and soil protection and protection against adverse climatic and industrial factors.

№	Category of owners	Total area thousand ha %	Area covered with forests thousand ha %
1	Forests owned by the state	362,0 / 86,4	326,4 / 87,2
2	Forests owned by the territorial administrative units	54,5 / 13	45,7 / 12,2
3	Privately owned forests	2,6 / 0,6	2,4 / 0,6
	Total:	**419,1 / 100**	**374,5 / 100**

Table 1. The structure of the national forest resources according to the general land Cadastre (as of 01.01.2010)

Present general characteristic of communal and private forests:

- small scattered bodies outside the built-up rural and urban areas;
- acacia is the main type of tree;
- the forestry regime is partially observed;
- only for about 15% there are forest management projects;
- care and management measures are applied on a case by case basis, with delays;
- are affected by grazing and illegal logging, pollution with waste etc.

Forest vegetation outside the forests includes:

- windbreaks located on agricultural land and in areas of rivers and lakes protection;
- protective forest belts and plantations of trees and shrubs located along roads;
- groups of trees and trees in the perimeter of cities and towns.

Moldova has 49100 ha of forest (Table 2) outside the national forestland, expressed by 29800 ha of protection forest belts (of agricultural fields, roads, rivers and lakes etc.) and 19200 ha - other types of forest vegetation.

Reference year	Forest vegetation outside the national forest land, ha		
	Plantations of trees and shrubbery	Protection belts	Total
2006	19558,9	30906,9	50465,8
2007	20156,9	30984,2	51141,1
2008	20531,8	30932,4	51464,2
2009	21226,8	30854,7	52081,5
2012	19234,6	29846,9	49081,5

Table 2. Area covered by forest vegetation outside the national forest land

1.2 Forests structure

Moldova's forest composition is dominated by broadleaf trees (97.8%), including oak - 39.6%, ash trees - 4.6%, hornbeam - 2.6%, acacia - 36.1%, poplar - 1.6% and so on, the coniferous being represented only in a proportion of 2.2% (Figure 2).

Oaks are the most valuable trees of the forests. Of their total area - about 27% come from seeds and 73% from sprouts. This distribution influences the productivity of oaks, about 43% of which are of higher productivity and 57% of lower productivity.

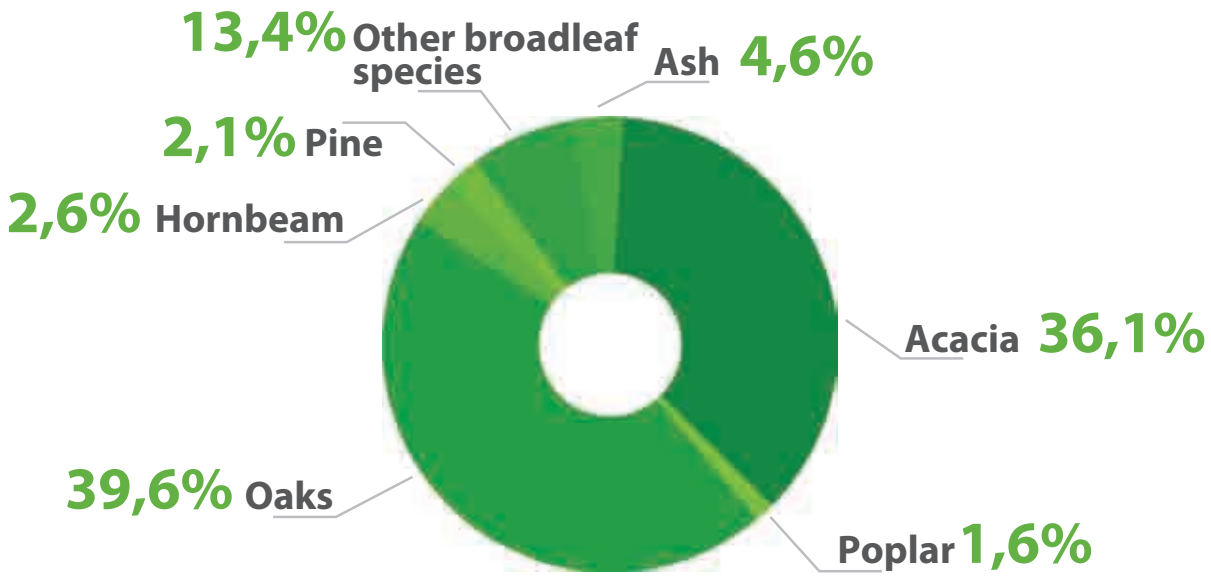


Figure 2. Distribution of forests by major forest formations, %

The total volume of standing timber in Moldovan forests is about 46 million cubic meters, which is about 124 cubic meters on average per hectare. The average growth of forests is 3.3 cubic meters / year / hectare and total average increase is about 1236 thousand cubic meters / year. The average production class is 2.3. The age structure of all forest species is unbalanced, especially those of lower productivity.

Forests in the Republic of Moldova are included in the I-st functional group, having exclusive features as environmental protection. In relation to the duties that fall upon them, there are five functional subgroups (Figure 3).

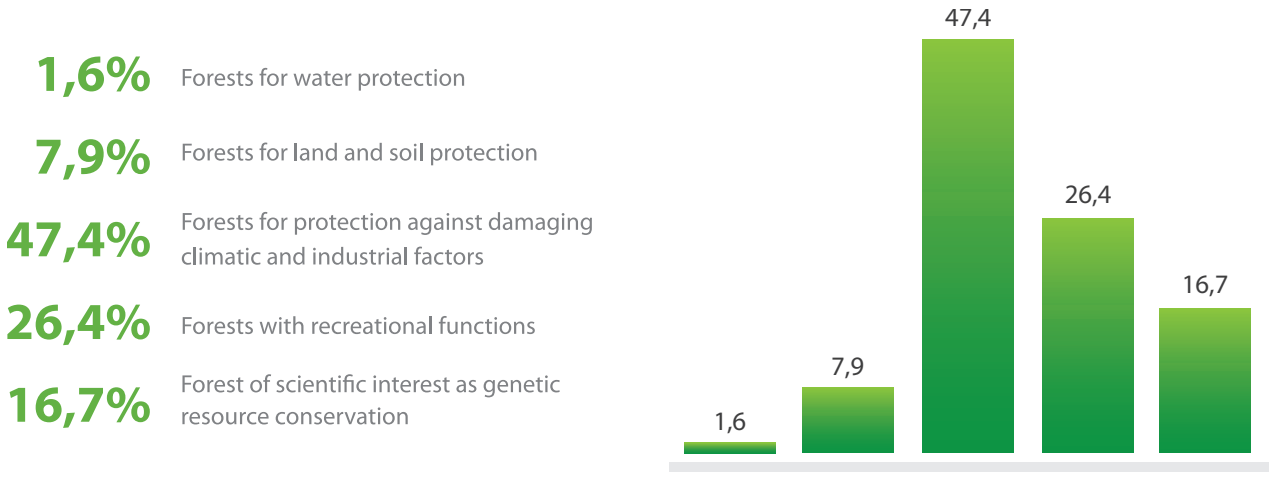


Figure 3.

Codri forests in the Central Moldova (Forest-hunting enterprise Straseni, Agency Moldsilva)

2 INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

2.1 Institutional framework

2.1.1 International institutional framework

Forest policy processes are globally developed and promoted through a series of agreements and forums, such as the United Nations Conference on Environment and Development (UNCED), the Intergovernmental Panel on Forests (IPF), the Intergovernmental Forum on Forests (IFF), United Nations Forum on Forests (UNFF), the Committee on Forestry (COFO) of the Food and Agriculture Organization (FAO) of the United Nations and International Tropical Timber Organization (ITTO). The enhancement of the political dialogue on forestry takes place due to actions undertaken by each state.

Global institutional framework. There are two trends of major changes in the international institutional framework: a globalization and a regionalization process. Current governance systems provide a clear definition of the relational framework between government, civil society and the private sector. At the IFF initiative, which recommended this to the Economic and Social Council (ECOSOC) of the United Nations, there was created a permanent intergovernmental organization - United Nations Forum on Forests (UNFF), which is accessible to all states and which meets annually at sessions at high level (high-level political debates relevant to the sector and debates on the sectoral policy with leaders of participating organizations within this partnership).

ECOSOC adopted a resolution in 2000 to promote an international agreement on forests in order to ensure the management, protection and sustainable development of all types of forest vegetation as well as long-term empowerment of political commitments. For the implementation of these actions, the Resolution set UNFF as a subsidiary of ECOSOC and also vested Collaborative Partnership on Forests (CPF) with commitments to improve cooperation and coordination of activities.

The World Bank, one of the largest global financial structures, has approved a new forestry strategy and policy, focused on ensuring living conditions for about 500 million people on the planet, who live in poverty and depend on forest resources, as well as forest protection and creation of an enabling environment for their development in transition countries. The World Bank policy on forestry focuses on three main pillars: (1) protecting the local and global services provided by forests, (2) providing a potential of forests to reduce poverty, (2) integrating forests into sustainable economic development.

The institutional framework of the European forest sector includes a number of organizations and institutions specialized in different sub-domains:

a) The UNECE Timber Committee (TC) is a major subsidiary body of the Economic Commission for Europe of the United Nations (ECE-UN), based in Geneva. TC provides a forum for cooperation and consultation among member countries in the field of forestry, wood exploitation and industrialization and other forest products other than wood.

b) the FAO/UN European Forestry Commission (EFC) was founded in 1947 and is monitoring the development of forest policy and related institutions, based on country reports presented at the biennial sessions.

c) Ministerial Conference on the Protection of Forests in Europe (MCPFE) is a high-level political initiative, which began in 1990 and involves 40 European countries, including the Russian Federation.

d) The conference "The changing role of state forests" is a series of annual conferences organized since 2000. The organizers of this conference series are the UNECE Timber Committee and the FAO/UN Forestry Commission together with one host country. This series of conferences is determined by the rapid changes in recent years in the forest sector, both in the institutional and organizational and business environment.

Forest policies and institutions in Europe. In almost all European countries national forestry policies have been included in a review process, which resulted in changes at the institutional level and in legal framework change. In summary these changes are:

- initiation of national forest programs as a result of a participatory process through a holistic approach and by involving all stakeholders from the forestry sector;
- continuous adaptation of national forest policies, according to the results of international policy dialogue at global or regional levels and the decisions taken at these levels;
- profound change of forest policies in countries in transition, especially in relation to diversification of the ownership status, problems related to the support and guidance to thousands of small forest owners;
- active participation of European countries in establishing a set of common criteria and indicators that meet local needs and conditions in the pan European process (MCPFE) as well as their development and implementation for a sustainable forest management;
- implementation of certification schemes by the coexistence of national and international systems (FSC and PEFC). The major problem of European forestry is the economical viability of the European forest management.

The EU forestry strategy derives from Pan-European and global initiatives in the forestry field. Here, also taking into account the global discussions in the forestry field starting with the Rio Conference in 1992 and Agenda 21, continuing with the Conventions for the biodiversity conservation, the one regarding climate changes, Commission Sessions on Sustainable Development, we see that there is a whole series of new requirements and challenges that have been formulated to address forestry, including forest policies. It extends from sustainable forest management, via biodiversity and protected areas, to initiating national and regional forest programs.

These global discussions were raised by European countries. In this regard, the Pan-European Ministerial Conferences on Forest Protection have established the European forest policy orientation and framework in Strasbourg in 1990, in Helsinki in 1993, in Lisbon in 1998, in Vienna in 2003, in Warsaw in 2007, in Oslo in 2011.

Over 35 European countries have signed these resolutions. In the context the Helsinki Resolution 1 which refers to the general principles for sustainable forest management is mentioned, where the multi-functionality was incorporated into the concept of sustainable development, which gives this idea a significance that goes far beyond mere resource conservation. Closely related to this, the fol-

Training workshop on forest lease (forestry staff of Agency Moldsilva, Forest enterprise Chisinau)

lowing statement contained in the General Statement from Lisbon, expresses a fundamental political choice: "In the 21st century, the European forestry sector, (taking into account the social, economic, environmental and cultural functions) will increase its contribution to the sustainable development of the society, especially in rural areas, to provide renewable resources and environmental protection locally and globally. The ultimate goal being to achieve a constructive contribution to the management and sustainable development of forests within the Community, this strategy gathers all relevant commitments relevant to the Community, commitments which, together with the Member States, were signed since 1992, at international and Pan-European levels. The Strategy formulates:

- guidelines for national forest policies;
- support given to these policies for their implementation by the Community;
- relevant links between different policies of the Member States of the Community.

The Strategy formulates the requirement frequently formulated at international and European levels to perform and develop national forest programs by the Member States.

2.1.2 National institutional forest framework

In the Republic of Moldova, the institutions, organizations and businesses whose activity relates to forestry are: Ministry of Environment, State Environmental Inspectorate and regional environmental agencies, the Agency Moldsilva and subordinated forestry companies, local public administration authorities at regional and local level, state and private businesses in the field of forest products processing as well as holders of techniques and machines to work in the forestry sector, including forestry exploitation, local communities and public associations of ecologic and forest profile.

Ministry of Environment, in accordance with Government Decision No. 847 of 18.12.2009, is the specialty central body of public administration, which develops and promotes the state policy on environmental protection and rational use of natural resources, waste management, biodiversity conservation, geological research, use and protection of subsoil, hydro-amelioration, water resources management, water supply and sanitation, regulation of nuclear and radiological activity, state ecological control, hydrometeorology and monitoring of environmental quality.

Agency Moldsilva is the central public administration body on State policy in forestry and hunting in the country. The general task of the Agency is to implement the constitutional prerogatives and international ratified obligations of the Republic of Moldova on development, promotion and implementation of its policy in forestry and hunting, directed on the international trends of socio-economic sustainable development, rural development, rural employment, sustainable forestry, development, guarding, forests and wildlife protection, maintenance and conservation of biodiversity, professional training, access to environmental benefits and forestry research & education.

The main tasks of the Agency Moldsilva are:

a) Administration and management, through subordinated enterprises and organizations, of the forestry and hunting resources, that are public property.

b) Development and implementation of forests security and protection measures.

c) Organization of forest and hunting management, their review with a periodicity of 10 years.

d) Forest regeneration and afforestation of the managed forests, extension of land covered by forest and creation of forest belts for protection of fields and waters, erosion strips on a contractual basis.

e) Restoration of native forest biocoenosis through ecological restoration.

f) Ensuring natural forests biodiversity and continuity.

The structure of Agency Moldsilva includes 25 subdivisions, including 16 forest enterprises, 4 forest-hunting enterprises, 4 nature reserves, and Forest Research and Management Institute. Within these units there are employed 5245 employees, of which technical and engineering personnel constitutes 990 employees. The number of industry professionals is complemented annually with forest profile graduates from universities and colleges in the field.

