UNFAVOURABLE EVOLUTIONS IN THE FOREST EXPLOITATION IN ROMANIA, AFTER 1990

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Abstract

The forest fund represents one of the most important elements of the national riches and its exploitation influence directly both the economic growth and sustainable development of a country.

The paper presents the dimensions of the forest fund in Romania, its structure by categories of areas, the dimension and structure of the forests surface by species of trees, theirs evolution after 1990.

Also, we want to emphasize the tendencies registered in the forest exploitation, in the last 23 years, the destination of harvested wood and to relieve some consequences of this activity on the environment.

Unfortunately, after 1990, in Romania, irrational and inefficient exploitation both of the forests and the harvested wood volume, lead to a diminishing of the density and the degradation of the forest fund and had implicit affected the sustainable development.

In these conditions, it’s hard to talk about sustainable development from this point of view, because the forests are severely affected, not only by their bad exploitation but also by the climate changes. So, a vicious circle was created, because cutting forests means climate changes and climate changes affect the forests.

Key words: forest fund, forest exploitation, sustainable development, wood volume, forests.

JEL Classification: Q56

1. Introduction

Sustainable development, a concept already well-known today, is based on the three pillars: economic, environmental and social. You can not discuss this concept without having in mind that the three lines of action are interwoven and mutually interrelated. However, all policies on sustainable development, even if punctually developed, require results that are reflected equally in economic, social and environmental grounds.

The environment actually constituted the starting point in developing the concept of sustainable development. Its alarming deterioration, especially as a consequence of human activity was reported in 1972, in the Club of Rome's Report, "Limits of Knowledge", within the UN Conference on Environment (Stockholm, 1972). Since the '70s, the environment has been presented as a world heritage to be protected and transmitted to future generations [1].

But the concept itself of sustainable development appears 15 years later in the Report of the World Commission on Environment and Development, of 1987, entitled Brundtland Report [2] and concrete measures, an effective plan of action and a global project for sustainable development were launched only in 1992, at the Earth Summit in Rio [3]. It was acknowledged then that the environment was severely affected by the economic development that had targeted only the increase of profit without taking into account that the Earth's resources are limited, finite, non-renewable or barely renewable, that the excessive exploitation and pollution have led to climate change, desertification, imbalances and discrepancies between states, etc.

One of the major components of the environment is the forest fund and especially its main component, the forest.

The forest fund includes all land covered with forests, those for afforestation, land that serve the needs of culture, production and forest management, ponds, riverbeds, (other than those included in the water cadastre) and other land with unproductive intent, included in forest planning, no matter of the ownership. The forest, in technical terms, refers to the areas covered by forest vegetation, with at least 0.25 hectares.

The role of forests is a complex one, providing from the necessary wood for industrial exploitation, domestic consumption, production of energy, construction, up to all other products (hunting, forest fruits, mushrooms, etc..) and
benefits (reduction of CO2 emissions securing land, ensuring natural environment for the existence and perpetuation of various species, water circulation in nature, etc.).

Forests are thus multifunctional, considering their role at economic and social level within the environment [4]. Massive exploitation of forests in recent decades, increasing pollution have led to their deterioration, and not necessarily in terms of the areas occupied by them but rather in terms of their quality, density and health of trees.

In the following, we shall perform an analysis of the evolution of the forest fund in Romania, forest exploitation after 1990, highlighting the specific aspects of this particular sector and the environmental consequences.

2. The evolution of the forest fund in Romania, after 1990

At the end of 2012, in Romania, the growing stock occupied a surface of 6.5 million hectares, of which 6.4 million were represented by forest area (Table 1). Compared to 1990, there aren’t significant changes in terms of the surface, this registering an increase of 2.5%, meaning in absolute numbers a plus of nearly 160 thousand hectares, for total forest fund and a plus of only 1.9% for forests (+ 120 500 hectares).

