

THE IMPACT OF ROMANIAN FORESTS ALIENATION ON THE SUSTABILITY OF THE ENVIRONMENT

Alina STANCU¹, Nicolae SUVOROV², Maria GIRIP³

¹ PhD student, The Bucharest University of Economic Studies,
email: stancu.alina.madalina@gmail.com

² PhD student, The Bucharest University of Economic Studies,
email: nicolae.suvorov@gmail.com

³ PhD student, The Bucharest University of Economic Studies,
email: maria.girip@yahoo.com

Abstract

In the last decades, a new risk factor threatens Romania's natural, social and economic balance being materialized through forest alienation to foreigners which lowers the chances of local investors and leads to negative environmental externalities. The present research aims to determine the impact of Romanian forest sale on environmental sustainability through a cause-effect analysis, to identify the necessity and possibility of tightening sales laws on forest land and to propose strategies to improve the efficient allocation of reforestation resources. For agrarian economists, the study of the phenomenon of forest alienation represents a challenge but also an opportunity to design policies for the management of the entire land market for the national interest. Such studies will take into account both the economic indicators and the forest inventory, which is the main tool for evaluating the forest resources in a country and will use the data provided by the National Institute of Statistics of Romania.

Keywords: Forest alienation, Environment, Land market, Reforestation, Romania.

Introduction

The necessity to preserve biodiversity and the importance of the forest fund and has been widely recognized since ancient times when forest was considered the main source of shelter, food and energy. For over 5,000 years, since the Iron Age, wood has become the main product of the forest, this being the most important fuel and construction material in the most diverse areas of globe. Thus, without the large quantities of wood harvested in forests, the great civilizations of Sumer, Assyria, Egypt, China, Crete, Michelin, Greece and ancient Rome, Europe, would never have developed. This is why it is rightly believed that "wood was the hero unobtrusive technological revolution that has brought us from bone and stone culture to the present "(Perlin, 1989). As the Earth's dominant land ecosystem and having a role in the formation and modeling of the earth crust, in the accumulation of carboniferous resources, in the delay of the erosion and landslides, forest also acts as a barrier to the destructive action of the winds.

Human society and forest are interconnected and the relationship of mutual dependence between them leads to a synergistic effect. The forest provides a wide range of ecosystem services and people try to manage resources efficiently as a desideratum but actually they influence each other in both positive and negative ways. The forest fund has a positive influence on society because the forest purifies the atmosphere, fixes the harmful carbon of the animals and man and releases the oxygen necessary for their respiration (Statescu, 1884); At the same time, it is demonstrated that the hygienic conditions of the big massifs are more

favorable than those of the cities, especially the industrial centers. The forest air is cleaner and healthier because smoke and dust are missing, harmful gases are not found, and pathogens are relatively under-represented (Dracea, 1920; xxx, 1950).

Literature review

Specialist literature and forest resource management shows that lands covered by forests play a determining role in modifying humidity and climate in soil erosion, but also important for preserving the environment by influencing the hydrological system that regulates the proper functioning of ecosystems.

The forest protection curtains, perpendicular to the direction of the wind, significantly reduce its velocity. Consequently, agricultural fields protected by curtains produce grain crops on average 25-30% higher in ordinary years; In the dry years, crop yields reach up to 300% of the field without curtains. This effect is due to the fact that curtains reduce evaporation and, in winter, contribute to a more uniform spread of snow on the ground, which is not driven by wind but retained in the field (Radulescu, 1956).

The forest contains numerous resources: medicinal plants, berries, edible mushrooms, nectar and pollen of flowers, etc. After Zitti et al. (1964, in Beldeanu, 2004), forests, waves, cuts and plantations account for about 60% of the total of medicinal plants existing in our country. And since natural pharmacopoeia is constantly expanding, it is easy to understand the importance of the medicinal plant treasure found in our forest fund (Beldeanu, 2004).

Research methods

This paper includes qualitative research methods that lead to a better assessment of the impact of forest land leases in Romania by analyzing the main economic and environmental indicators on the current situation of our country and by a comparative analysis between Romania and the main Member States of the European Union.