The forestry institutional structure helps create effective conditions for interaction between forestry and other sectors of national economy, which would ensure the preservation, conservation, development and sustainable use of forests and other forest vegetation.

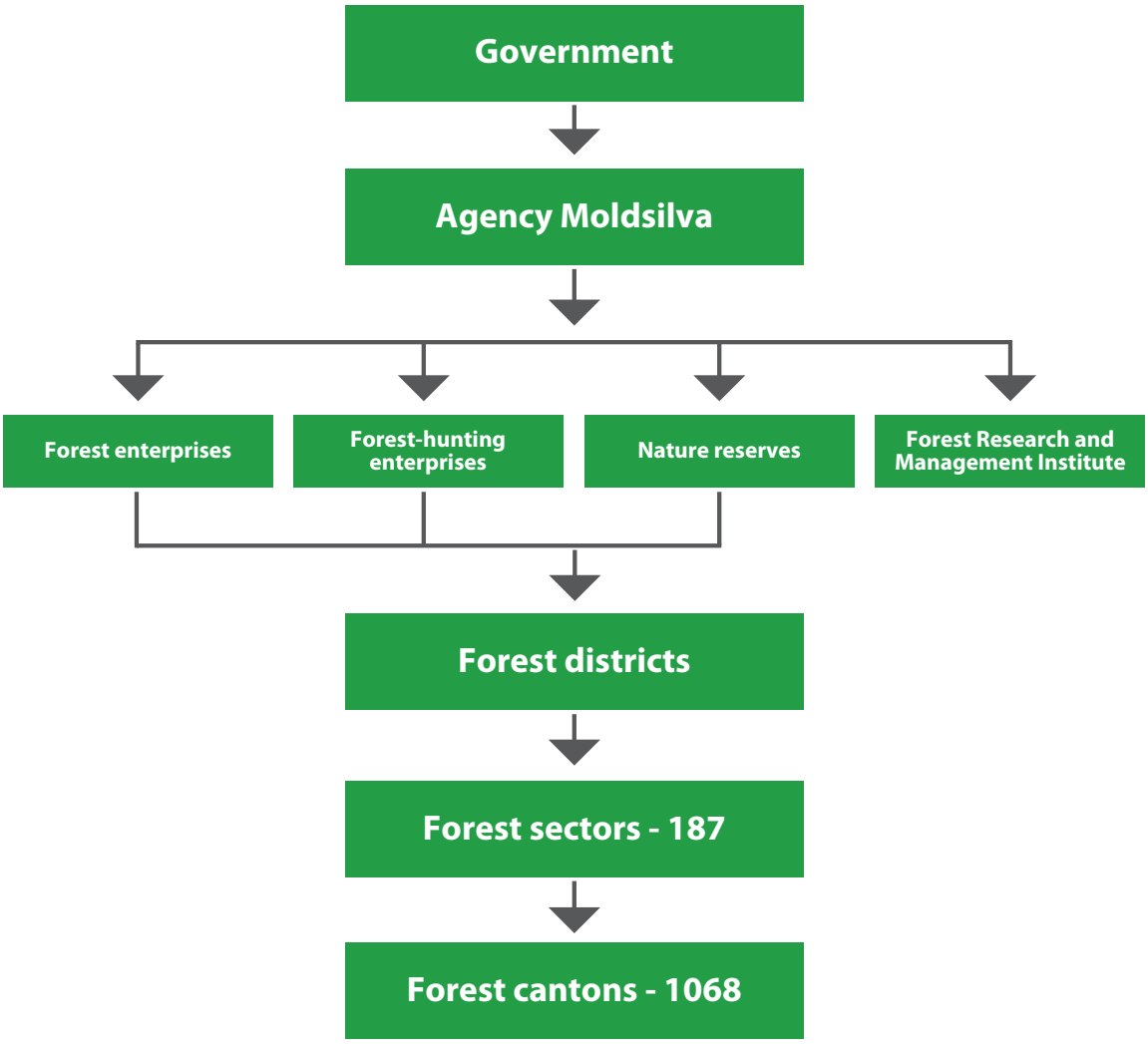


Figure 4. Organizational chart of Agency Moldsilva

Local public administration authorities own communal forests and forest lands other than those included in the forestry. In accordance with Article 9 of the Forest Code in force (No. 887 - XIII of 21.06.96) the responsibilities of the local public administration authorities are:

a) Exercise control over the condition, use, reclamation, security and protection of forest and wild life resources.
b) Distribution of forest land.
c) Registration the rights to manage and use the forest land.
d) Organization of state evidence of forest and state forest cadastre.
e) Supporting state forestry bodies in planning forest sector in leisure areas.
f) Liquidation of forest fires, together with state forestry authorities.
g) Liquidation of the consequences of forest fires and natural disasters together with the of state forest authorities.
h) Develop, coordinate and organize implementation, jointly with state forestry bodies, of local programs for sustainable development, use, regeneration and forest protection.

2.2 Forest management

In connection with the growing importance of forest complex and its global development trends there was launched forest management as a complex of principles, norms, rules, procedures and programs that determine the interaction of participants in the conservation and use of forests. The place of forest management in the national economy is illustrated by the fact that by its existence, forests make a vital contribution to meeting basic requirements for both individuals and human communities in general.

A considerable number of people find their services in forestry: forestry, wood exploitation and harvesting, wood processing industries, furniture, cellulose and paper. Without having the necessary data for each country, it can be confirmed that the forestry sectors provide between 6% and 29% of the total number of jobs in various countries in Europe, Africa and Asia, that is, according to the share value of wood-based products the second feature, which suggests the importance of forest management in many countries.

One cannot minimize another feature of the role of forest management at national and global levels, through significant importance of forests and forest trees as essential elements for environmental conservation and stability. Regardless of the degree of economic development, each country has its own problems related to environmental pollution, degradation of natural ecosystems, protection and conservation of genetic resources etc. Forests have in this regard an important purpose, foresters have a long and beautiful tradition in planning and management of forest resources, thus taking priority over those who are concerned with environmental protection and conservation.

It is important that for many developing countries, forest management, as an expression of all activities related to the exploitation of forest products, plays a crucial role in ensuring the continued production of food for rural communities and meeting their most basic needs.

Currently there are three key trends in forest management:

a) The globalization of policies and institutions in response to the increasing interest of the international community in the status of forest resources.
b) Streamlining forest management.
c) Widening the circle of participants in the decision-making process in forest management.

Forest management in Moldova is integrated in the national management system of the environment factors and must be continually improved.

Forest management comes to specify the ways of planning, organizing and implementing management measures and rational use of diverse forest products and services, ranging from the forestry production features, specific ecological, social and economic conditions of the country to ensure forest continuity and economic efficiency of forest enterprises.

Forest management includes, in a long-term vision, techniques and methodologies meant to ensure a quantitative and qualitative continuity of forest products and services and a greater efficiency of their use. Forest management in the modern economy requires radical changes and reforms in directing institutional capacity to solve many problems of forests and forest sector, creating economic and financial mechanisms for achieving strategic objectives, ensuring national priorities in this important area.

Strategic objectives in forest management in the Republic of Moldova are:

a) Updating the institutional framework to achieve a uniform and sustained implementation of forest sector development strategy.
b) Development of the forest sector regulatory framework.
c) Review and harmonize existing legislation on forest management.
d) Encourage the creation of communal and private forest sector.
e) Promote forestry sector privatization.

2.3 National legal framework

In recent years there have been developed and approved at different levels (Government, Parliament) a series of laws and regulations with direct references to the conservation and development of forests and the objects located on its land.

Given the aspirations of the Republic of Moldova on its path to European integration, the importance of adopting and implementing an environmental regulatory framework for the enforcement of the Regulation of the Council of Europe No. 338/97/CE of 9 December 1996 on the protection of species of wild fauna and flora to fully regulate trade therein and the European Council Directive No. 92/43/EC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna and to conserve and protect the vegetable kingdom, there was adopted Law No. 239 of 08.11.2007 on vegetable kingdom. Article 26 provides for a timber harvesting method in the process of cutting/collecting forest vegetation.

On 08 June 2006 Law No. 149 on fishery, fishing and fish farming, which regulates the conditions for the creation and protection of fisheries, reproduction, growth and acquisition of hydrobionts, improvement of fishery aquatic objects and fisheries development; establishes principles of public authorities' activity in managing aquatic biological resources was approved.

A number of Government Decisions were approved, some of which are:

1. Decision No. 8 of 03.01.2006 on certain measures to increase the production of nut crops.
2. Decision No. 1360 of 28.11.2006 on the approval of additional forest logging volume.
3. Decision on approving the List and costs of rendered services, for money, by the Agency Moldsilva and the Regulation on the formation and direction of the use of special means, No. 273 of 13.03.2007.
4. 4. Decision No. 618 of 04.06.2007 on the approval of the List of indicators for each criterion of the sustainable forest management. Sustainable forest management criteria are:

- criterion of maintaining, conserving and enhancing forest biological diversity;
- criterion of maintaining forest health and vitality;
- criterion of maintaining and enhancing protective functions of forests;
- criterion of maintaining and strengthening the productive capacity of forest resources, their contribution in the global carbon cycle;
- criterion of maintaining and fostering productive functions of forests (wood and non-wood products);
- criterion of maintaining other social and economic functions and conditions of the forests.

5. Decision on the activity of Agency Moldsilva in 2006 and in the nine months of 2007, No. 1381 of 10.12.2007.
6. Decision on the approval of the Technical Regulation "General rules of fire safety in Moldova" RT DSE 1.01-2005, No. 1159 of 24.10.2007.
7. Decision on approving the Regulation on the assignment, change of destination and land exchange, No. 1451 of 24.12.2007.
8. Decision on approving the Regulation on the rent of the forests for hunting and/or recreation management, No. 187 of 20.02.2008, which aimed at applying the provisions of Articles 26, 39 and 40 of the Forest Code (No. 887-XIII of 21 June 1996), Government Decision No. 739 of 17 June 2003 on the implementation of the Strategy for Sustainable Development of the National Forest sector, harmonization of national forest legislation with the EU legislation, as well as increasing efficiency measures for hunting herd reproduction, creating favorable conditions for public recreation on forest land.

The aforementioned regulatory acts will directly contribute to a better management of the national forest heritage, including the regulation of specific issues related to forestry activities under new conditions.

3 SUSTAINABLE FOREST MANAGEMENT

Sustainable forest management should be based on international guidelines, with the need to take account of the bio-ecological peculiarities of forests, with a view to the sustainable development of forestry, combined with the human society ones, in line with their territorial and zonal (local) profile. In such a way the environmental, economic, social and cultural dimensions of this approach will be ensured:

a) Conservation of biodiversity and natural heritage protection as indispensable means for sustainable development.

b) Potentiating protection and ecological functions of forests.

c) Increasing the contribution of forests and forestry to sustainable development.

d) Mitigating through forest measures of climate change at regional level.

e) Afforestation of degraded and abandoned lands.

f) Increasing the contribution of forestry to food security solution.

In the process of all stages of forestry management (planning, design, reproductive material insurance, methodological and technological assurance, achievement in the field etc.) the following general principles on conservation of forest ecosystems must be met:

1. Promote forestry on ecological bases:

a) monitoring quantitative and qualitative structural changes in forest biodiversity caused by the influence of a complex of environmental and anthropogenic factors, reflected by changes in the:

- area of natural forests and forest plantations;
- area of forests included in the National Catalogue as forest genetic resources;
- area of forests included in natural areas protected by the state;
- numerical evolution and the ratio of forest-dependent biological diversity, including rare and globally endangered species;
- surface ratio of trees originated form native and introduced species;
- surface ratio of mixed and pure stands;
- annual surface ratio of natural seed regeneration to total area regenerated and planted with forest;
- forest cover ratio, which does not correspond to habitat conditions.

b) implementation of measures related to the ecological reconstruction of degraded land and trees:

- replacement of damaged trees by creating highly productive stands with functional structure connected the specific features at stationary conditions;
- reducing the participation proportion of "unwanted" (or even invasive) species exceeding the proportion specific to the natural type of forests and return to the natural type of forest ecosystems;
- creation and rational use of a network of seed bank sites based on population approach to local forest tree species, taking into account the variability of environmental conditions favorable for their coexistence (e.g. under many different ecological niches);
- alignment with the ecological requirements of forest nursery business network to meet the needs of improvement through afforestation of eroded lands;
- establish the list of mandatory species to grow seedlings in nurseries in relation to the diversity of stationary environment characteristics of the respective ecologic areas;

2. The rule of natural regeneration through intensive treatments:

a) ensure seedling establishment under massive, through natural setting and support;

b) apply ecological lighting technologies of seedlings, removal of trees and shrubs in 2-3 rounds and timber disposal.

3. Optimization of tree structure in relation to environmental conditions and functions assigned.

4. Technology greening of all spheres of activity, related to forest exploitation and forest protection.
5. Strict usage of the genetic fund controlled at forest crop creation in the forests and the optimization through afforestation of eroded lands.
6. Ensure maximum representativeness maintenance of the population and genetic diversity in relation to the vast variety of environmental conditions.
7. Provide spatial and functional seamless connection at local, national and regional levels of all types of ecosystems (existing and planned).
8. Ensure protective functionality of planned ecosystems.
9. Restore key ecosystems, primary ecosystems (primigene).
10. The supremacy of ensuring optimum diversity at ecosystem, specific and genetic and population levels, adequate to macro and micro-zone conditions.
11. Ensure the priority of environmental conditions recovery in order to preserve endangered taxons at ecosystem, population and specific levels.
12. Ensure continuity of forest intra-specific, specific and ecosystem structure in line with the vast variety of environmental conditions.
13. Ensure continuity and poly-functionality of forest ecosystems - ecological, economic, protective, social, cultural and others.

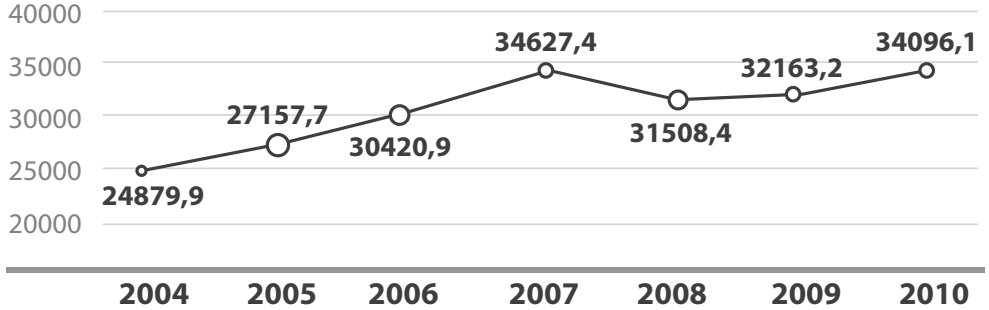
3.1 Forest management planning

Forest management planning is a complex, technical and economic and ecological concern, with important social implications, which effectively has no equivalent in other areas of knowledge and practice. In essence, management planning is a technical tool for ongoing organization of forest production and harvesting products thereof, in order to meet at present and in the future local and general needs. Forest management planning should ensure the forest organization and management to the state of their most poly-functional effectiveness, under many environmental and socio-economic objectives of forestry, based on the concept of functional zoning and promoting the concept of systemic forest management.