Table no. 1 The evolution of the forest fund surface, by categories of area and forests in Romania, after 1990

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Total – thousand hectares</td>
<td>6371</td>
<td>6369</td>
<td>6367</td>
<td>6391</td>
<td>6515</td>
<td>6529</td>
<td>102.5</td>
</tr>
<tr>
<td>Forests area</td>
<td>6252</td>
<td>6245</td>
<td>6223</td>
<td>6233</td>
<td>6354</td>
<td>6373</td>
<td>101.9</td>
</tr>
<tr>
<td>- Coniferous trees</td>
<td>1929</td>
<td>1903</td>
<td>1856</td>
<td>1873</td>
<td>1941</td>
<td>1945</td>
<td>100.8</td>
</tr>
<tr>
<td>- Broad leaved trees</td>
<td>4323</td>
<td>4342</td>
<td>4367</td>
<td>4360</td>
<td>4413</td>
<td>4428</td>
<td>102.4</td>
</tr>
<tr>
<td>Other areas</td>
<td>119</td>
<td>124</td>
<td>144</td>
<td>158</td>
<td>161</td>
<td>156</td>
<td>131.6</td>
</tr>
</tbody>
</table>

Data source: data and indicators calculated based on TEMPO – on line application, www.insse.ro [5], and Romanian Statistical Yearbook, edition 2013, NIS Bucharest [6].

The evolution of the forest surfaces throughout the analyzed period, presented according to statistics, two distinct periods. Thus, during 1990 - 2002, the forest surface is approximately constant, with a very slight downward trend and the period after 2003 shows a pronounced upward trend (Fig 1).

Figure 1. The evolution of forests surface, in Romania, between 1990 and 2012 (thousand hectares)

Data source: data and indicators calculated based on TEMPO – on line application, www.insse.ro [5], and Romanian Statistical Yearbook, edition 2013, NIS Bucharest [6].

In terms of the dynamics of forests surface occupied by different species of trees, the broad leaved trees forests register an increase of 2.8%, while the coniferous trees forests area increased only by 0.8%.

The largest increase, of over 30%, was recorded for the forest fund area with other destinations than the forest.
Analyzing the dynamics of forests area by tree species, we find that also in the case of total forest surface, in the period under review, the outlined aspects were different both in trend and as well as the intensity of development. Also the two types of forests, analyzed from the point of view of the surface, had a completely different evolution.

Thus, the surface of coniferous trees forests experienced a significant decrease of almost 90 thousands hectares, from 1990 to 2003, then by the end of 2012, increased considerably, even surpassing the 1990 level (Fig. 2).

Figure 2. The evolution of the coniferous trees forests surface, in Romania, between 1990 and 2012 (thousand hectares)

Data source: data and indicators calculated based on TEMPO – on line application, www.insse.ro [5], and Romanian Statistical Yearbook, edition 2013, NIS Bucharest [6].

Unlike conifers, the broad leaved trees forests surface registered a growth trend throughout the review period, with small inflections, reaching by the end of 2012 to surpass with more than 100 thousands hectares the level of 1990 (Fig. 3).

Figure 3 The evolution of the broad leaved trees forests surface, in Romania, between 1990 and 2012 (thousand hectares)

Data source: data and indicators calculated based on TEMPO – on line application, www.insse.ro [5], and Romanian Statistical Yearbook, edition 2013, NIS Bucharest [6].
From the structural point of view, at the end of 2012 forests represented the largest part of the forest fund, approximately 98% whereas the structure of forests by species, coniferous trees forests represented only 30% while the broad leaved trees forests held 70%.

At territorial level, the forest fund is somehow evenly distributed by regions of development, the largest areas being recorded in the Central Region (18.8% of total forest fund in Romania) and the North East Region (18.1%)

3. The Exploiting of forest fund, after 1990

After 1990, the exploitation of wood in Romania witnessed an upward trend, due on one hand to an increased demand of wood both for domestic consumption and industrial sectors but mostly for export. Also restitution of forests led to the increase of irrationally and often illegal deforestation.

Thus, after 1990, more than a quarter of the forest surface was covered by cuttings and annually accidental cuttings are reported (deforestation or natural disasters) on an average area of about 470 thousand hectares by year. Also, in the last 12 years, almost 70 thousands hectares of forest have been converted into pastures.

The regeneration of the cut forest was probably done naturally because artificial regenerations (afforestation) represented less than 5% of the total forested area, during the analyzed period.

As a result of the cutting, made between 1990 and 2012, 357 million cubic meters of wood were collected in an average annual rate of 0.6%.

The annual wood cutting volume was on average of 15 million cubic meters, varying from a minimum of 12.6 million in 1998 to a maximum of 19 million in 2012 (Fig. 4).