Analysis of the present situation of the Romanian forest fund

Forests are widespread in Romania providing significant value to the environment and society and providing a range of ecosystem services. According to the data provided by the National Forest Inventory the forest-covered lands occupy 6.559.000 ha of the total of land fund of Romania which accounts 23.839.071 ha.

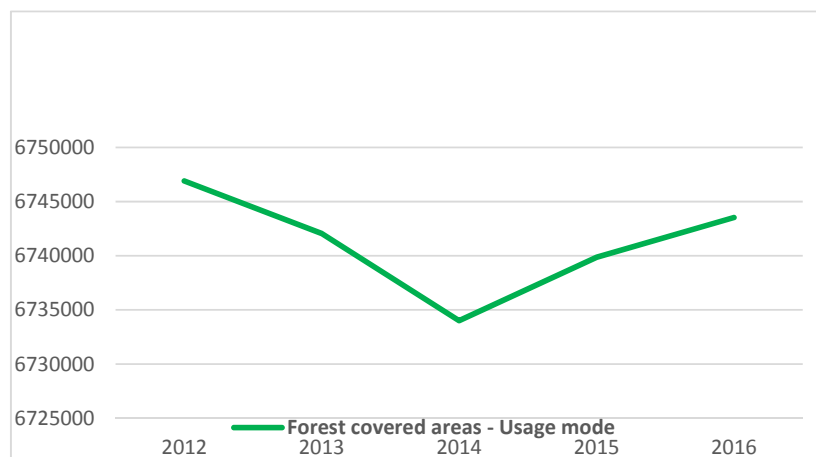
Table 2. Romanian land surface area

| No | Usage mode | 2012 | 2013 | 2014 | 2015 | 2016 |
|----|---------------------------------|---------|---------|---------|---------|---------|
| 1. | Forest covered areas (hectares) | 6746906 | 6742056 | 6734003 | 6739861 | 6733520 |

Source: National Institute of Statistics.

As can be seen in Table 1, the forests area in Romania has a slight downward trend of 1.37% from 2012 to 2016 due to massive cuts.

Graph 3. The evolution of Romanian land surface area



Source: Self Processing according to Table 1, National Institute of Statistics.

According to Greenpeace Romania 2017, the cases of illegal cuts identified by the authorities have increased by 32% compared to last year, with 12,487, an average of 34 per day. Civil society has played a major role in identifying these cases in some counties - Dolj, Gorj, Vâlcea - half of the cases investigated by the authorities being identified by the citizens. Most cases were identified, as in 2016, in the Mureş counties - 1,511 cases (12%), Braşov - 762 cases (6%) and Olt - 730 cases (6%), according to the Report on illegal forests cutting Romania in 2017.

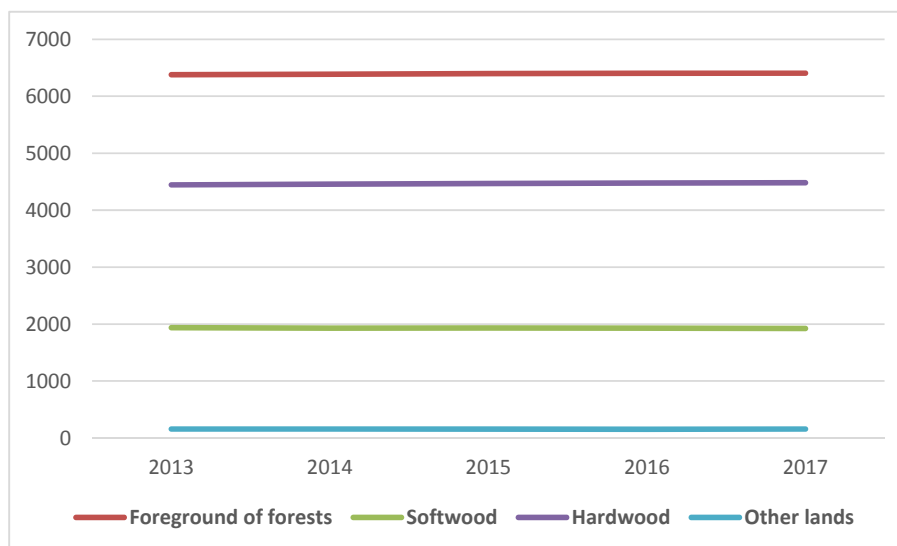
Table 4. Forest area by land and forest species categories (hectares)

| Categories of land and forest species | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------------------|------|------|------|------|------|
| Foreground of forests | 6380 | 6387 | 6398 | 6404 | 6405 |
| Softwood | 1936 | 1929 | 1930 | 1929 | 1924 |
| Hardwood | 4444 | 4457 | 4468 | 4475 | 4481 |
| Other lands | 157 | 157 | 156 | 154 | 159 |

Source: National Institute of Statistics.

