

<https://doi.org/10.5281/zenodo.8330445>

## **MANAGEMENT OF FOREST RESOURCES IN CONTEMPORARY NATIONAL ECONOMY**

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### **Abstract**

In modern era, forest resources are integrated into the life and general social relations of human communities, having a significant impact on their cultural and social organization. It is recognized that forest resources were indeed the basis on which people built their material existence, economic development for many centuries, bearing par excellence the seal of wood. Currently, the area covered with forests in the Republic of Moldova is 362.7 thousand hectares, which is 10.7% of the country's territory. The share of forests in the total area of the country is insufficient to ensure the ecological balance and meet the needs of the national economy in the products and services of forestry.

Keywords: forest management, forestry fund, forest resources

### **INTRODUCTION**

The management of forest resources in the contemporary national economy under these circumstances has become extremely relevant and important. Since wood is a renewable but not inexhaustible raw material, sustainable forest management and exploitation must be ensured, and sustainable management of any forest land must take on a new meaning and become more than just a concept. The most drastic period of decline in forest area took place between 1812 and 1940, followed by a period of stability up to 1960 at a level of around 200 000 hectares [1]. This was followed by a period of increasing forest area, reaching in 2013 about 375 hectares [1], but below the level of 1812. Thus, the degree of afforestation is still far below the proposed level of 15% to ensure all the ecological and economic needs of the population.

### **METHODOLOGY**

The study of this topic was based on the research of theoretical materials, documents, articles, synthesis works and materials from the press of the time that served as a support for the application of research methods in the initial investigation for the knowledge of the management of the forest fund of the Republic of Moldova in the national economy. The main methods used in the research were: the historical analysis method, historical-comparative method, induction and deduction method, analysis and synthesis method, critical analysis method, interdisciplinary approach method, and retrospective method, which helped to provide coherent methodological support for the article.

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Various principles, such as scientific principle, objectivity principle, systemic approach principle, etc. were used for the research of this study.

## **RESULTS**

In the context of the management of the forest fund of the Republic of Moldova, the Forestry Code in Art. 1 paragraph. (1) states “The purpose of the forest legislation is to regulate the sustainable management of the forest fund through the rational use, regeneration, protection and conservation of forests, the maintenance, conservation and improvement of forest biodiversity, the provision of forest resources to meet the current and future needs of society on the basis of their multifunctionality” [5]. The purpose of establishing means of protection is closely linked to the national interest of the forest. According to Article 1 of the Forestry Code, the purpose of protection is to ensure the sustainable management of forest ecosystems. Article 65 paragraph (1) is also of interest “The protection of forests shall be carried out on the basis of programs for the use, regeneration, protection and conservation of forests and shall include a complex of organizational, economic, etc. measures, which shall be carried out taking into account the state of biological diversity and ensures its protection from destruction, degradation or other harmful actions” [5] and paragraph (2) stipulates that “Maintaining the health of forests at the appropriate level shall be carried out by state forestry authorities and the owners of forest land by carrying out measures to prevent the spread and control pests and diseases of forest vegetation” [5]. Therefore, the cited norms, as a general principle of the state policy in the field of forest fund management, is undermined by the following articles, specifically, art. 34 regulating the annual volume of timber harvesting on each production unit, art. 17 providing for the manner of alienation and allocation of land from the forest fund in use and other norms, which provide that the manner and conditions of implementation shall be regulated by Government Decision [13]. These rules not only contradict the essence of the principle of sustainable forest management of the Republic of Moldova but also create prerequisites for the legality of actions that are a priori illegal and prejudice the proper development of the principles of sustainable forest management.

### **Management of forest resources**

In the current management of forests in the Republic of Moldova, the “Moldsilva” Agency combines the functions of policy and regulation development with those of forestry and hunting fund management [3, p. 82]. Excessive centralization at the departmental level of various approvals and managerial decisions is observed. It is necessary to unbundle the activities of forestry entities by transferring part of the activity to economic entities (harvesting wood from main products, creation and care of forest crops, construction and maintenance of forest roads, etc.). In strategic forest management, there are considerable reserves for the development and increased productivity of forest plantations through the use of seasonal potential, increasing the production class and more intensive use of valuable local species. There is a strategic need to develop the communal and private forestry sector.

In order to organize and manage communal forest land, it is necessary to carry out a forest inventory. Forest management reform takes into account the need to create conditions for the maintenance, conservation and development of all forest land through harmonization of the legislative and regulatory framework, development and implementation of forest policy instruments, effective supervision and control of forest law compliance.

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Forest policy documents were developed during the formation of statehood in the Republic of Moldova and borrowed some ideas and provisions from previous legislation. Others were developed in response to international instruments to which Moldova acceded.