Figure 4. The harvested wood volume, by species, in Romania, between 1990 and 2012

Data source: data and indicators calculated based on TEMPO – on line application, www.insse.ro [5], and Romanian Statistical Yearbook, edition 2013, NIS Bucharest [6].

Although there aren’t large variations on the mass of annually harvested wood, after 1990, however, it can be remarked a general upward trend manifested after 1995, and especially after 2001.

Thus, during 2002 - 2012 the total volume of harvested wood is 10% higher than in 1990-2001.

Comparing the volume of harvested wood in 2012 to the year 1990, when the volume was quite large, as seen in the figure 4, there is an increase of almost 15% in total (Table 2).

By species, the dynamics of the volume of harvested wood is different, noting a major increase of about 30% for coniferous and beech wood and a reduction of 17.5% in oak.

In fact, also according to the structure by species of the harvested wood, coniferous represents almost 40%, beech represents about 30% and oak about 10%.

Table 2. The harvested wood volume, by species, in Romania, after 1990

|----------------------|------|------|------|------|------|------|---------------------|

Data: „ACADEMICA BRÂNCUSI” PUBLISHER, ISSN 2344 – 3685/ISSN-L 1844 - 7007
The harvested wood is intended for exploitation for various purposes. For example, in 2012, 30% of the wood was destined for fuel wood, 60% for sawn timber and other products obtained by cutting and about 2% for pulp production. The first two uses have increased in proportion while the third was reduced. Thus, in 2002 (from this year data have been available) wood for fuel was only 24%, 51.8% of wood was for sawn timber and 8.6% for the pulp.

The turnover of forestry units in 2012 amounted to about 1.7 billion lei RON, being in real terms 32% higher, compared to 1990 (Fig. 5).

![Figure 5. The evolution of the turnover of forestry units in Romania, after 1990 (Year 1990=100)](image)

Although the turnover of forestry units includes besides the revenues from wood exploitation also those from the exploitation of other products (forest fruits, mushrooms, hunting products, fish, etc.) its evolution faithfully follows the evolution of the volume of exploited wood, representing thus the highest revenue share.

### 4. Conclusions

From the analysis of the forest fund in Romania, after 1990, in terms of its dimension, structure and exploitation, a series of interesting aspects have resulted. Therefore, according to statistics, in the last 23 years the surface of the forest fund and forests has suffered significant changes, even registering an increasing by 1-2% in this regard.

It’s strange because this increase occurred while the cuttings area represented almost a quarter of the total surface of forests, some forests have been converted to pastures and artificial regenerations were conducted only on 5% of the forest.

Too bad that the public statistic does not provide available information on the density of the trees in the forest, illegal cutting and deforestation that have increased year by year and that took on an unprecedented scale in the last period.

Also in presents, in official statistic, for example, there is no information regarding the state of defoliation of the trees. The data was stopped at 2006, when the degree of defoliation was almost 30% that mean a very unfavourable percent [7].

However, even if these aspects can not be justified in practice by official statistics, they transpire from those presented in the article, for those who want to make logical correlations, not necessarily statistical.
The effects of massive cuttings of trees and entire forests have serious environmental consequences, with everything they mean for both nature and humans. Illegally exploited areas irrationally deteriorated, causing landslides, favouring floods, the loss of fertile soil, migration or loss of characteristic flora and fauna etc. The cutting of the forests has affected the climate, air quality, water course and not ultimately the landscape.

Of course that in these conditions, we can’t talk about sustainable development because a vicious circle was created. Cutting forests means climate changes and climate changes affect the forests.

Accountable for all this is not pollution that it also affects but in a very small extent, under our current industry, but irrational exploitation, which has nothing in common with sustainable development.

This irrational exploitation is not even economically efficient, even on short term, as the level of woodworking in Romania is low, the wood being designed in a very large proportion, as noted above, for fuel wood or sawn timber.

The price we’ve just started to pay will be very high compared with the insignificant "benefits" of cutting forests. Unfortunately in Romania, from this point of view, we can not talk about sustainable development.

Sustainable development requires, among others, sustainable forest management, using them judiciously, so that regeneration cycles to be respected and their biological diversity to be kept [4].

5. Bibliografie