Since 2004, redevelopment works in forests marked a new stage of development. This year the second cycle of the forest management planning work started. Further, by 2010, redevelopment works were carried out in ten forest units (Glodeni, Balti, Soldanesti, Soroca, Orhei, Telenesti, Calarasi, Silva-Centru, Ungheni, Nisporeni-Silva and Hincesti-Silva) and three nature reservations (Plaiul Fagului, padurea domneasca and Codrii) with a total area of 214.9 thousand ha or an average of 30700 ha annually (Figure 5).

In the given period, through various national programs and international grants that involved ICAS specialists, the forest management planning was undertaken over 10000 ha of forests and other types of forest vegetation owned by municipalities.

Figure 5. Dynamics of surfaces covered with forest management planning works, ha



To ensure compliance with Article 73 para (1) of the Forest Code and taking into account that Agen-

Forest management planning in work (Forest enterprise Hancesti-Silva, Agency Moldsilva)

cy Moldsilva manages about 336000 ha national forests, the annual surface which should be covered with forest management planning works is about 34000 ha.

Directly, the work research and organization directions within the management planning works are focused on: analysis of implementation of forest management planning; stands description; survey works and graphical reports; inventory of trees; forest typology; forest soil science; conducting interim and final technical receptions; participation in conferences I and II for forest management planning; design works for forest management planning, graphic assembly, project desktop publishing; map drafting and checking etc.

Analysis, processing, presentation and editing of information on forest management planning works is possible thanks to the existence of a developed information technology framework. During the last decades computers and information processing equipment have become the main element of automation and a necessary tool for the storage and information management in the forest management planning activities and forestry in general. For processing the data taken over from the field by the landscape engineers, the AS program is used. The AS information product performs the computer design of the forest management planning activities. This allows completion of synthetic situations on:

a) The balance of the forestland area: original surface, surface movements, the final surface.
b) The technical solutions proposed to regulate the production process.
c) The possibility by product categories and the first versions of harvesting plans.

Starting with 2008 it had been turned to the implementation of MapInfo technology in the design of materials necessary for creating landscape maps, which allowed performing the works with a higher degree of accuracy and in a shorter period of time. This process included the following main works:

a) The geo-referencing of forest sectors in the MoldRef99 system of coordinates.
b) Analysis of information obtained through dealing with cadastral information and overlay on Ortho-Photo drawings.
c) Detection and removal of disputes and surface errors.
d) Sector vectoring based on corrections operated by landscape specialists.

Currently, the forest management planning activity is carried out through sections I and II of the forest management planning within the Forest Research and Management Institute, with a member-

ship of 28 persons (22 engineers and 6 technicians). This contingent of specialists allow for qualitative organization and holding of management planning works upon an area of up to 35000 ha annually and drafting projects assigned to management units.

Current objectives of landscape management planning research may refer to: knowledge of the structure and the protective and productive potential of forests in their dynamic performed through the description works of forest ecosystems; forest regeneration research features affected by frost, research of stands status and productivity, depending on the nature and intensity of applied forest engineering works; plant and animal biodiversity research, establishing and improving the operability age in oak, providing information on the structure, status, progress and productivity of the forest resources, the effective integration of business planning studies obtained by the forest management planning activity in the forest resources management and marketing, etc.

3.2 Forest regeneration and extension

In the context of ensuring continuity and development of forests between 2006-2010, the forest regeneration and extension activities undertaken by Agency Moldsilva included an area of 45300 ha (Table 3). Of this area, on 32600 ha (72%) forest cultures were planted and 12800 ha (28%) were subject to supporting works of natural regeneration. These works also included the extension activities of forest surfaces at the expense of degraded areas on the surface of 28200 ha (63%).

The significant share of the natural regeneration supporting works is due to the fact that in the reference period there were made cuts of main product, primarily of acacia trees (about 83%), where continuity was achieved mainly by causing suckering. However, reducing the volume of afforestation at the end of the reporting period is explained by the suspension of such works' funding from the state budget and practical stopping of the allocation process by the municipalities of degraded lands in order to meet new lands program and increase soil fertility.

Plantations of oak with ash (Forest enterprise Soldanesti, 2002, area 10.2 ha, Agency Moldsilva)

Reference years	Forest regeneration in the forests managed by the Agency Moldsilva, ha			Extend afforestation on new areas, ha	Total regeneration and afforestation, ha
	Total	Planting forest crops	Planting forest crops		
2006	3255	913	2342	7510	10765
2007	3896	1026	2870	7550	11446
2008	3659	976	2683	7932	11591
2009	3602	759	2843	4670	8272
2010	2743	685	2058	529	3272
Total:	**17155**	**4359**	**12796**	**28191**	**45346**

Table 3. Surface covered with forest regeneration and extension works

The areas subject to afforestation both in the forests managed by the Agency Moldsilva and on the lands of other owners in relation to the main species are distributed in accordance with (Table 4.) The data in this table demonstrates an excessive weight of acacia (82%), which is due primarily to stationary conditions where planting has been performed - degraded lands affected by landslides, often of the type suitable for conventional forest culture. Here also, it should be mentioned that acacia plantation on degraded land is considered as an ecological restoration of these lands as a first step for establishing tree cover, given the need to stop/reduce erosion processes in extremely austere economic conditions. Later, after the initial formation of forest environment, as well as according to human and technical capacities depending on national forest sector, some of these lands will be converted to stands composed of native species.

3.3 Seed bank and nursery

Over the course of several centuries, in its dynamics, the provision of the forests with qualitative reproductive material has manifested sharper by selective harvesting of seeds from the most vigorous trees, a process which obviously contributed to some extent to the reduction of the forest genetic production and reproduction potential. During the transition to the application on land of the technologies based on forests logging on vaster surfaces and thereby extending the limits of the forests from the trees growing out of older generation shoots, the genetic potential reduction problem becomes more acute.

Between 1991-1992, in the state forestland, under the landscape management materials and the existing database, there were selected the most representative forest areas that have a wide population variety of the main forest forming species and the mixed ones. There were identified and selected as required in this area, the source of seed stands on an area of 1402 ha.

Between 2006 and 2010, the enterprises subordinated to Agency Moldsilva harvested forest seeds ranging from 100000 kg/year to 188000 kg/year, the total amount collected in this period being 737500 kilograms of forest seeds, representing a diversity of 62 species of trees and shrubs. During this period, the proportion of seeds harvested from tree seed sources did not exceed 4.4%, which indicates an ignorant attitude towards these sectors (Table 5).

The data in Table 5 shows that out of the amount of harvested seeds, only 38-57% have been analyzed

Main species	Afforestation in the forestland, ha						Extension of areas covered with forest vegetation, ha						Gen-eral total	Share, %
	2006	2007	2008	2009	2010	Total:	2006	2007	2008	2009	2010	Total:		
Pine	2	2	6	5	-	15	4	-	5	-	-	9	24	0,07
Peunculated oak	90	142	162	135	184	713	68	35	73	7	3	186	899	2,76
Red oak	4	4	6	1	4	19	28	7	27	75	11	148	167	0,51
Sessile oak	2	-	1	-	6	9	-	-	-	-	-	0	9	0,03
Acacia	644	786	672	491	421	3014	6044	6609	6779	3864	513	23809	26823	82,41
Honey locust	101	34	25	4	-	164	317	126	63	9	-	515	679	2,09
Poplar	38	20	50	59	38	205	73	33	191	71	2	370	575	1,77
Willow	2	4	19	19	-	44	32	20	55	102	-	209	253	0,78
Elm	-	-	4	-	6	10	3	4	38	8	-	53	63	0,19
Walnut	5	-	4	2	-	11	834	621	571	451	-	2477	2488	7,64
Black walnut	1	-	10	-	3	14	32	20	38	10	-	100	114	0,35
Other species	24	34	17	43	23	141	75	75	92	73	-	315	456	1,40
Total:	**913**	**1026**	**976**	**759**	**685**	**4359**	**7510**	**7550**	**7932**	**4670**	**529**	**28191**	**32550**	**100,0**

Table 4. Main tree species used in the afforestation and extension program

in terms of germ quality, the rest having been sown without quality certificates. Laboratory analysis of seed quality during this period showed that only 41-63% of them show high quality (class I-II). This resulted partly in reducing the production of seedlings from 1 hectare of nursery crops stations and recording certain crops as losses (from 7.7 ha to 20.56 ha of crops).

In the same period, in those 31 forest nurseries, with a total area of 932 ha, about 243 million seed-

Category	Years				
	2006	2007	2008	2009	2010
Forest seed source (FSS), ha	1401,90	1401,90	1401,90	1401,90	1401,90
Total quantity of harvested seeds, kg	134335	132044	182983	187979	100182
Amount of seeds with the germination capacity analyzed, kg	72345,5	54473,4	69611,2	98187,8	57540
Quantity of seed harvested in FSS, total kg	3849	5524	4274	5939	4372
Share of seed of class I and II, %	53	54	52	41	63
Share of seed of class III, %	46	44	48	59	35
Unconditional seeds, %	1	2	-	-	2
Crop area in forest nurseries, ha	260,6	261,2	278,8	247,6	124,3
One year crop area in nurseries passed to losses, ha	15,42	20.56	16,04	9,37	7,7
Small seedling growth, thousand pieces	59216	44668	52629	50526	36023

Table 5. Production of tree and shrub seeds and seedlings growth

lings were grown, with a diversity of 80 species of trees and shrubs. The largest quantity of seedlings was grown in nurseries in 2006 and 2008. In 2010 the volume of production of seedlings was reduced to 36 million and seeds - up to 100 tons and is directly related to reduction of forest areas.

3.4 Forest protection

The current health status of forests in the Republic of Moldova reflects the degree of instability of forest ecosystems caused by various natural factors, but also by forest management, which contributed greatly to their distortion. During the reporting period, the main causes affecting the health of trees were pathological factors (Table 6), which development was correlated with changes in climatic conditions.

Defoliator pest outbreaks are usually not easy to control, being often represented by a complex of species, where one or two are pest dominant species.

Pathological factors	Years					
	2006	2007	2008	2009	2010	2011
Defoliator pests	45	30,37	18,68	10,03	16,4	56,0
Xylophagous pests	7,4	5,59	5,91	6,2	7,7	13,1
Forest diseases	0,1	0,1	0,12	0,4	0,1	0,1
Total outbreaks	52,5	36,06	24,71	16,63	24,2	69,2
Share of outbreaks in the forest area managed by Agency Moldsilva, %	14,0	10,0	7,0	5,0	7,0	19,1

Table 6. Dynamics of areas with outbreaks of pests and diseases, ha

The most common defoliator pest species in our forests are: Hairy oak caterpillar (*Lymantria dispar* L.), Oak green moth (*Tortrix viridana* L.), Mottled umber (*Erannis defoliaria* Cl.), Winter moth (*Operophtera brumata* L.), Ash weevil (*Stereonychus fraxini* Deg.), Fall webworm (*Hyphantria cunea Drury*), Oak Processionary caterpillar (*Thaumaetopoea procession* L.), Cherry leaf wasp (Neurotoma nemoralis L.), Willow ermine (*Yponomeuta rorellus* Hb.), East Asian sawfly (*Aproceros leucopoda* Takeuchi).

Mass invasions of defoliator pests appear on large surfaces and range annually from 2.8% (2009) to 15.4% (2011) of the forest area (Table 7). Unlike previous years (2001-2006), when outbreaks of defoliator pests occupied vast lands of the forests (75.8 to 104.8 thousand ha), in recent years, since 2005, there has been observed a decrease in affected areas and the density populations of these pests, and since the end of 2010 and beginning of 2011 there were observed new outbreaks and expansion of their areas.

Species name	Years					
	2006	2007	2008	2009	2010	2011
Tortrix viridana	34,5	14,8	11,3	0,95	6,7	3,9
Operophtera brumata	5,3	9,3	3	1,74	2,1	23,8
Erannis defoliaria	3,9	5	2,3	0,41	1,1	24,6
Lymantria dispar	0,3	0	0	0	0	0
Stereonicus fraxini	1	1,3	0,8	6,69	6,5	3,4
Other species of pests	0	0	0	0,24	0	0,3
Total outbreaks	45	30,4	17,4	10,03	16,4	56
Share of outbreaks in the forest area of Agency „Moldsilva", %	12,4	8,4	4,8	2,8	4,5	15,4

Table 7. Dynamics of outbreak surface of defoliant pests, thousand ha

Control of phytophagous insects population density in trees is done using air control measures. For this purpose helicopters such as KA-26 and MI-2 are used. Since 2000 the ultra-low volume spraying equipment (ULV), manufactured by Micron Air AU-5000 achieved an extensive use. Annually, the air

control measures cover around 0.4 to 16.9 thousand ha of the total forest area of the Agency Moldsilva, which is 0.1 to 4.7% (Table 8).

Indices	Years					
	2006	2007	2008	2009	2010	2011
Total area of defoliator pest outbreaks at the beginning of the reporting year, thousand ha	45	30,5	17,4	10,03	16,4	56
Forest area subject to air control measures, thousand ha	1,8	15,8	16,9	9,4	0,4	3,4
Share of outbreaks in the forest area managed by Agency Moldsilva, %	0,5	4,4	4,7	2,6	0,1	0,9

Table 8. Forest area subject to aerial pest control measures

The xylophagous pests that inhabit particularly weak stands, worsening in return their health status have a negative impact on the forest condition. The xylophagous pest outbreaks are complex, in their composition may include: Oak buprestid (*Agrilus biguttatus* F.), Beech splendour beetle (*Agrilus viridis* L.), Longhorn beetles (*Plagionotus detritus* L., *P. arcuatus* L., *Rhagium sycophant*a Schrnk.), European oak bark beetle (*Scolitus intricatus* Ratz)., European elm bark beetle (*Scolitus multistriatus* Marsh.), Wood wasp (*Xiphydria longicollis* Geoffr.), Small ash bark beetle (*Hylesinus fraxini* Panzer.), Larch Elm Bark Beetle (*Hylesinus crenatus* F.), European shot-hole borer (*Xyleborus dispar* F.) etc.