The main factors that have led to the marginalization of forest policy in Moldova include:

1. Absence of a scientifically justified policy document on the use of forest resources for development in Moldova [10].

After the collapse of the former USSR, there was no awareness in the Republic of Moldova of the radical changes in the rapid transition from long-established social and economic conditions, based on huge natural and financial resources to the impending reality of a small state with distinct geopolitical, demographic and environmental specificities [9, p. 124]. As a result, former governments adopted a series of sporadic and unsettling measures, without adequate economic justification for the situation at the time, which subsequently proved ineffective. The concept of an administrative command regime was adopted, based largely on numerous contradictory laws and regulations.

Today, there are laws that, although discussed and approved by the same central institutions, including the Government and Parliament, are full of legal uncertainties, create confusing and even contradictory situations at the level of various state institutions and economic agents.

2. Absence of an effective policy of regional and international cooperation, especially in the field of fundraising for environmental protection and conservation of natural resources [10].

The Republic of Moldova belongs to the group of favored countries in terms of the flow of financial assistance from international funds, both in the form of donations and long-term investments.

To date, the potential of their attractiveness has not been exploited, mainly due to the low ability of the environmental agency staff to develop and promote attractive proposals for environmental projects and to integrate them into regional programs, including those for the Danube and Black Sea basins [12, p.18]. Unfortunately, international cooperation policies are limited to signing and ratifying international treaties (conventions) and participating in conferences and similar meetings.

Based on the above, the Republic of Moldova needs a clearly defined forest management policy.

The main criteria for an effective forest policy should be the following:

- Possibility to regenerate forest resources and bring them to an acceptable level;
- Reduction of pollution and disturbances to the minimum safe level;
- Compliance with the limits of biodiversity conservation;
- Prevention of irreversible economic and biological processes through risk avoidance strategies;
- Orientation of institutional changes towards good environmental practice;
- Orientation of the economic decision-making process towards sustainability;
- Distributing prosperity in a fair and reasonable way [10].

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This is possible by reforming forest policy in the following directions:

- Harmonization of the existing forestry legislative framework at European and national level by eliminating contradictions with other laws in areas such as environmental protection, soil fertility conservation, spatial and rural planning, etc.;
- Elaboration and approval of a forestry policy document, of the new version of the Forestry Code, etc.

Forest management refers to the methods of planning, organizing and implementing activities for the management and rational use of various forest products and services, based on the specifics of the forest production process, the specific environmental, social and economic conditions of the country, in order to ensure the continuity of forests and the economic efficiency of forestry enterprises.

There are currently three major trends in global forest management:

*1. The process of globalization and the globalization of policies and institutions in response to the growing interest of the international community in the state of forest resources.*

*2. The effectiveness of the forest management.*

*3. Widening the circle of participants in forest decision-making process in the field of forest management [14].*

Demand for forest products and services is growing both nationally and internationally. There are international initiatives to develop forests and their ecosystem services. The experience of other countries that have reformed their forestry sector, shows that it is possible to advance such reform in Moldova.

At the same time, despite the changes taking place in society, the forest sector remains conservative and less receptive to the emergence of market economic relations.

Risks and threats in the activity of the Agency “Moldsilva” are mainly related to the qualitative and quantitative aspects of the forest heritage, with lower indicators compared to the potential of forest resorts and the ability of species to reach productive and valuable stands [2, p. 68]. Forest land management and management activities have a weak scientific basis. Some positive aspects of the foresters' conservatism allowed avoiding mistakes and large-scale destruction.

In the national forestry, the forest heritage was preserved the fixed means in the field of wood processing, the mechanized centers for forest exploitation, for the processing of soils for the regeneration and expansion of previously created forest vegetation, the organizational structure at the national, district and local level has been preserved, there are technological and general discipline, also, the forestry staff with appropriate professional training was kept [6, p. 180].

Forest management must be based on the promotion of forestry based on well-defined principles, such as:

- the principle of continuity;
- the principle of functional efficiency;
- the principle of rational use of all forest resources;

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- the ecological principle [7, p. 68].

Due to its characteristics, forest management is a strategic component of forest management. The purpose of management in a market economy is not limited to the regulation of production. Over time, the demands regarding the quality of environmental factors are increasing, and the role of forestry in maintaining the ecological and economic balance is becoming more and more important. The role of forestry is to find an ecologically and economically harmonious solution. As our experience shows, neglecting the actual consumption of forest products and services eventually leads to a deterioration of forest resources.

The role and importance of forestry work must be reviewed in order to understand forest resources and to plan strategically their sustainable management. To this purpose, the works will be extended not only on the lands managed by the Agency “Moldsilva”, but also on the lands with forests and other forest vegetation, such as forest protection fences, alignments and other areas owned by local authorities [8, p. 26]. All state and municipal forests should be jointly managed, taking into account national and regional ecological, social and economic aspects, rivers and stream, etc., and should be assigned functional categories.