As can be seen in the table above, the value of the surface area of the forest fund containing the deciduous trees shows a tidal slope with oscillations in 2016 because of the poor climatic conditions: floods, landslides. The area covered with coniferous forests is increasing due to reforestation programs administered by the National Forest Administration

Graph 2. Surface area of forest fund by land and forest species categories



Source: Self Processing according to Table 2, National Institute of Statistics.

The state-owned forest area owned by the State administered by the National Forestry Board Romsilva is composed of: Lands covered with forest: 3.031.700 ha, out of which: softwoods: 780,230 ha (25.7%); beech: 969,933 ha (32.0%); oaks: 551.382 ha (18.2%); various other species: 517,727 ha (17,1%); various soft species: 212.428 ha (7.0%)

Table 3. The volume of harvested wood

| Type of forest | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------------|-----------------------|------|------|------|------|
| | UM: Mii mc | | | | |
| | Thousand cubic meters | | | | |
| Softwood | 7921 | 7225 | 6782 | 6268 | 6530 |
| Beech | 6226 | 5836 | 6215 | 5798 | 6211 |
| Oak | 1741 | 1664 | 1768 | 1687 | 1788 |
| Various hardwoods | 1968 | 1876 | 1950 | 2008 | 2227 |
| Various softwoods | 1423 | 1287 | 1416 | 1434 | 1557 |

Source: National Institute of Statistics.

The total volume of the main products foreseen by the forest arrangement represents the possibility of the respective forest, and the annual possibility is the ratio between the possibility and the number of years of applicability of the forestry arrangement. According to the Forest Code, this is the maximum volume of main products that can be harvested annually, except for special situations, for which the approval of the central public authority responsible for forestry is necessary.

Table 4. The volume of timber exploited by forestry operators

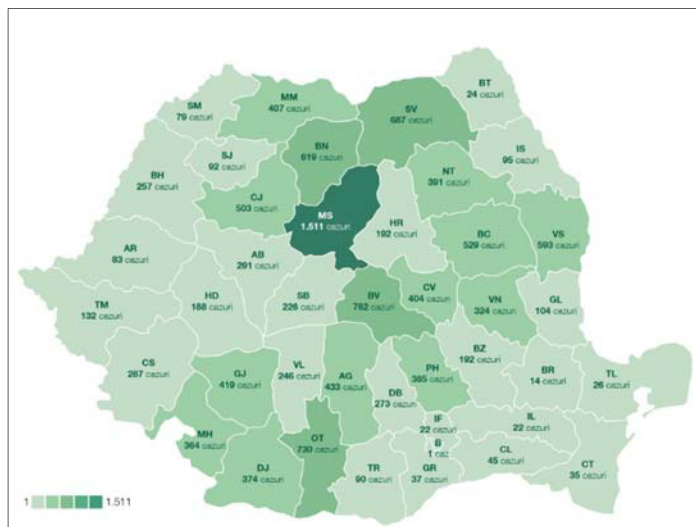
| Components | Years | | | | |
|--------------------------------|--------------|----------|----------|----------|----------|
| | 2013 | 2014 | 2015 | 2016 | 2017 |
| | Cubic meters | | | | |
| The volume of timber exploited | 16777719 | 16972050 | 16773164 | 16639843 | 16121748 |
| The volume of round wood | 15194722 | 15329912 | 15314700 | 15116714 | 14697249 |
| The volume of the bark | 847809 | 823967 | 796841 | 799088 | 769420 |
| Other secondary assortments | 735188 | 818171 | 661623 | 724041 | 655079 |

Source: National Institute of Statistics.