Forest affected by defoliator pests

Considerable damage to forests and forest nurseries are caused by many common diseases such as: Oak powdery mildew (*Microsphaera alphitoides* Griff. et Maubl.), Anthracnose (*Marssonina juglandis* (Lib.) Magn.), Tar spot (*Rhytisma acerinum* (Pers.) Fr.), bed seedlings (*Fusarium, Alternaria, Botrytis, Pythium* etc.), Reddening and fall of pine needles (*Lophodermium pinastri* (Schrad.) Chev.), Armillaria Mellor (Vahl: Fr.) Karst., Hardwood trunk rot (*Phellinus igniarius* Quel.), Dutch elm disease (*Graphium ulmi* Schwarz.), Rotting of apple trees (*Nectria galligena* Bres.), Bacterial cancer of hardwoods (*Pseudomonas syringae*), *Taphrina carpini* (Rostr.) Johanson.

3.5 Natural disasters

In spring and summer of 2007 there was reported a catastrophic drought that has affected over 80% of the country. This phenomenon has also considerably damaged the national forests over an area of over 18800 ha or 5.5% of the forests surface, especially in the south and center of the country. The largest areas of forests were affected in enterprises Silva-South, Iargara, Cimislia, Nisporeni.

In summer 2007, this phenomenon led to plant physiological weakening, and that is why the trees premature defoliation was reported in late July - early august. High air temperatures have caused "burning" of the leaves, defined by common discoloration of leaves. Precipitations that fell at the beginning and end of august, caused partial development of new leaves on affected trees, fact reported in late September - early October. During the same period the repeated flowering of acacia has been noticed.

Stands of black locust are dying (Forest enterprise Silva-Sud, Agency Moldsilva, 2008)

The 2007 drought affected about 20 forest species, both native and non-native including: Pedunculate oak (*Quercus robur* L.), Sessile oak (*Quercus petraea* (Matt) Liebl.), Downy oak (*Quercus pubescens* Willd), Ash (*Fraxinus exelsior* L.), Field maple (*Acer platanoides* L.), Mountain maple (*Acer pseudoplatanus* L.), Acacia (*Robinia pseudoacacia* L.), Birch (*Betula verrucosa* Ehrh.), Scots Pine (*Pinus sylvestris* L.), Black pine of Crimea (*Pinus pallasiana* (Lamb) Holmboe). Most affected are acacia, degraded stands representing 71.3% (or 13,000 ha) of the total damaged forest area.

The drought of 2007 had long-term consequences, its consequences being visible over several years. In 2009, according to aero visual forest-pathological research data, the total area of different intensity degraded and dry forest stands amounted to 17900 ha.

3.6 Forest Monitoring (ICP Forests)

In 1992 the Republic of Moldova started works on health surveillance of forests, establishing 12 permanent control surveys within the European forest monitoring network and 680 surveys within the national network. The purpose of the supervision of the health of forests and national forest inventory is to provide permanent information on the evolution of the state of vegetation and forest soils, the effects of pollution on forests, the size and structure of production fund, in order to develop and substantiate management, recovery measures and prevention of negative situations in the forests of the Republic of Moldova.

Inventory year	Damage classes and groups of classes, %							
	0	1	2	3	4	3+4	2-4	1-4
2006	44,3	28,1	22,4	4,5	0,7	5,2	27,6	55,7
2007	36,1	31,4	25,1	6,1	1,3	7,4	32,5	63,9
2008	42,7	23,6	26,2	6,8	0,7	7,5	33,7	57,3
2009	43,1	31,7	22,5	2,2	0,5	2,7	25,2	56,9
2010	42,8	34,7	20,5	0,9	1,1	2,0	22,5	57,2

Table 9. Degree of tree defoliation by defoliation classes and groups of defoliation classes

Analysis of data presented in Table 9 shows that the percentage of damaged unhealthy trees enrolled in grades 2-4 varies between 22.5% (in 2010) and 33.7% (in 2008), with an average on the period under study of 28.3 %. Thus, healthy trees, enrolled in grades 0-1 account on average to 71.7%.

According to the data in Table 10 it is established that trees most affected by defoliation are middle-aged, part of the age classes I (0-20 years) and V (81-100 years). But there are years when trees that are part of other age classes also record substantial defoliation, especially those aged 101-120 years and those 21-40 (years 2007-2008).

The highest degree of damage to trees, at species level, for the period under study was made to oak species with an average of 30.3% and acacia - 23.7%. Decreasing is ash with 22.9% and hornbeam with 21.3%.

Year	Age, years							Total:
	0-20	21-40	41-60	61-80	81-100	101-102	> 120	
2006	23,2	26,3	30,0	24,7	34,8	30,1	9,4	27,6
2007	33,5	36,9	33,4	26,9	37,9	35,1	9,9	32,5
2008	34	50,8	38,6	29,1	37,6	60	13,3	37,2
2009	38,5	21,2	25,9	24,1	24,7	25,1	16,4	25
2010	40,1	21,2	20,9	19	19,5	22,3	12,6	22,4

Table 10. Degree of defoliation of forests by age classes (all species)

3.7 Hunting management

Animal world, as a basic component of natural biocenosis, plays an important role in maintaining ecological balance. A number of animal species serve as sources for obtaining industrial, medicinal raw materials, food and other material goods to satisfy the needs of the population and the national economy, other species are used for scientific, cultural, educational and aesthetic purposes.

Hunting management is one of the branches of the use of natural resources, the main tasks being protection, rational use and reproduction of the state hunting resources (animals of hunting interest and many hunting grounds). Agency Moldsilva manages about 336000 ha hunting land located in the state owned forests.

Over the recent years there has been a relative improvement in the hunting area situation, a number of measures being taken to improve food conditions for hunting. In accordance with the Action Plan on the organization of farming for pheasants and wild boar reproduction (Government Ordinance No. 1033-976 of 15.12.2005), in 2007 the pheasant farm situated in ISC "Sil-Rezeni", with a capacity of 14000 pieces annually was rebuilt and two aviaries for pheasants maintenance in ISC "Cimislia" and "Straseni" built. Thanks to this, in the hunting resources managed by Agency Moldsilva, there is an improvement in the dynamics of the main species of animals and birds of hunting interest, the indicators for 2010 mostly being over the average indicators of the last decade (Table 11).

Red deer (Nature reserve Plaiul Fagului, Agency Moldsilva)

These improvements are also due to the implementation of new forms of wildlife sector management by awarding hunting resources to use based on a lease agreement, under the Government Decision No. 187 of 20.02.2008 approving the Regulation on the forests rent for hunting management and/or recreation. According to the official information, a total of 9400 ha of forest lands managed by Agency Moldsilva are leased to legal persons based on public tenders.

№	Species name	Years					Period average
		2006	2007	2008	2009	2010	
1.	**Deer**	544	530	567	486	506	527
2.	**Buck**	3761	4008	3782	3404	3665	3724
3.	**Boar**	1551	1768	2167	2086	2054	1925
4.	**Hare**	6592	4445	4611	4074	5554	5055
5.	**Fox**	5081	4301	5616	4023	5703	4945
6.	**Badger**	864	876	904	821	940	881
7.	**Muskrat**	775	557	237	232	344	429
8.	**Pheasant**	2443	6250	14737	4069	5297	6550
9.	**Geese**	931	1343	2400	155	672	1100
10.	**Ducks**	1599	2662	3190	869	922	1848
11.	**Partridge**	1840	1144	1234	1121	2028	1473

Table 11. Dynamics (species, individuals) of the main game species

3.8 Forest security

Forest security is one of the primary tasks of the forest sustainable management (Articles 12 and 56 of the Forest Code). For Moldova, with limited forest resources and a continuous pressure on forest ecosystems and their biodiversity, security of forest lands becomes an imperative for the entire society. According to current legislation, Agency Moldsilva undertakes all necessary measures to protect forests from being illegally exploited as well as to prevent theft of forest resources, destruction, damage, wildfire, unauthorized grazing, poaching and other harmful actions. Over 1500 specialists (forestry engineers, game/hunting specialists, forest inspectors, foresters etc.) are involved directly in guarding the forest resources managed by Agency Moldsilva.

As a result of measures taken throughout the reference period (4579 raids, operational controls, inspections, etc.) there were concluded 5134 reports on identifying forest related contraventions, including 3241 reports, targeting illegal logging cases (Table 12). As a result, the volume of illicit wood was estimated at 11800 m^3, and the value of the damage is about 2 million MDL. About 50% of this volume was found after making revisions and controls. Recovery of damages by offenders amounted to about 70% of the total estimated amount.

Serious damage to the forestry sector is caused by grazing, particularly the illegal one. Increase of the herd of cattle in the private sector generated an acute pasture crisis. The existing pastures, mostly degraded, of lower productivity and unimproved, are unable to meet the growing demands of the livestock sector. In terms of illicit grazing, after revisions and controls, there were drawn up 1260 reports on various cases of non-observance of the legislation, which brought a loss of 2.5 million MDL.

However, a number of 633 reports establishing other violations of forest laws were drawn, with damage estimated at 917000 MDL.

№	Indicator	Unit of measurement	Years					Total period
			2006	2007	2008	2009	2010	
I. Illegal logging								
1.1	Total volume of illegal logging	thousand m^3	2,3	1,7	1,7	2,2	3,9	11,8
1.2	Volume of illegal logging on 1000 ha area covered by forests	m^3/1000 ha	6,5	4,9	4,9	6,1	12,7	-
1.3	Detection rate of illegal logging	%	45,5	42	50,4	49,6	57	-
1.4	Number of reports	case	1112	554	525	530	520	3241
1.5	Amount of caused damage	thousand MDL	401,4	281,1	271	376,7	675	2005,2
II. Unauthorized grazing								
2.1	Number of reports	case	333	391	337	130	69	1260
2.2	Amount of caused damage	thousand MDL	590	1043,6	518,1	213,8	147	2512,5
III. Other forest offenses								
3.1	Number of reports	case	129	187	141	92	84	633
3.2.	Amount of caused damage	thousand MDL	164	136	159,4	168,9	289	917,3

Table 12. State of security of the forests managed by Agency Moldsilva

In the forests managed by the Agency Moldsilva, the system of recording timber harvesting and illegal logging is relatively developed. Stands interventions are made based on forest management planning, and based on the actual condition of the trees. For the forests managed by municipalities, forest records are much more reduced, with a high degree of uncertainty. It is also necessary to mention that the State Ecological Inspectorate, in the implementation of Article 40 of the Environmental Protection Act, and Article 22 of the Forest Code, however, has a record of volumes harvested legally, as well as those harvested illicitly (Table 13).

Reference years	Management category	Logging according to legal documents				Registered illegal logging		Total wood, thousand, m^3	Share, %
		Logging of main products, thousand m^3	Cleaning works, thousand m^3	Total, thousand m^3	Share, %	Total volume, thousand m^3	Share, %		
2006	**TOTAL, inclusive**	**254,3**	**196,5**	**450,8**	**100,0**	**7,20**	**100,0**	**458,05**	**100,0**
	Agency Moldsilva	246,5	191,9	438,4	97,2	2,45	34,0	440,85	96,2
	Municipalities	7,8	4,6	12,4	2,8	4,72	65,6	17,17	3,7
	MTRI	0,0	0,1	0,1	0,0	0,02	0,3	0,11	0,0
	Other managers	0,0	0,0	0,0	0,0	0,01	0,2	0,01	0,0
2007	**TOTAL, inclusive**	**250,0**	**169,1**	**419,1**	**100,0**	**2,24**	**100,0**	**421,34**	**100,0**
	Agency Moldsilva	243,4	167,2	410,6	98,0	1,77	78,9	412,37	97,9
	Municipalities	6,3	1,9	8,2	2,0	0,37	16,7	8,57	2,0
	MTRI	0,0	1,2	1,2	0,3	0,10	4,4	1,30	0,3
	Other managers	0,0	0,0	0,0	0,0	0,00	0,0	0,00	0,0
2008	**TOTAL, inclusive**	**251,7**	**180,5**	**432,2**	**100,0**	**2,72**	**100,0**	**434,92**	**100,0**
	Agency Moldsilva	243,3	177,3	420,6	97,7	2,12	77,9	422,72	97,2
	Municipalities	8,6	3,2	11,8	2,7	0,57	20,8	12,37	2,8
	MTRI	0,0	0,7	0,7	0,2	0,003	1,2	0,70	0,2
	Other managers	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0
2009	**TOTAL, inclusive**	**250,8**	**171,6**	**422,4**	**100,0**	**3,53**	**100,0**	**425,94**	**100,0**
	Agency Moldsilva	242,5	168,1	410,6	97,2	2,45	69,4	413,05	97,0
	Municipalities	8,3	3,5	11,8	2,8	0,99	28,0	12,80	3,0
	MTRI	0,0	0,9	0,9	0,2	0,008	2,3	0,98	0,2
	Other managers	0,0	0,0	0,0	0,0	0,01	0,3	0,01	0,0
2010	**TOTAL, inclusive**	**272,8**	**174,5**	**447,3**	**100,0**	**20,43**	**100,0**	**467,74**	**100,0**
	Agency Moldsilva	264,5	170,1	434,6	97,2	4,0	113,2	438,60	93,8
	Municipalities	8,3	3,5	11,8	2,6	16,40	464,2	28,21	6,0
	MTRI	0,0	0,9	0,9	0,2	0,03	0,8	0,93	0,2
	Other managers	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total per period	**TOTAL, inclusive**	**1279,5**	**892,3**	**2174,7**	**100,0**	**36,1**	**100,0**	**2210,8**	**100,0**
	Agency Moldsilva	1240,2	874,6	2114,8	97,4	12,8	35,4	2127,6	96,2
	Municipalities	39,2	16,8	56,1	2,6	23,0	63,8	79,1	3,6
	MTRI	0,0	3,8	3,8	0,2	0,3	0,7	4,0	0,2
	Other managers	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,0

Table 13. Legally and illegally harvested wood per all forest properties

4 FOREST PRODUCTION MANAGEMENT

4.1 Forest wood products

Harvesting wood in the forests of the Republic of Moldova is done by applying one of the following methods: felling of secondary products (through releases, cleaning, thinning, hygiene cutting), main product cuts (regeneration and conservation cutting, hygiene clear cutting) and ecological reconstruction. Works are carried out according to forest management plans developed by Moldsilva and to annual volumes authorized for harvesting by the Ministry of Environment.

For enhancing the condition of forests, during the period between 2006 and 2010 Agency Moldsilva carried out tending and improvement works (secondary products felling) on a total area of 55831 ha, with a volume of wood harvest of 668300 m^3 (Table 14). Forest treatments (main product cuts and ecological reconstruction) were applied on a surface of 12827 ha, with a harvested wood volume of 991100 m^3. A total of 17300 m^3 of wood was harvested by applying other types of felling.