Planning work should follow the concept of national spatial planning, ensuring the conservation of national landscapes. The new paradigm in the planning and management of the territory will be that of holism or integrity, which primarily considers the beneficial and ecological impact of forest land. Agroforestry and silvopastoral practices demonstrate new opportunities for the valorization of land with low fertility and degradation phenomena.

A particularly important area is the identification and creation of forest genetic resources and ensuring their maintenance, conservation and development.

These forest resources will be particularly valuable and necessary as natural models of forest ecosystems and as sources of reproductive forest material for forest regeneration and expansion. These two areas are strategic for the present and future of forest resources and are outlined in the Strategy for the Sustainable Development of the Forest Sector [14].

In order to avoid overexploitation of wood and non-wood forest products, the biological production potential of the different biomass components in forest ecosystems and the critical thresholds for exploitation need to be scientifically substantiated. Logging age, technical age and protection age play a special role. Maintenance and management technologies and the use of forest products will be revised to minimize human intervention and incorporate natural regeneration mechanisms.

Ecological forestry focuses on returning to the natural structures of forest ecosystems with their self-preserving and self-regulating properties. In terms of sustainable management, it is the most efficient and economically profitable. The geographical specificity of the Republic of Moldova is quite limiting for the conservation and maintenance of forest vegetation due to the presence of steppe and forest-steppe areas, in addition to the ongoing climate change and the expansion of arid areas.

Another challenge is also the inherited condition of forest plantations with degraded and derived structures and species that do not correspond to stationary conditions, about 40% of the forest area [15]. Large-scale ecological reconstruction is strictly necessary and urgent because of increased vulnerability, avalanche triggering of abnormal and intensive desiccation processes. Existing natural forests should be maintained and conserved as an opportunity to ensure ecological restoration and reconstruction.

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Incorporating the above-mentioned activities into the priorities of forest enterprises is a complex exercise of enterprise management. The current funding mechanism depends on the volume of timber harvested and contradicts the functional classification of forest plantations and the provisions of Article 14 of the Forestry Code on the assignment of functional group I with exclusively environmental protection functions [1, p. 233]. The state should return to promotion of national interests and priorities in the forestry sector in the framework of strategic planning by establishing a state commission for the most important forestry activities.

The launch of initiatives regarding national priorities in the field of natural biodiversity conservation and forests will stimulate and intensify the actions of potential partners: public institutions, local public administration, NGO's and the private sector. One of the main reasons preventing the development of the forestry sector is the current organization of forestry enterprises, which have complex and very diverse activities. These include the collection of seeds, the growth of forest reproductive material, reforestation and extension work, maintenance and management work, primary felling, game breeding and hunting, collection, processing and marketing of non-timber products, wood processing and production of consumer goods (parquet, fences, sorghum brooms, etc.)

This complexity ensures diversification of income sources and is beneficial in times of crisis and sudden changes in the market, but what is missing is field specialization, concentration and cost optimization. Forestry enterprises operate under conditions of insufficient competitiveness and efficiency.

The endowment of forestry enterprises is below the level of requirements and with techniques, and with technologies surpassed by technical-scientific progress [3, p. 264]. One of the important activities of forestry enterprises is the exploitation and primary processing of harvested wood. On average 25 thousand m<sup>3</sup> are processed annually at enterprises, which represents about 6.9% of the total volume of harvested wood or 30-40% of the volume of working wood. Currently, there are 31 wood processing and processing sections and points operating in 18 forestry enterprises, which were established in the 1970s. The current sections and debit points were created in order to process our own raw material and that imported from Russia, Ukraine and Belarus. The project capacity of the equipment installed at the forestry enterprises is 160 thousand m<sup>3</sup> of wood mass annually in a single shift. The coefficient of use of the main machine is 0.156. The term of operation of the machine to be debited on average per branch is 20 years [7, p. 49].

Another aspect of forest management is the qualification of the Forest Corps. According to Article 64 of the current Forestry Code [5], employees of the forestry service must have special education or professional experience in forestry. The analysis of the forest management system in the Republic of Moldova shows that the human resources employed in the forestry sector are not sufficiently well trained in accordance with the qualification requirements of the job descriptions and current requirements. In the existing forest management sector in the Republic of Moldova, we can see the accumulation of the functions of developing policies and regulations with those of managing forest and hunting funds.

There is no practice of establishing specialized centers, in which to concentrate special activities, which would lead to an improvement in the quality and competitiveness of forest products and services. There are significant reserves in strategic forest management, which would allow the development and implementation of methods to increase the productivity of forest plantations by increasing the use of valuable local species. There is a lack of forest

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management plans on the forest lands owned by the municipalities. At the agency level, there is an excessive centralization of various management approvals.