A new risk factor that threatens the social, economic and natural balance of Romania is the increase of the forest lands alienated to foreigners having as a main causes the fact that romanian forest lands are attractive to foreign investors who recognize the special natural conditions and socio-economic circumstances, the low prices for their sale, and the variety that lies in the fact that Romania is the intersection point of several biogeographical regions, which determines floral and fauna diversity as well as ecological conditions and systems.

The legal framework governing the alienation of forest land in Romania is made up of the Law no. 46/2008 - Forest Code which divide e the forest fund in ownership forms, Law no. 100/2010 that acts on degraded areas by afforestation and reconfiguration of ecosystem balance, Law no. 56/2010 regarding the accessibility of the national forestry fund, National Plan for Combating Illegal Tree Cuts and Government Decision no. 617/2016 for the approval of the utilization of the wood from the public property forest fund which provide conditions regarding administration and planning forests, forest integrity, controlling the application of rules on timber circulation, harvesting timber and harvesting non-wood products, forest regeneration and forestry making use of timber and forest protection.

Figure 1. Map of illegal deforestation

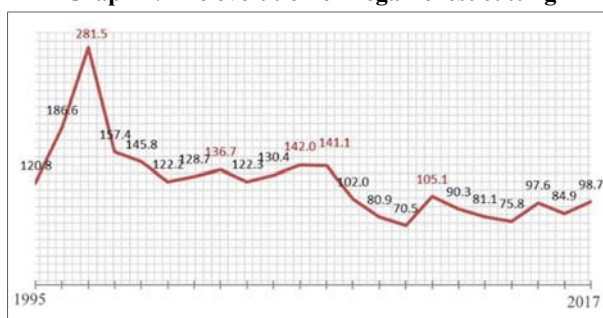


Source: Greenpeace Romania, 2017.

In 2017, according to the Greenpeace report, authorities identified 12,487 cases of illegal cuts at national level, on average 34 per day, up 32% more than in the previous year. An important contribution to the identification of these cases was the civil society in some counties - Dolj, Gorj, Vâlcea - half of the cases investigated by the authorities being identified by the citizens.

Compared to 2016, the seriousness of the offenses increased, with 8,461 offenses, with 62.02% more than in the previous year. It is important to mention the differences between cases, in some cases it is about 1-2 cubic meters illegally cut / case, and in other cases hundreds or even thousands of cubic meters. For example, in the counties of Arges and Olt, although a large number of cases have been recorded, the average volume of illegally cut wood / case is 3-4 cubic meters. At the opposite end there are the counties of Cluj, Maramures and Sibiu, which totals 53.97% of the volume of illegally cut timber in 2017, at national level, "says Crisanda Lungu, regional coordinator of the forest and biodiversity campaign.

Graph 1. The evolution of Illegal forest cutting



Source: Own processing of the data provided by NIS, Romania.

As a result of the legal provisions, at the level of 2017, 1,465 means of transport were seized for the transport of illegally harvested timber, up 27.83% as compared to the previous year. Of these, 1,183 and 80.75% respectively were seized by police representatives and 282 (19.25%) by the Gendarmerie. Most of the means of transport were confiscated in the counties of Arges - 13%, Vrancea - 11% and Mureş - 7% ", the document shows.

Comparative study between Romania and the main countries of European Union regarding forest fund and regulation

Romania- France

Researched data about France forest fund reveals 15.554.00 hectares, representing about 28% of the total area of 55,01 million hectares, resulting in a forested area of 0.26 hectare/capita. The forest area of France is higher by 40.95 % than that of Romania and the surface of France is higher by 41.79 % than our country. The main forestry regulations in France are the 1979 Forest Code and Forestry Guideline Act of 2001, which states that every owner of forest area exceeding 25 hectares must have a management plan, with reference to the cuts and afforestation.

Romania-Slovakia

Slovakia's Forest area is 1.920 hectares, representing 40.12% of the total area of 4.808 million hectares, with a population of 5.390.000 inhabitants, resulting in a forested area of 0.36 hectare/capita. Forest Law of 1993 is the basic document in forestry in Slovakia, representatives of state authorities with responsibilities in the area and dispose limit or prohibit public access afforested areas.