Firewood stacked on felling site (Forest-hunting enterprise Straseni, Agency Moldilva)

Reference years	The volume of timber harvested, thousand m^3			
	Gross total	Including sold volume		
		Total	firewood (including rods, branches)	
			Timber	firewood (including rods, branches)
2006	438,4	417,3	45,0	372,3
2007	410,6	389,3	43,0	346,3
2008	420,6	398,7	41,7	357,0
2009	410,6	389,6	36,4	353,2
2010	434,6	395,0	39,8	355,2
Total:	2114,8	1989,9	205,9	1784,0

Table 14. Applying forestry treatments and works

Reference years	The volume of timber harvested, thousand m³			
	Gross total	Including sold volume		
		Total	firewood (including rods, branches)	
			Timber	firewood (including rods, branches)
2006	438,4	417,3	45,0	372,3
2007	410,6	389,3	43,0	346,3
2008	420,6	398,7	41,7	357,0
2009	410,6	389,6	36,4	353,2
2010	434,6	395,0	39,8	355,2
Total:	2114,8	1989,9	205,9	1784,0

Table 15. Wood harvesting management

Total gross volume of wood harvested in the forests managed by the Agency Moldsilva during the reporting period was estimated at 2114.8 thousand m³ (Table 15), including the volume of 1989900 m³ for sale. From the mentioned volume only about 10.3% is timber, the rest being attributed to firewood category (including rods, cracks and branches).

The harvesting of volumes mentioned above as a result of main product cuts and the ecological reconstruction methods was followed by forest regeneration works: assisting natural regeneration, planting forest crops, natural regeneration (Figure 6).

An important indicator in the management of forests classified under the functional Group I is the annual utilization rate of forest biomass (i.e. annual increment in growing stock as a percentage of annual felling). For the forests managed by Agency Moldsilva this indicator on average is about 40%, representing an indicator below the limits practiced in other neighboring countries.

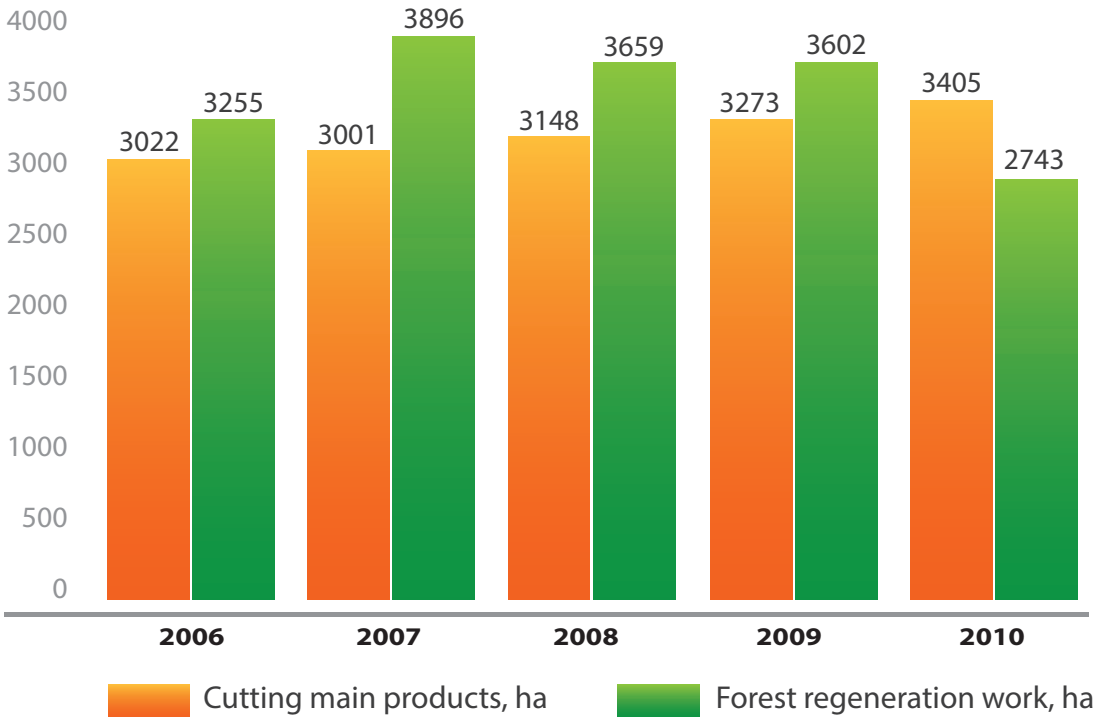


Figure 6. Correlation between regeneration works and main products felling

4.2 Wood processing

During the reporting period, the entities subordinated to the Agency Moldsilva have processed annually about 28000 m^3 of wood or about 7% of the annually harvested wood biomass (Table 16). The main types of wood products obtained are: parquet pieces, lumber, semi-products, fence slats, charcoal etc.

At the same time, the processing capacity of the forestry sector is about 100000 m^3 annually, with 30 sections and points of wood delivery and processing, drying facilities etc. This discrepancy is because of the fact that timber represents only 10% of the annually harvested wood. The public auctions for

№	Category	Unit of measurement	2007	2008	2009	2010
1	Wood processing, total	thousand m^3	28,1	41,1	24,9	16,4
	including: - round woos (timber, technological wood and firewood)	thousand m^3	25,6	38,5	23,7	15,4
	- wood waste	thousand m^3	2,5	2,6	1,2	1,0
2	Manufacturing and processing:					
	- parquet pieces, including services	thousand m^3	16,5	14,6	11,3	8,2
	- cut semi-products	m^3	1500	1840	1300	680
	- edged and non-edged timber	thousand m^3	5,1	8,7	5,3	3,4
	- fence strip	thousand m^3	1,2	1,1	1,3	1,0
	- rolling tool	m^3	160	120	45	21
	- crates for fruits and vegetables	thousand m^3	18,8	1,9	13,8	7,7
	- charcoal	tons	75,8	168,5	51,4	36,5
	- barrels, tubs	pieces	133	6	7	4
	- brooms from twigs and corn	thousand pieces	6,8	8,3	2,1	3,3
	- osier plaited objects	thousand MDL	260	190	315	205
	- vine stakes (prismatic, split and out of twigs)	thousand pieces	547	2298,2	1046,1	2882,9
	- handles for spades	thousand pieces	1,1	0,5	0,4	0,1
	- packaging board	thousand m^3	0,22	0,41	0,11	0,1
	- sticks (prismatic and out of twigs)	thousand pieces	621	936	930	475
	- intermediary parts	m^3	15	18	57	86
	- linear articles (plinth, jointer with semicircular base, sill etc.)	linear meters	235	0	135	5
	- handling pallets	pieces	9710	4810	4920	903
	- padded boards	m^2	1360	620	1000	1400
3	Marketing of wood products (current prices)	thousand MDL	23400	34684	20088	17383

Table 16. Processing, manufacturing and selling of wood products and consumer goods

selling standing wood organized by Agency Moldsilva have contributed to the reduction of the volumes of processed wood within existing forest entities. Thus, in 2010 about 113000 m^3 of wood biomass (through five stages of forest auctions) or 43.2% of the amount of sites assigned for main felling were sold.

A decline in manufacturing wood products and other consumer goods did take place due to reduced competitiveness of the production resulting from processing wood in entities subordinated to the Agency Moldsilva. However, it should be mentioned that wood qualitative production is a good and required commodity on all domestic and international markets.

4.3 Non-timber forest products

The value of non-timber forest products (NTFP) is continuously growing. According to FAO data (2005), this value reached approximately $4.7 billion and constituted more than 50% of forest income.

Harvesting of NTFP (fruits, berries, herbs etc.) is an important activity undertaken by entities of Agency Moldsilva. Volumes of NTFP harvesting, processing and selling may vary depending on environmental factors and outlet market requirements. NTFP harvested by Agency Moldsilva's entities in 2006-2010 and their commercial value are presented in Tables 17 and 18.

№	NTFP category	Unit of measurement	Years					Total
			2006	2007	2008	2009	2010	
1	Fruit and berries	tons	302,8	533,3	696,8	331,5	360,8	2225,2
2	Medicinal herbs	tons	118,1	148,3	149,5	66,5	45,2	527,6
3	Agricultural and livestock products	tons	656,3	346,4	900,3	534,6	695,6	3133,2
4	Honey	tons	5,6	5,9	4,2	5,8	5,2	26,7
5	Snails	tons	60,6	53,6	57,8	44,1	23,7	239,8
6	Fish	tons	1,3	2,2	5,1	0,2	-	8,8
7	Christmas trees	thousand pieces	18,3	16,6	6,6	4,9	13,9	60,3
8	Saplings of fruit trees	thousand pieces	16,7	11,3	-	1,6	-	29,6
9	Decorative saplings	thousand pieces	24,3	0,4	0,1	0,4	-	25,2
10	Rose saplings	thousand pieces	0,9	3,0	0,2	-	-	4,1

Table 17. Forest non-wood products harvesting

The largest share of harvest comes from agricultural and livestock products being of 3133.2 tons or 50.3% of the total amount. Fruits and berries constituted 36.5%, herbs and raw materials - 8.7%. Nursery products constituted 119200 pieces (seedlings), and the most significant activity was Christmas trees selling (60300 pieces) with a share of 50.6% % of the harvested quantities.

An amount of 4588 tons of various NTFP (which is 75.3% of the harvested products) was sold during 2006-2010. Such trends may not happen every year as there are times when not only the annual harvest is fully sold, but also stocks from previous years.

The level of trade with fruits and berries is quite high reaching 92.7% of harvested quantities, for medicinal herbs and raw materials this level is equal to 99.4%, and agricultural and animal products - only 56.6% of the harvested quantities. The most profitable products are Christmas trees, followed by medicinal herbs, fruits and berries, grape snails.

Common sea-buckthorn

Grape snail

№	NTFP category	Unit of measurement	Years					Total
			2006	2007	2008	2009	2010	
1	Fruit and berries	tons	277,4	509,8	579,8	461,4	234,7	2062,9
2	Medicinal herbs	tons	120,9	155,0	72,4	64,4	112,5	525,2
3	Agricultural and livestock products	tons	284,5	307,4	235,6	386,1	519,5	1733,0
4	Honey	tons	3,1	5,4	3,6	4,2	4,0	20,4
5	Snails	tons	59,8	53,6	57,8	44,1	23,7	238,9
6	Fish	tons	1,3	2,2	5,1	0,2	-	8,7
7	Christmas trees	thousand pieces	21,6	13,7	6,5	4,9	10,4	57,1
8	Saplings of fruit trees	thousand pieces	-	11,0	-	2,1	0,2	13,3
9	Decorative saplings	thousand pieces	0,9	0,4	0,1	0,3	0,1	1,8
10	Rose saplings	thousand pieces	1,0	0,2	0,2	-	-	1,4

Table 18. Marketing of non-timber forest products

NTFP production and harvesting need to be improved, and it is necessary to undertake the following:

a) Identify the growth potential of NTFPs by type, species and location during the forest management planning works, including their mapping and harvesting thresholds;

b) Develop, approve and implement the legal framework for the management and use of NTFP;

c) Carry out marketing research for NTFP;

d) Develop the necessary material and technical base for NTFP harvesting and marketing.

e) Training staff for NTFP management and processing;

f) Create and strengthen the organizational structure for NTFP management.

5 ECONOMIC AND FINANCIAL ACTIVITY

An important compartment in ensuring the development of forestry sector is the economic and financial activity of the forest entities subordinated to the Agency Moldsilva. Further development of the forestry sector can be achieved only by providing economical and financial incentives by the state. Analysis of sector finance development with budget means shows that since 2009 the state's financial contribution is reduced gradually. Thus, in 2010 the budgetary means covered only 3.8% of needs (Figure 7).

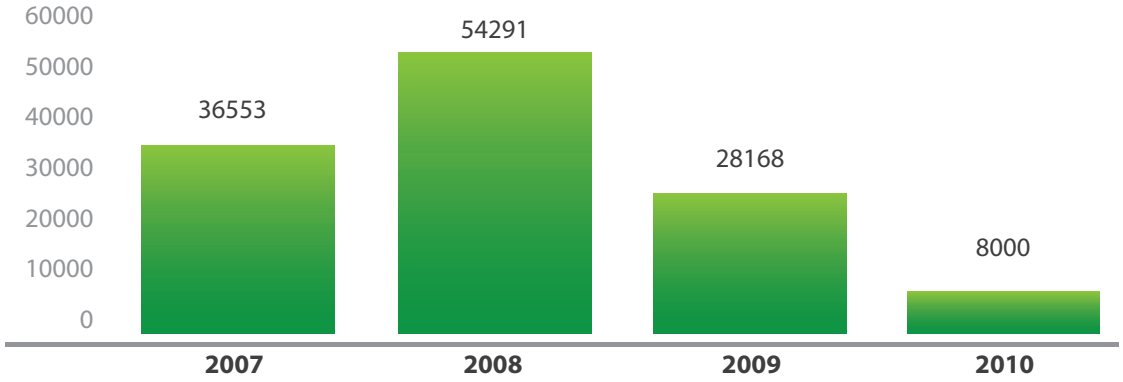


Figure 7. Evolution of budget allocations for the forestry sector, thousand MDL

To enhance and improve the management of forests and wildlife, and after strengthening fiscal discipline, efficient financial management, it was possible to set the stage for increasing the income in forestry and from the auxiliary-industrial activity. Thus, the 2010 revenues are estimated at 188.3 million MDL or an increase of about 20% compared to 2007 (Figure 8).

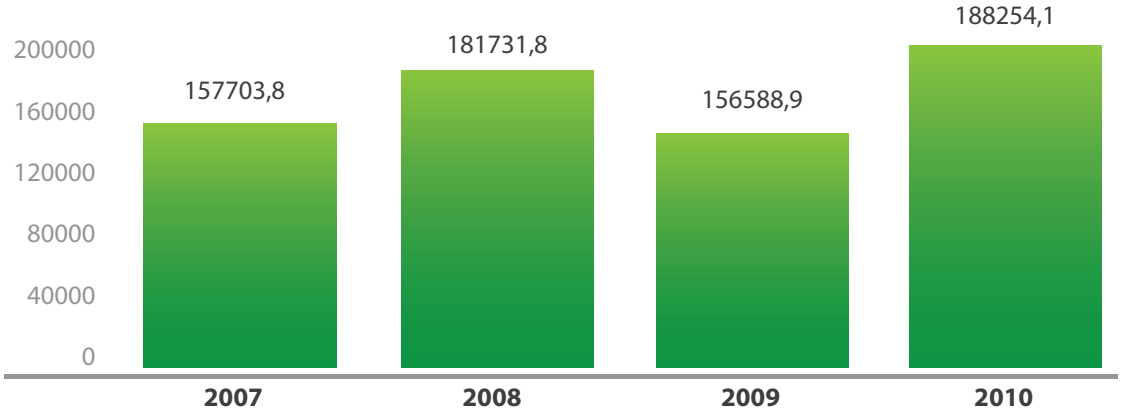


Figure 8. Income evolution in forestry sector, thousand MDL

Forestry units being plenipotentiary state structures in the field of forestry and hunting resources management in the country do not practice genuine entrepreneurship and cannot be assigned to the economic unit categories that operate in order to obtain profit. Their activity is limited only to the management of the national forest and wildlife resources based on ecological principles.