Therefore, it is necessary to reform forest management to create conditions for the maintenance, conservation and development of forest land for all forest owners by harmonizing legislative and regulatory frameworks, developing and implementing forest policy instruments, monitoring and controlling legislation and forestry regulations. The national system of inventory and management of forests and lands with other forest vegetation will be maintained and improved. Given that most forest expansion may take place on local and private land, community and private forestry activities should be supported.

## CONCLUSIONS

The Forestry Fund of the Republic of Moldova is an essential component of the state, to which special attention has been given, especially in recent years, but this does not mean that the sector is without problems. On the contrary, it is one of the mismanaged sectors, with legislation that is not in line with objective realities, with contradictory provisions and inconsistent with the main forestry policies, promoted at the state level. Taking into account the above, we note that the problems of forest management in the Republic of Moldova can be successfully solved only if a forest management policy is developed, that meets the new requirements. Within the framework of forest policy, it is necessary to focus on the conservation of biological diversity at all levels, the training of forestry staff, the harmonization of the legislative framework, and international cooperation. According to the state forest policy, the main function of forests is to protect the environment and ensure ecological balance. The approach to the forestry sector largely depends on the achievement/implementation of the task of increasing the contribution of the industry to improving the social, economic and environmental situation in the country.

The forestry sector legislation of the Republic of Moldova, based in particular on principles of past management, has a number of shortcomings and requires improvement and adjustment to the new social and economic conditions in the region and worldwide.

## REFERENCES

- [1] Anuarul Statistic al Republicii Moldova, 2006, Departamentul Statistică și Sociologie, Chișinău, 2007. 703 p.
- [2] C. Muică, A. Popova-Cucu A, Contribuția Institutului de Geografie la studiul covorului vegetal în perspectivă geografică // Rev. Geogr., București, 1994, an. L, nr.1, seria nouă, p.66-72.
- [3] Cadastrul funciar al R. Moldova la 1.01.2005, Agenția de Stat pentru Relații Funciare și Cadastru, Chișinău, 2005. 864 p.
- [4] Cadastrul funciar general al Republicii Moldova pentru perioada 2006-2010.
- [5] Codul silvic al Republicii Moldova din 21.06.1996.  
[https://www.legis.md/cautare/getResults?doc\\_id=118482&lang=ro](https://www.legis.md/cautare/getResults?doc_id=118482&lang=ro)
- [6] D. Galupa, I. Talmaci, L. Șpitoc, Sectorul forestier din Republica Moldova – probleme, realizări, perspective, Chișinău, 2006. 230 p.
- [7] Eficiența și transparența utilizării resurselor fondului forestier. „Expert-Grup”. Centru Analitic Independent, Chișinău, 2013. 88 p.
- [8] F. Botnari, D. Galupa, I. Platon, et al., Raport privind starea fondului forestier din Republica Moldova: perioada 2006-2010. Agenția „Moldsilva”, Chișinău, Agenția „Moldsilva”, 2011, p. 25-27.

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- [9] Gh. Postolache Gh, *Vegetația Republicii Moldova, Știința*, Chișinău, 1995. 340 p.
- [10] Hotărârea Guvernului nr. 112 din 27.04.2001 cu privire la aprobarea Strategiei naționale și a Planului de acțiuni în domeniul conservării diversității biologice // *Monitorul Oficial al Republicii Moldova*, nr. 090 din 02.08.2001.
- [11] I. Bejan, *Utilizarea terenurilor în Republica Moldova*, Editura ASEM, Chișinău, 2010, 165 p.
- [12] N. Boboc, *Considerații cu privire la legitățile de repartiție spațială a peisajelor silvice în Republica Moldova*. În: *Mediul Ambiant*, nr. 4, 2008, p. 17-19
- [13] *Proiectul Codului silvic al Republicii Moldova*, aprobat de Guvernul RM, 2019,  
[https://cancelaria.gov.md/sites/default/files/document/attachments/proiectul\\_610.pdf](https://cancelaria.gov.md/sites/default/files/document/attachments/proiectul_610.pdf)
- [14] *Strategia dezvoltării durabile a sectorului forestier din Republica Moldova*,  
[https://www.legis.md/cautare/getResults?doc\\_id=29562&lang=ro](https://www.legis.md/cautare/getResults?doc_id=29562&lang=ro)
- [15] Ș. Lazu, V. Scorpan, Al. Teleuță Al, et. al., *Reacția vegetației silvice din Rezervația științifică „Codrii” la impactul climateric al secetei din anul 2007* // *Mediul ambiant*, 2008, nr. 3 (39).