Romania-Austria

Comparative analysis between Romania and Austria shows that their forest level is at a level of 60.62 % compared to that of our country while the Austrias surface is only 35,98% of Romania. Forest Law issued in 1975 and amended in 1987, under which more than 3,000 specialists carries out specific implementation and monitoring of the activities mentioned in the conditions under which forestry legislation is the main forest regulation of their country. Tabara-Amanar Stanciu thinks that Romania has undergone fundamental changes especially in the period 1990–2009 in comparison with Austria.

Romania-Germany

As regards Germany, the forest area is 11,076,000 hectares, accounting for 31.74% of the total area of the country, respectively 34,895 million acres, a population of 82,631,000 inhabitants, resulting in a forested area of 0.13 ha/capita. Germany's Federal Forestry Code of 1975 is the basis of the entire legal framework governing activities in the forest for all owners of forests and woodland, with clear provisions on reforestation obligation exploited areas.

Conclusions

1. Romania's forest fund is in a process generated by the changes that the current society undergoes both under the influence of internal and external factors.
2. Forestry legislation is in a permanent process of adaptation and modification determined by the evolution of the property structure but also by the amplification of requirements and society's expectations regarding the role and influence the forest has to meet.

3. For a positive development, coordinated sustained efforts are needed to allocate substantial funds to raise awareness of the population and reduce anthropogenic pressure on the forest by providing subsidies to small and large landowners to prevent and combat illegal felling and forest management of forestry.
4. The negative aspects affecting the forestry fund are those caused by the numerous amendments to the legislation for the reestablishment of the right to property, with negative repercussions on the efficient management of the areas under dispute, as well as those related to the public domain attestation which modifies the regime legal forest land.

References

1. Giurgiu, V., 1978. Conservarea pădurilor. Editura Ceres. București.
2. Giurgiu, V., 1982. Pădurea și viitorul. Editura Ceres. București.
3. Giurgiu, V., 1984. Structural characteristics of forest in the Retezat National Park. Rech. écol. dans le parc National Retezat. Cluj-Napoca, 69-74.
4. Kaufmann, M. R., W. H. Moir, and W. W. Covington. 1992. Old-growth forests: what do we know about their ecology and management in the southwestern and Rocky Mountain regions. In Old-growth Forests in the Southwest and Rocky Mountain Regions. Proceedings of a Workshop, tech. coords. M. R. Kaufmann, W. H. Moir, and R. L. Bassett, pp. 1-11. USDA Forest Service GTR RM-213, Fort Collins, Colo.
5. Ivanescu D (1972) Din istoria silviculturii romanesti, Editura Ceres, Bucuresti.
6. Kelly L, Jeffery J (2004) The Prototype Carbon Fund. Addressing Challenges of Globalization: An Independent Evaluation of the World Bank's Approach to Global Programs, Case Study, Washington, D.C..
7. Kirchmeir H., Kovarovics A. (eds.), 2016. Nomination Dossier "Primeval Beech Forests of the Carpathians and Other Regions of Europe" as extension to the existing Natural World Heritage Site "Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany" (1133bis). Klagenfurt, 409 p.
8. Nichiforel L, Keary K, Deuffic P, Weiss G, Thorsen BJ, Winkel G, ..., Bouriaud L (2017) How private are Europe's private forests? A comparative property rights analysis, Land Use Policy [In press].
9. Nicolescu N, Petritan I, Vasilescu M, Ferreira & Henriques S (2003) Schemele de împădurire dese și stabilitatea monoculturilor de molid—este posibilă realizarea unui echilibru de durată. Bucovina Forestieră 11(2): 27-35.
10. Romsilva (2016) Raport privind modul de îndeplinire a Programului de activitate al RNP-ROMSILVA pe anul 2016 (Romsilva Activity Report 2016).
11. Schulze E, Bouriaud L, Bussler H, Gossner M, Walentowski H, Hessenmöller D, Bouriaud O, Gadow K V (2014) Forest management and biodiversity. Web Ecol 14: 3-10.
12. INS (National Institute of Statistics), (2016) Romanian Statistical Yearbook.
13. Scriban RE, Nichiforel L, Bouriaud L, Barnoaiea I, Cosofret VC, Barbu CO (2017) Governance of the forest restitution process in Romania: An application of the DPSIR model. Forest Policy and Economics. <https://doi.org/10.1016/j.forpol.2017.10.018>.