An important financial source to cover sectoral costs and spending is the income coming from forests leases for recreation and hunting purposes, so that in 2010 the income gained was about 11.4 million MDL, as well as the amount of 20.0 million MDL from the sales of CO^2 emission reductions.

Dynamic analysis of the size of taxes, calculated taxes and so on, show their downward trend. Between 2007 and 2009 there was registered a decrease of about 8%, respectively, about 44 million MDL and 41 million MDL (Figure 9).

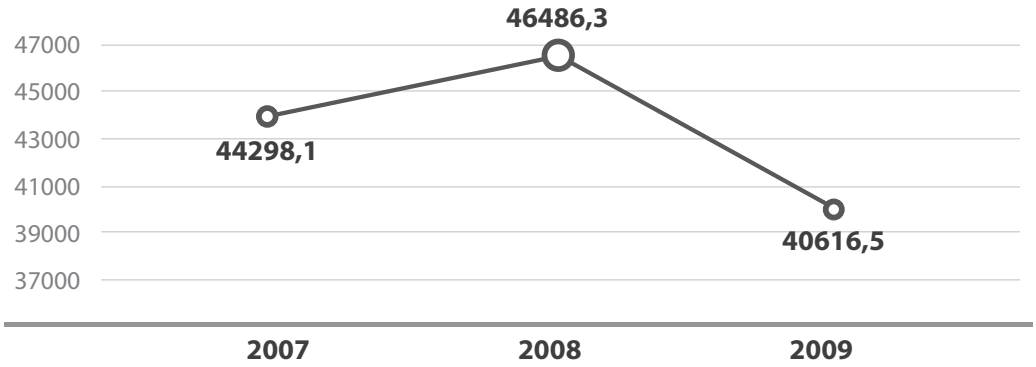


Figure 9. Tax developments in the forestry sector, thousand MDL

As a result of analysis of the current situation, there came the need for radical changes with regard to the accumulation of income in the forestry sector. Thus, under current legislation, forest public auctions on selling standing timber were organized, which allowed for an accumulation of about 10% or more income from such an activity.

Forestry sector offers job opportunities to a large number of people, not just temporary or seasonal, but also permanent. Currently, the average number of employees in the forestry sector is 5245 people (Figure 10).

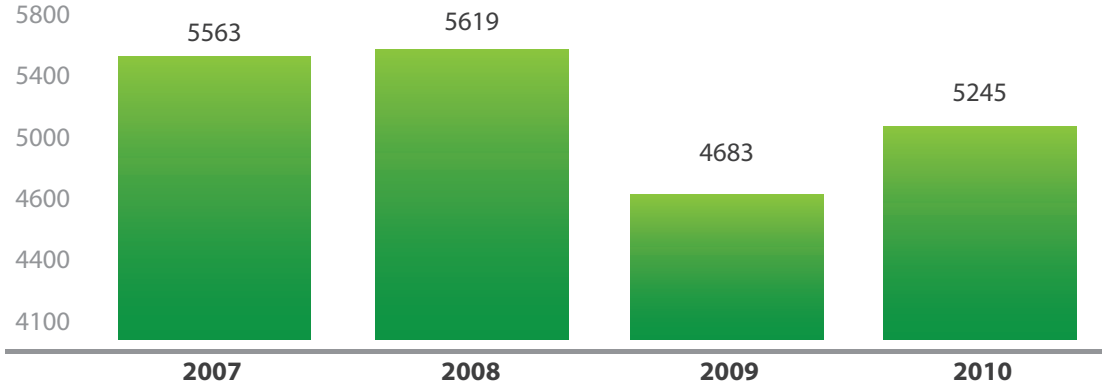


Figure 10. Evolution of staffing in the forestry sector

Analysis of staffing evolution shows a downward trend in the number of employees. If in 2008 their number was 5619 persons, in 2010 this reached 5245 people, recording a decrease of about 6%. However, the total number of employees engaged in forestry varies each year. The total number of people engaged in performing forest works is about 10000 people annually. New seasonal (temporary) jobs are created during forest planting and/or extension activities, tending of forest plantations and for the NTFP production and harvesting.

Another important aspect that is worth mentioning – the wages are over 55% of the total revenue collected (Figure 11).

As concerns the average monthly salary of employees of the forestry sector, there is a tendency to increase it (Figure 12). At the same time, the current average salary of the employees in the sector is actually the lowest recorded in the national economy, being under the minimum of the national subsistence.

Based on the assessment of impacts of the financial crisis and global economic recession on the state budget, Agency Moldsilva developed an Action Plan to streamline costs and expenses, with concrete actions to be implemented in the short term, including:

a) Reviewing the financial and economic development plans in order to improve financial management, strengthen financial discipline, reduce the cost of sales etc.;

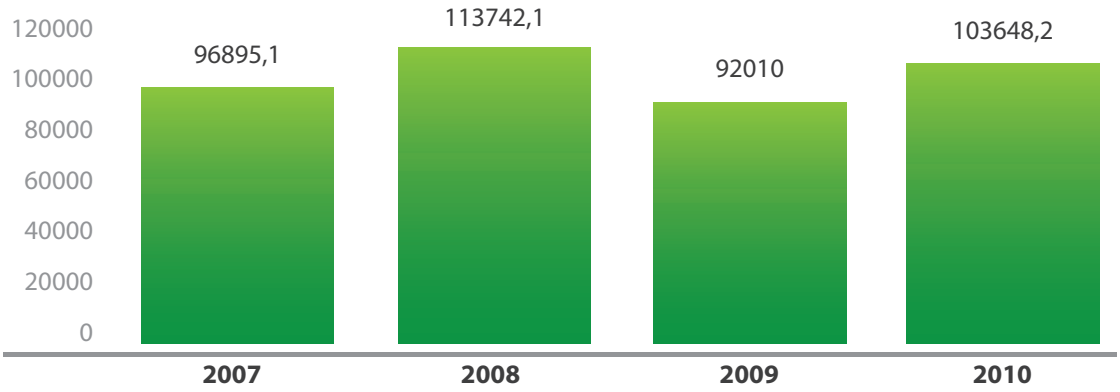


Figure 11. Evolution of the wage scale in the forestry sector, thousand MDL

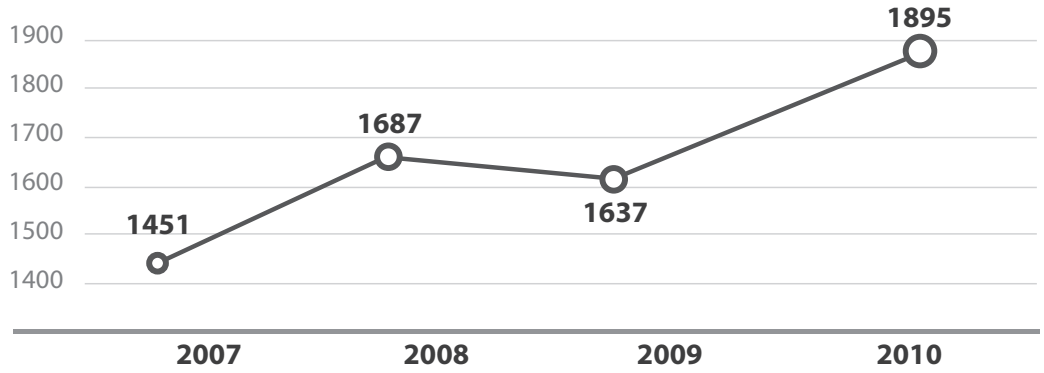


Figure 12. The average monthly wage in the forestry sector, thousand MDL

b) Ensure debt reduction, debt payable for employees' remuneration, consolidated budget and the state social insurance budget;

c) Ensuring rational exploitation of all funds transferred.

In parallel, it was established that the priority task is the unconditional and further performance of all state programs, both sectoral and national, providing continuous functionality of forests and efficient management of national forests and wildlife resources.

Current forest management and extension activities are the result of a total sectoral mobilization, both of financial resources and human potential of the forestry sector. It is therefore evident that the forestry sector, exhausting the entire existing potential and tending to further increase economic and financial indicators and land areas covered by forest, needs support and financial assistance from the state. In case of self-financing, the forestry sector can only thrive by providing stimulatory economic leverages, because revenues from timber and non-timber forest production cannot ensure forestry sector's functionality and development.

6 FORESTRY SCIENCE

Forestry research aims at substantiation of forest sustainable management, based on the knowledge of the forest ecosystems structuring and functioning, and assessment of the effects of global changes that occur in the natural, social and economic environment with impact on forests, so that a conservation and improvement of biodiversity and its productive potential is achieved.

Scientific investigation in Nature reserve Codrii (Agency Moldsilva)

The forest science and forestry research are conducted mainly by academic institutions of the Academy of Sciences of Moldova and universities, which train specialists in tight cooperation with the Forest Research and Management Institute (ICAS) and nature reserves subordinated to Agency Moldsilva. Planning and coordination of these scientific investigations are ensured in accordance with the provisions of the Strategy for Forestry Sustainable Development in the Republic Moldova, which is under implementation of Agency Moldsilva. The mechanism for carrying out researches in the forests is defined by the Regulation on forest land use for recreation and scientific research.

Scientific research within ICAS. Between 2006 and 2007, the technical and scientific activity of the Forest Research and Management Institute was focused on two main areas: forest biodiversity and sustainable management of the forestry sector.

ICAS specialists have been actively involved in forest management planning work, they conducted researches on plant diversity of forest ecosystems in the state protected areas managed by Agency Moldsilva (e.g. landscape reserves "Rudi-Arionesti", "Holosnita", "Dobruşa", "Climăuţii de Jos", "Poiana Curătura", "Hlingeni", "Saharna", "Cosauti", "Trebujeni", "Ţapova", "Pohrebeni"; botanical monuments as representative areas of forest vegetation, such as "Cuhureşti" and "Baltata"; nature landscapes of "Cobâleni", "Vascauti", "Teleneşti" and "Ghiliceni"), and some botanical and inventory to assess the condition of forest vegetation outside the national forestland. Such studies helped ICAS develop an Action Plan for community forest management and local development.

Increments in the forest formations and the average exploitability age for pedunculate and sessile and downy oaks were studied. During 2006 - 2010 investigations of increments and the determination of best age (exploitability age) for black locust were conducted too. During the same period other scientific researches continued, such as: evaluation and monitoring the effects of pollution on forests within the Program of international cooperation "ICP-FORESTS" whereby, every year, since 1992, an inventory of all permanent control surveys from the European and national forest monitoring networks was carried out; assessment of the current condition of the seed sources and development of their recovery measures; analysis of seed quality of forest trees and shrubs; forest pathology monitoring and pest management.

In 2008 ICAS experts studied the phytocenotic and floristic diversity of the herbaceous stratum of afforested areas within the Community Forest Development Project in Moldova. In 2010, together with the specialists of the Institute of Soil Science and Agrochemistry "N. Dimo", ICAS conducted a pedological study in order to develop agrochemical and irrigation recommendations to increase productivity of the Centre for Industrial Reproductive Forest Material from IS Telenesti.

ICAS organized a number of national and international seminars, including an international scientific and practical conference in 2006 and published a collection of scientific papers. Every year ICAS developed and published books, papers and methodological guidelines, technical regulations and standards with regard to the national forestry sector.

Scientific research within nature reserves. "Annals of Nature" are developed annually by the four nature reserves managed by Agency Moldsilva – Codrii, "Plaiul Fagului", "Padurea Domneasca" and "Prutul de Jos". The Annals include information on soil condition, specific climatic factors, changes in flora composition, seasonal dynamics of plant communities, analysis of fructification and seed production, and abundance of fructification in macromycetes. Also, some unusual phenomena of plant and animal communities and ecosystems are also recorded. The specific composition of fauna, new species of vertebrates and invertebrates, rare species of animals are also monitored. Annals of Nature's calendar include also the chronological data on phenomena related to ecosystems and habitats in a dynamic connection with weather elements and annual phenological periodization.

More scientific research is traditionally conducted in the well-known nature reserve Codrii, which is better scientifically equipped and staffed. Botanical investigations are focused on floristic taxonomic composition by forest types and meadow flora, including monitoring of such rare plant species as *Epipactis palustris, Orchis palustris, Dactylorhiza majalis, Eriophorum latifolium* etc. Biodiversity of fungi in forests is under continuous monitoring with emphasis on the genus Amanita. Entomological investigations are mainly focused on pest species, their identification and diagnosis, and possible outbreaks control. A network of permanent surfaces are located and designed for dendrometric and auxological research, mainly on pedunculate and sessile oak trees. The changes in carbon stocks in forest plantation created within the forest extension initiative of Moldsilva are also studied. Wildlife is of high scientific interest as some species are part to hunting management. Other animal species, such as birds and reptiles are monitored too, especially in a comparative habitat context. Pedological studies refer to geographical distribution and morphological features of soils in the reserve, including the influence of texture on gray soil properties on plant communities.

Nature reserve "Plaiul Fagului" conducted a research program "Developing scientific support for the reconstruction of natural forests that do not correspond to site conditions and functions". This research aimed at the optimization and rehabilitation of degraded oak forests, assessment of morphological, physiological and genetic variability of plantations of pedunculate oak of various origin, highlighting leaf thermo-tolerance of the genotypes using the electrolyte leakage method, analysis of thermo-tolerance among various oak species in the country, improvement of forest tending methods to be applied in degraded sessile oak sites invaded by hornbeam, inventory of most representative trees to ensure a constant seed stock. Results were presented in the monograph publication "Forest ecosystems of Nature Reserve Plaiul Fagului" (authors N. Doniţă, A. Bear et al.).

Research within academic scientific institutions. Academy of Sciences of Moldova conducted some scientific investigation in forests either independently or in cooperation with entities of Agency Moldsilva.

Botanical Garden (Institute) studied the phytocenotic and floristic diversity of the protected areas in order to develop recommendations for optimization of the conservation of plant diversity; in situ and ex situ conservation of forest genetic resources for oaks (*Quercus robur*, *Q. petraea*); technological recommendations for the reconstruction and creation of forest belts in order to reduce the negative impact of natural disasters; floristic biodiversity of forest protected areas in the Middle Prut river.

Institute of Zoology studied faunistic diversity in forest ecosystems, including entomofaunistic analysis of harmful and useful insect species, ornithological studies, investigations of hunting activities and game management. Institute of Zoology leads wildlife monitoring activities in the country and provides useful information about animal diversity (game, snails, bees etc.) of economic importance, including invasive species that cause damages to ecosystems.

Institute of Ecology and Geography conducted soil survey in protected areas, a passive and active

biological monitoring of forest and urban ecosystems, a study of aerophore algae in nature reserves and their ecological and biological significance.

Institute of Genetics and Plant Physiology cooperates with Botanic Garden and Nature Reserve Codrii for the assessment and inventory of species included in SEEDNet Program for medicinal and aromatic plants.

In conclusion, an appropriate scientific support is needed for solving problems that the forestry sector of Moldova faces nowadays. All scientific researches should contain an applicative component, including concrete actions and recommendations for a better conservation of forest resources, as well as a perfect understanding and coordination of activities to avoid duplication and overlapping.

Initial phase of regeneration in beech stands (Nature reserve Codrii, Agency Moldsilva)

7 FOREST BIODIVERSITY

7.1 Forest ecosystems

Based on dominant species formations in forests, a number of 28 types of forest ecosystems (forest formations) were identified in Moldova, such as: pedunculate oak, sessile oak, pubescent oak, beech, flooded forest, black locust and many varieties of all these and other species.

The "forest oak with cherry" type is widespread in the north of the country and covers an area of 11600 ha. It is characterized by mono-dominant stands of pedunculate pak (*Quercus robur*) with high presence of wild cherry (*Prunus avium*). Its floristic composition includes about 350 species of vascular plants, with 10 rare species. This type of ecosystem is currently under high influence of dry conditions and its natural regeneration is very week.

The type of "sessile oak and pedunculate oak with beech" forest in the central Moldova covers about

160000 ha. Floristic diversity of these ecosystems is the richest in the country and includes over a thousand species of vascular plants. 17 species of plants are included in the Red Book of Moldova, such as: purple toothwort (*Dentaria glandulosa*), annual honesty (*Lunaria annua*), spindletree (*Euonymus nana*), elegant crown vetch (*Coronilla elegans*), forest peony (*Paeonia peregrina*), bird cherry tree (*Padus avium*), service tree (*Sorbus domestica*), sword-leaved helleborine (*Cephalanthera longifolia*), lady's-slipper orchid, (*Cypripedium calceolus*) etc. The highest diversity of vascular plants is found in the nature reserves Codrii (with 945 species) and "Plaiul Fagului" (with 720 species).

Ecosystems of pubescent oak are present in the south of the country and cover about 7000 ha. Their floristic diversity comprises circa 400 species of vascular plants, some included in the Red Book of Moldova, such as: angelescu cornflower (*Centaurea angelescui*), greater pasque flower (*Pulsatilla grandis*), wild pear (*Pyrus elaeagnifolia*), and others (*Gymnospermium odessanum*, etc.).

Azonal forest ecosystems of willow, poplar and pedunculate oak (which are flooded forest type) of the lower Prut river basin cover an area of 15000 ha. Their floristic diversity comprises about 400 species of vascular plants, including rare species in Moldova, such as: black alder (Alnus glutinosa), white alder (*Alnus incana*), forest grape vine (*Vitis sylvestris*), snake's head (*Fritillaria meleagris*), southern adderstongue (*Ophioglossum vulgatum*) etc.

Circa 1140 species of vascular plants are recorded in the forestland and forest-steppe areas of the country, which represents over 60% of all plant species in Moldova (i.e. 1832 species of vascular plants).

The plant communities in ecosystems determine what animal communities exist within those systems. Forest ecosystems of Moldova are inhabited by 172 species of terrestrial vertebrates (47.8% of the total species of Moldova), of these 47 species are mammals, birds - 106, reptiles - 9, and amphibians – 10 species. Forest ecosystems of the Central Codri are defined by a high compactness index, which creates conditions for the most diverse flora and fauna in the country. However, both human activity (plant harvesting, mushrooms collection, forest cutting activities, pollution etc.) and the decline in available food sources (gophers, other small rodents) are continuing to adversely affect the large species of prey birds, such as the large spotted eagle (*Aquila clanga*), lesser spotted eagle (*Aquila pomarina*), saker falcon (*Falco cherrug*) etc.

7.2 Climate change impacts on forest ecosystems

Climate change is a global phenomenon with direct consequences for natural ecosystems. Zonal forest ecosystems, together with the steppe and rocky habitats, are highly dependent on weather conditions in the region and are therefore the most vulnerable to climate. Increased vulnerability of these ecosystems is the result of decreased functionality due to their fragmentation and degradation.

Central European mesophilic type of forests, which cover northern and central parts of the country, are on the south-eastern limit of their natural range. Climate is the main factor limiting the distribution of these forests.

Droughts at the beginning of the third millennium are already common feature of the weather (coming every year with deep consequences, as the one of 2007) and can lead to a decrease in mesophilic forest area (beech, pedunculate and sessile oaks), which will tend to retreat to the center (Central Europe) in favor of thermophilic forests with pubescent oak in the south.

The direct influence of climate change on animal world is less evident, because animals, unlike plants, can adapt to some changes in their behavioral and eco-physiological mechanisms. Indirectly, the animal world will be influenced by vegetation degradation, food unavailability, water shortage and lack of reproduction sites. Many animal species are at habitat risk, where extreme conditions of existence increase the vulnerability of biological resources. Once the southern and south-eastern elements of flora will tend to dominate over those areas, the number of appropriate animal complexes would only increase.

7.3 Biodiversity conservation

In parallel with the negative influence of environmental factors on potential biological diversity, the human factor has a high contribution to it too. Human intervention for excessive use of steppe regions for the development of agriculture, drainage actions on rivers and wetlands, deforestation, improper enforcement of forestry technical activities (substitution of natural composition and formations) - all these led to a drastic reduction in the first two levels of biological diversity.

Forest biodiversity conservation in Moldova is ensured by the existence of a network of forest protected areas, in accordance with the legal framework and regulations applicable to forest management processes etc.

Biodiversity conservation is also ensured through a protected area system (Law on State Protected Natural Areas, No. 1538-XIII of 25.02.1998), which includes 161100 ha or 4.8% of the country territory (Table 19). Protected areas currently cover 75000 ha or about 22% of the forestland managed by Agency Moldsilva.

№	Category of protected area	Number		Surface, ha		Covered by forests, %
		Total	including forests	Total	including forests	
1	Scientific reserves	5	5	19378	19378	100,0
2	Natural parks	0	0	0	0	0,0
3	Nature monuments	130	3	2906,8	785,2	27,0
	a) geological and paleontological	86	2	2681,8	660,3	24,6
	b) hydrological	31	0	99,8	0	0,0
	c) botanical	13	1	125,2	124,9	99,8
4	Natural reserves	63	6	8009	7791	97,3
	a) forest	51	5	5001	5001	100,0
	b) medicinal herbs	9	8	2796	2740	98,0
	c) mixed	3	1	21	50	23,6
5	Landscape reserves	41	4	34200	32804,4	95,4
6	Resource reserves	13	4	52	478,0	91,4
7	Wetlands of international importance*	3	3	94705,5	13727,0	14,5
8	Multifunctional management areas	32	0	1030,4	0	0,0
9	Dendrological gardens	2	0	10	0	0,0
10	Landscape architectural monuments	20	0	194,1	0	0,0
11	Zoos	1	0	2	0	0,0
Total:		**307**	**14**	**161068**	**74963,6**	**46,5**

* Wetlands of international importance include various types of ecosystems, including forestlands managed by Moldsilva, also private and community lands.

Table 19. Protected areas

1. Aesculapian Snake 2. Lady's-slipper orchid 3. Stag beetle 4. Scarce Swallowtail

In the context of achieving its goals, the adjustment of the protected areas system to the requirements of forest ecosystems representativeness is needed. It is also recommended to establish an ecological forests network with a higher secure protection and forests of special interest in order to conserve and restore representative forest ecosystems or to protect those under risk.

Nature reserve Codrii (Agency Moldsilva)

8 ONGOING PROJECTS

During the last decade, the activity of Agency Moldsilva was focused on the implementation of some important national and international projects, such as "Moldova Soil Conservation Project", "Moldova Community Forestry Project", the Japanese Grant for Moldova "Community Support Program for Sustainable and Integrated Forest Management and Carbon Sequestration through Forestation", and the ENPI FLEG Program.

Forest biomass assessment (Forest enterprise Chisinau, Agency Moldsilva)

8.1 Moldova Soil Conservation Project

8.1.1 General description

The Moldova Soil Conservation Project (MSCP) was officially launched in September 1st, 2002. The main objectives of the project are restoration and conservation through forestation of 20.3 thousand ha of degraded lands, and the major goal of the project is to support the implementation of the United Nations Framework Convention on Climate Changes (UNFCCC, 1992) as well as the Kyoto Protocol mechanisms (1997).

MSCP Project will be implemented and financed by Agency Moldsilva, and the assigned amount of investments required is about UDS 19 million (for the first 20 years: planting, tending, completion, maintenance, security, etc. activities), of which about 80% will be allocated during the first five years. Owners of lands are 383 local public authorities and 23 forest entities throughout the country, except Transnistria region.

This project will prove the effectiveness of measures for the afforestation of degraded lands and pasturelands under conservation regime and for sustainable use of existing forests and newly planted forests, entailing a positive economic effect, mainly by offering the possibility to harvest wood and non-timber forest products as a result of forestry activities. Additional wood supply to population from rural areas will have a beneficial impact on the overall condition of the forest resources and on the conservation of biodiversity, which will be achieved by the reduction of pressure caused by illegal logging, grazing etc.

The main project activity, planting of forestry species, is almost complete. Thus, during 2002–2006 the entire area of the MSCP was already planted. At present, tending and completion/restoration works of these forestry species, including in the context of biodiversity conservation are carried out.

Besides harvested wood products, the net reduction of CO^2 emissions in the atmosphere in the first 20 years will be around 3.6 million tons, of which 1.9 million tons are already contracted by the World Bank Funds:

- Agreement with the Prototype Carbon Fund – purchase of 1.3 tons
- Agreement with the BioCarbon Fund – purchase of 0.6 tons

In accordance with the provisions of the Prototype Carbon Fund and the BioCarbon Fund of the World Bank, Agency Moldilva reported reduction of emissions of approximately 515 thousand tons of CO^2 during 2004–2009. Under the MSCP the distribution of financial means per forestry units is made based on the quantitative participation (area of planted forests) and qualitative (planted species, soil fertility, anticipated production, class of forestry species etc.). The allocation is made based on the Decision of the National Program Advisory Committee, which includes representatives of the Parliament, Government, Ministry of Environment, Ministry of Finance and Agency Moldsilva. These funds are supposed to maintain the forest plantations established by the project, ensure forestry units with needed equipment for afforestation and regeneration works, replication of the afforestation experiences etc.

8.1.2 Project benefits

General benefits of Moldova Soil Conservation Project are of social-economic and ecological nature:

- extension of areas covered by forest vegetation (the project share is of 15% from the planting strategy undertaken by Agency Moldsilva for 2003–2020);
- reintroduction of 20.3 thousand ha of degraded lands into the general production circulation;
- reduction of the negative impact of climate changes through carbon sequestration and reduction of greenhouse gases emissions (the total volume of sequestrated CO^2 during the first 20 years will be 4.3 million tons, including net 3.6 million tons);
- receiving financial resources from the sale of emission reductions – the volume contracted for 2004 – 2017 is of 1.9 million tons of CO^2, that is about $7 million;
- supplying rural population with wood products (about 70 thousand m^3 of wood biomass annually) and non-wood products (hunting, medicinal herbs, apiculture etc.);
- supporting the biodiversity enhancement;
- decrease the erosion processes, consolidate the landform, improve the environment conditions with direct effects on human health and ecological security of the country;
- creation of additional jobs (temporary and permanent).

8.2 Moldova Community Forestry Project

8.2.1 General description

Agency Moldsilva in cooperation with the BioCarbon Fund launched a new project - "Moldova Community Forestry Project" (MCFP). The goal of this project is to newly create community forests on 9.4 thousand ha by afforesting eroded and nonproductive lands, sequestrating the carbon and reducing the emission of greenhouse gases, improving the regional and local forestry resources, additional provision with wood products and contributing to local/regional sustainable development. The investment needs for the implementation of the project during 2006–2036 are estimated at $27 million. This amount will be secured by the Agency Moldsilva and the 289 communities participating in the project.

From the total area planned for forestation under this project, 8.9 thousand ha (or 94,4%) are owned by local public authorities, about 0.5 thousand ha (or 5,6%) belong to other owners. As many as 21 forest entities of Moldova that undertake forest planting have established cooperation agreements with LPAs in order to improving and protect the degraded lands meant for afforestation. The duration of such contracts is of 5 – 10 years. After the contract termination, the LPAs will be responsible for the management activities in the newly established forest plantations.

8.2.2 Activities

Planting activities under the MCFP were carried out during 2006–2009. At present, cleaning and completion/restoration works in afforested areas are carried out, including in the context of improving/conserving the biodiversity.

In the context of fulfilling the obligations under this project, Agency Moldsilva undertook in June – October 2010 a full assessment of forest plantations created under MCFP. The assessment revealed that the vitality of majority of the newly created forest plantations included in the BioCarbon Fund agreement was satisfactory. Thus, from the total area of the project, 901.5 ha (9.6%) are forest plantations included in the fully stocked wood. Circa 71% survival rate is assumed for 4327.9 ha (45.9%) of plantations, 71%, 2745.9 ha (29.1%) are plantations with a survival rate of 51-70% and 1454.6 ha (15.4%) are plantations with a survival rate under 50%. It should be mentioned that such a situation was created by unfavorable climate conditions from the last three years (severe droughts in 2007 and 2008; floods in 2008 and 2010).

Based on the results of the above mentioned inventory, Agency Moldsilva requested from all subordinated forest entities involved in the project to undertake measures aimed at improving the condition of forest plantations. According to these documents, an area of 3654 ha (34.5%) of plantations are subject to recovery and improvement, and 213 ha (2%) are to be replanted. These activities are to be implemented during 2010–2011.

The project documents, with relevant annexes, were sent to the National Commission for the implementation of UNFCCC and Kyoto Protocol provisions (DNA) on April 8, 2009. Agency Moldsilva received the Approval Letter on April 30, 2010.

Recreational area of Vadul lui Voda city (Criuleni district)

A validation mission composed of representatives of the Swiss company SQS and BioCarbon Fund visited the project during May 4-8, 2010. All required information was then made available to the auditors. Field trips were organized and selected sites included in the project were assessed. The mission had the opportunity to discuss with representatives of local forest entities, local communities and others. The validation report is currently under review prior to processing.

8.3 Japanese Grant TF093088

The Republic of Moldova is the recipient of the Grant offered by the Government of Japan under Policies on Human Resources Development Fund (PHRD) for "Community Support Program for Sustainable and Integrated Forest Management and Carbon Sequestration through Forestation". The grant amount is $975900. The grant will be assimilated by the Agency Moldsilva and the Forest Research and Management Institute (ICAS) through the Project Implementation Unit (PIU) set up under ICAS and with responsibilities for the implementation of MSCP and MCFP Projects.

Workshop with local public authorities (Balti town)

The launching seminar of the Community Support Program (CSP) was organized in July 3, 2010. As many as 530 persons, including representatives of the Government, ministries, and forest entities subordinated to Agency Moldsilva, local district councils (participant in the MSCP and MCFP Projects), NGOs and mass media participated at the event.

During 2010–2011, 19 beneficiaries joined the CSP. The total budget for those 19 projects was about 4 million MDL, of which 3.4 million MDL (about $293000) are the funds requested under CSP, and 683 thousand MDL (or 15%) are local contribution to the project. All planned activities are supposed to have a positive impact on community forest and pasture lands, and it will substantially contribute to the improvement of their general condition by enhancing the level of management and achieving the ecological and economic benefits so needed for local communities.

A total of 1453 ha of forests and other lands covered with woody vegetation are included in the project and the forest management planning will be done in 162 ha, and 291 ha of forestland affected/destroyed by illegal logging will be subject to reconstruction/improving/completing works. Also, circa 609 ha of community pasturelands will be improved by applying various silvo-pastoral methods.

8.4 ENPI FLEG Regional Program

8.4.1 General description

The FLEG Process, a political initiative launched by G8 countries, was created to combat the threats posed to forests by illegal logging, trade, poaching and corruption. The initiative is comprised of processes which address the complex and politically-sensitive issues related to illegal logging at national and regional levels, and is implemented in cooperation with the major stakeholders from governments, civil society and the private sector. It promotes increased regional and international cooperation, as well as greater law enforcement, governance and transparency.

FLEG benefited from the support of international organizations, including EU, which granted financial support for a special ENPI FLEG Program "Improving Forest Law Enforcement and Governance in the European Neighbourhood Policy East Countries and Russia". This Program provides assistance to seven former Soviet countries (Armenia, Georgia, Azerbaijan, Moldova, Ukraine, Belarus and Russia) to supports them in the development of sound and sustainable forest management practices, including reducing the incidence of illegal forestry activities. This program is funded by the European Union and implemented through the World Bank, International Union for Conservation of Nature (IUCN), and World Wildlife Fund (WWF).

In 2008 the World Bank supported the development of the FLEG National Action Plan (NAP) in the Republic of Moldova. NAP preparation activities were conducted by Agency Moldsilva and the international consulting companies Indufor and Intercooperation. All relevant stakeholders were involved in: (a) Government (including line-departments), parliamentarians, judiciary sector, district and local authorities; (b) Civil society, particularly non-governmental and community-based organizations and forest dependent communities; and (c) Private sector. As a result of consultations, a special working group under Moldsilva has developed the FLEG National Action Plan. The NAP document described the situation and objectives, identified the sources for financing FLEG activities, and prioritized technical assistance to be supported by the international donors.

After consultations with stakeholders, the FLEG National Action Plan was approved Agency Moldsilva through a special Order No. 11P from January 30, 2009. Some activities were included in the ENPI FLEG Program.

Regional Workshop within ENPI FLEG Program (Chisinau)

8.4.2 ENPI-FLEG Program in Moldova

The Program implementation period is 2007 – 2011, its activities being extended by EU to 2012. The Program was launched in the Republic of Moldova in 2009 and is implemented by the World Bank (WB) and the International Union for Conservation of Nature (IUCN). In October, 2009, the FLEG Office Moldova was set up as a joint activity unit of the two implementing organizations in Moldova (www.enpi-fleg.org).

Implementation of this Program is in line with the ENPI FLEG National Plan and Budget, which is annually approved by the Country Program Coordination Team (PCT) made up of one member from the IOs acting in the country. The guidance to PCT in Moldova is provided by the National Program Advisory Committee (NPAC) established under Agency Moldsilva. NPAC consists of representatives of central forest authorities (Moldsilva, forest entities), FLEG Focal Point, ministries, NGOs, and implementing organizations (WB, IUCN).

The World Bank's subprogram is focused on the following activities:

a) providing professional FLEG training for the staff from forestry sector, including development and use of GIS system, ensuring continuous forest management, use of digital cadaster system;

b) development and implementation of training programs for different owners of forest lands, including conducting trainings for forestry staff, involved in the management, security and protection of the forestry resources, on using advanced technologies for the improvement of forest management;

c) Preventing illegal logging in forests and improving local governance by undertaking forests management planning in community forestland in order optimize the use of annual incremental growth of forests and to obtain additional volumes of wood by local communities;

IUNC coordinates the following activities:

a) FLEG public awareness, including via mass-media and Internet publications, issuance of national publications reflecting the challenges of the national forestry sector;

b) Conducting a study on real consumption of wood and wood products at national level, forecast its consumption, revealing import-export trends, providing recommendations for modifying the presentation of forest statistics;

c) Conducting a study on the social and economic impact of illegal logging and of inefficient forest practices, especially in vulnerable areas, providing recommendations aimed at mitigating the impact and identification of positive trends in managing the forests;

d) Improving forest legislation, especially with regard to the current Forest Code, including recommendations to forest payments, community forests, private forests, access to forest and its resources, separation of control and administration functions.

e) Develop recommendations on amending the acts regulating the activity of the forestry service, forestry cadaster, community forestry, registration and operation of the wood market, and certification of wood products.

8.4.3 Activities

Although the ENPI-FLEG Program for Moldova is still running, some of the activities have already been completed, and their outputs were presented to the beneficiaries. Among those, a new concept structure of the Forest Code was developed, two analytical studies carried out, training sessions organized, enhanced capacity building etc.

The new concept of the Forest Code contains a number of new visions, including the directions and chapters that arouse from national/regional needs and modern trends on sustainable forest management (so 18 chapters split into 94 articles). Important social-economic and legislative changes took place since the last edition of the Forest Code (nr. 887-XIII from June 21, 1996 with further amend-

ments and complements) was adopted by the Parliament. Moldova ratified a number of international conventions with direct or indirect reference to the environment or forests. Some provisions of these acts have to be inserted into the national legislation. At the same time, practical enforcement of the Forest Code highlighted the need for some essential amendments and complements in order to ensure better conservation of forests and their sustainable management. The Forest Code needs to tackle the broader issues related to the applied management in all forests, particularly to ensure integrity and continuity of the community forests.

The two analytical studies had the following objectives: (1) to identify the real consumption of wood products, provide prognosis, and identify the import export trends of wood products, and (2) to assess the scale of illegal logging and the social and economic impact of illegalities on local communities.

The consumption of wood and/or wood products may provide important data that would reveal the extent of illegal logging and other forest contraventions. For example, the results of estimative annual consumption of wood and other energy biomass used by the population in the Republic of Moldova is very high – circa 1,4 million m^3. Most of this wood is used by rural population as primary energy source, so the consumption of fuel wood is estimated at about 1 million m^3 per year (fuel wood constitutes 74% of the total wood and other energy biomass annually consumed). For comparison, average annual increment in forests managed by the Agency Moldsilva (which manages about 90% of forests in the country) is of 1197 thousand m^3 (www.moldsilva.gov.md). The annual estimative consumption of timber in households is about 41 thousand m^3, mainly used in constructions (partially for energy purposes). The consumption of other sources or alternative biomass (vegetal litter from orchards, vineyards, gardens, other organic waste) is around 320 thousand m^3/per year.

These are estimative figures, and the annual / seasonal consumption may vary, depending on the social and economic conditions. With the increase in gas price, a strain for energy wood products on the market is forecasted, and this will lead to the increase of pressure on forest ecosystems. At the same time, many experts mention that the most of the consumption is based on internal forestry resources, and the consumption exceeds the volumes authorized for harvesting.

The training program is implemented by Ecological Society "Biotica" jointly with ICAS, by organizing a series of trainings with forestry staff involved in management, security and protection of the forestlands. As many as 10 (of total 12) training sessions have already been conducted so far. Of them 7 were targeted at the staff of the forestry entities subordinated to Agency Moldsivla. These seminars were focused on:

Landscape in Central Moldova (Calarasi district)

a) Particularities of the forest management process (2 seminars with the participation of 90 persons);

b) Forestry legislation, including aspects of forest security and hunting management, recording and issuing materials about forest offenses, use of forest land for hunting etc.; recent updates of the legislation, harmonization prospects; 5 seminars were organized with participation of directors of forestry units, chief forest engineers, chief forest districts, forest protection engineers etc. (about 220 people in total).

For the representatives of local public authorities and private forests owners, 3 seminars were organized with participation of 200 persons. The main issues covered by these seminars were the enforcement of the forest law, including particularities of community and private forest management.

Forest management planning in community forests is carried out the by Public Association "EcoSpectru" and aims at improving forest management in lands managed by local communities and at optimizing the revenues from forest activities in the future (including by obtaining additional volumes of wood) as well as at preventing illegal logging and other contraventions associated o forest ecosystems. Circa 2520 ha of community forest lands owned by 13 municipalities in 5 pilot administrative districts are included in the following activities:

a) boundary delimitation and marking the community forest areas;

b) developing for each LPA of a set of documentation (forest management plans and map) that will help them ensure sustainability in their forests.

A so-called 1st Management Planning Conference was held, where professional forest engineers met with representatives of LPAs and agreed upon work plan to be undertaken. Then, the filed work had begun (plotting, boundary delimitation, marking, site/resources description, designing maps etc.).

9 GENERALIZATION AND DEVELOPMENT PRIORITIES

9.1 Generalizations

The main problems the forestry sector of the Republic of Moldova is facing are:

1. Continuous degradation of forest ecosystems, forest habitat fragmentation and alteration.
2. Forests shrinking, poor conditions for rare and endangered types of forest ecosystems (such as beech, pubescent oak, rocky formations etc.).
3. Low quality of forest habitats
4. Insufficient and inappropriate stand regeneration and ecological reconstruction activities aimed to improve forest composition and to promote ecotypes resistant to climate change, replace the introduced species and reestablish the natural types of forests.
5. Lack of interconnection corridors between scattered forest bodies.
6. Continuous erosion of forest biodiversity.
7. Ineffectiveness of currently used methods and techniques of forest tending, regeneration, conservation and reconstruction of forest stands.
8. Inefficient integration of achievements of forest biodiversity conservation into the theory and practice of forest management planning.
9. Continuous degradation, fragmentation, destruction, spontaneous management without planning imposed by the forest regime of forests owned by municipalities.

9.2 Development priorities

Priorities and recommended options to improve the situation in forestry are:

1. National policies and strategies:
- adjustment of national forest policy to the recommendations of the specialized international fora;
- updating and modernizing the Sustainable Development Strategy for the National Forestry Sector and implementation of the regulatory framework;

2. Legal and regulatory framework:
- developing the new version of the Forest Code (including new chapters as: forest payments, municipal and private forestry sector etc.);
- review and develop important components of forest normative base as integral parts of the forest regime (maintenance and conservation of forest resorts, conservation of forest genetic resources, certification of forests, forest products and management systems etc.);

3. Institutional framework:
- deep structural reform, based on new social and economic realities, strategic objectives in line with the changes throughout the national economy;
- promoting effective forest management, transformations and performance, to encourage investment, including private allocations, and to stimulate competition, free initiative, risk taking and to discourage the underground economy;
- establishing the personnel responsible for managing organization of forests and forest vegetation owned by municipalities and private sector, and providing primary logistical support;
- create real conditions for strengthening community forestry sector and establishing a viable private forestry sector;

4. Conservation and development of forests and other vegetation types:
- implementing the principles of sustainable management of all forests;
- diversification, intensification and modernization of forestry techniques;
- careful and proper management of rare and endangered ecosystems;
- expanding forest management planning throughout the whole country regardless the ownership, application of an unique forest management system, ensuring a record of all forest resources, achieving maximum assigned functions etc.;
- diversification, intensification and modernization of forestry techniques and application of a differentiated approach based on ecological and site/habitat principles;
- increased volumes and environmental efficiency of forest tending, regeneration felling, conservation and ecological restoration applied in forests;
- creating a network of forest belts, small bodies of forests to reduce distances between existing forest areas;
- developing local plans on the use, conservation and development of natural resources (forests, other types of forest vegetation, pastureland), establishment of ecological networks at municipal level, taking into account the geographical particularities, ecological, landscape etc., including in the context of prevention/reduction of natural hazards;
- economic evaluation of forest values and gradual implementation of special payments for forest beneficiaries (landowners, curative institutions etc.), and the establishment of economic infrastructure and a market of forest products;

5. developing renewable energy sources (biomass):
- creating forest energetic plantations;
- rational evaluation of the potential for wood biomass production;

6. Rural development:
- increase the contribution of the forestry sector to rural development;
- poverty reduction and job creation in the community and private forestry sector, improvement of

living conditions;

- ensuring ecological balance, improve national and local landscape;
- increase the contribution of forestry to food security;

7. Research and innovation:

- assess genetic variability of the main forest species to ensure a seed source and conservation of forest genetic resources;
- description of natural forest ecosystems for proper execution of forestry work and establish their vulnerability level;
- develop methodologies/technologies for ensuring adaptability of forest ecosystems to climate change phenomenon;

8. Public participation in decision-making and access to information:

- develop and implement a collaborative mechanism between land owners, forestry and environmental authorities, and local communities;
- develop a national public information system, raise awareness about forests, decisions made, and public participation in the implementation of such decisions;
- modernization of existing informational resources and developing a modern information system based on advanced technologies (improving evidence of information, GIS implementation, etc.);

9. Professional training and eco-forestry education of the population:

- modernization of professional training process of specialists, and retraining the existing staff in accordance with new economic conditions, based on the current challenges of the national forestry sector (strengthening education within forestry institutions, strengthening the National Center for retraining forestry personnel, etc.);
- developing and implementing training programs for forest owners and other types of community or private forest vegetation;
- public awareness on the role of forestry and foresters for the society as well as situation in the forestry sector, developing and implementing of informational programs in order to increase the eco-forestry awareness among people, create a positive image and increase the prestige of the profession of forester;
- strengthening the communication capacity of state forestry bodies in order to establish a sustainable social partnership with local communities through public administrations.

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The ENPI FLEG Program supports governments of participating countries, civil society and the private sector in the development of sound and sustainable forest management practices, including the prevention of illegal forestry activities. Participating countries include Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine. This Program is funded by the European Union with a contribution from the Austrian Development Cooperation.
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Protected area "Bechir Valley" in the riverbank of Norhern Moldova (Soroca district)