

POSSIBLE CATEGORIZATION OF STATE FOREST RANGES AND GAME-BREEDING STATIONS BASED ON THEIR MAJOR CHARACTERISTIC FEATURES

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Abstract

The purpose of this work was to present the necessity of definition and categorization of State Forest Enterprises (SFE) and State Hunting Enterprises (SHE) in Bulgaria as separate economic units, based on some major groups of features. Feature classification was based on the natural territorial characteristics, quantitative and qualitative indices, production restrictions according to the active regulations, as well as the public functions performed by the forestry. Forestry categorization makes possible to determine the economic elements that form the incomes from wood production taking into account objective factors. This work applies to three forest enterprises within the territorial range of the Regional Forest Directorate of Plovdiv. The methods used to determine groups and different features were applied in the forestry science for qualitative and quantitative assessment, as well as for definition of the priority and share of each feature in the group. The outcomes of present work could make possible the differential determination of expense rates of wood production, the more objective definition of income share, including fees of the State Forest Fund, according to the legislatively determined forestry category.

Key words: fees, wood-felling rates, forestry category, wood production.

Introduction

The main issue of the present work comes close to the matter of classification of forest economy in regions (Sirakov et al. 1972, 1974). To date this issue has been developed in part, which treats using of timber and an attempt was done to determine the categories of forestry enterprises with similar features.

This categorization of could allow to:

1. Determine differentiated considerations for planning usage of timber, which is property of the state (production and sale).
2. Trace changes of basic parameters

of forestry enterprises during the years (Bogdanov 1991, 2002).

In the operational legislative documents, in particular government decree 202/2009 about fixing of taxes, paid into system of State Forest Agency, three main features are known that have to determine the amount of merited taxes as a percentage of the selling price in a temporary timber-yard:

- Range of the approved forest stock marked for harvesting during the year (felled timber);
- Type of timber for sale from temporary timber-yard (coniferous and deciduous);

– Division of the sold timber by categories, some separate stand assortments are shown (Rates ... 2008);

– Indicators that served as basic information for determining merited amount of the fellings from selling price. They cover quite few of the elements, characterizing the respective forest enterprise, affecting the amount of timber used, as well as the opportunity to reach the selling incomes set in the financial plans.

Material and Methods

Three basic groups of features are used to determine categories of SFE and SHE. These features are weighted with utilized timber taken from forests. The data used were from Forest management plans of SFE Karlovo (2004), SFE Hisar (2008), SFE Plovdiv (2009) and current information about status of some features, according to the information taken from these three forestry enterprises.

A four-stage categorization of SFE in descending order was adopted (Table 1). First category SFE has best natural and economic conditions, quantitative and qualitative indices of forest trees and respectively least restrictive regimes for timber use. A maximum percentage of the taxes based on selling price of timber from temporary timber-yard was determined for the highest category.

I group: Features, characterizing natural and economic conditions

This group was determined depending on the natural conditions of the region. They are basic factor for timber production (Instruction ... 2003). Economic conditions, in their turn, determine the significance of the forests for the region.

Data about relief elements – altitude and slope of the area are indicative for the conditions for timber harvesting and about the opportunities for mechanization (Instruction No 6 ... 2004). As a synthesized feature, appropriate climate conditions for timber harvesting were chosen, representing the duration of timber harvesting in months. This duration reflects the possibilities of forest enterprise for permanent using of timber during the year.

Features, characterizing the first group were the following ones: forest-to-total-area ratio, average altitude above sea-level, slope of the area, duration of timber harvesting in months, and density of road network.

II group: Quantitative and qualitative indices

Second group consists of features, which determine reflection on the quality and quantity of the timber in region of SFE, as a basic element for planning usage and incomes from selling. It consists of the following indices:

- Average site index;
- Stand assortment structure;
- Total area of the forest enterprise;
- Geometrical shape of forest enterprise, determined by the head office of the management;
- Division of the average annual usage by type of harvesting;
- Volume per 1 ha.

III group: Indices connected to the legislatively determined restrictive regimes and public functions, implemented by SFE

The third group included the following indices:

- Percentage of non-governmental forests of total timber production area;

- Accessible forest areas – percentage of the accessible forest areas of total timber-productive area;

- Percentage of forests according their functions;

- Restrictive regimes of use of forests included into the ecological network Natura 2000;

- Public functions – percentage of areas under protection of the total number of settlements in the region of the enterprise.

Each group of indices had equal maximum assessment points and separate elements in every group were of different weight. Last group consisted of indices limiting amount of use in forestry, and due to that, maximum assessment had a negative quantity.

The scale chosen for defining the indices for assessment of SFE category is presented in Table 1.

Table 1. Scale for assessment of SFE category.

Category of SFE	Scale of indices for groups I and II	Scale of indices for group III
I	> 7 points	< -1 points
II	4, 1–7 points	(-1) – (-4)
III	1–4 points	(-4) – (-7) points
IV	< 1 points	> -7 points

For each group of indices a corresponding category of forest enterprise was determined, depending on resulting assessment. Category of the SFE comes as a result of the average quantity from the whole three groups of indices.

Results

The comparison between the results obtained after the assessment of the above-

mentioned elements in groups is presented in Table 2.

SFE Plovdiv had highest score of indices, characterizing natural and economic conditions, as well as qualitative and quantitative characteristics of forests in the region. It had 7.9 points, followed by Karlovo with 7 points and Hissar with 6.7 points.

Analyzing data concerning quantity of indices determining the range of restrictive regimes in SFE, we can conclude that SFE Hissar had lowest values, characterizing the potential of the forest enterprise and also the strictest restriction regimes of use. These restrictions are due to the large percentage of non-governmental forests – 41.3 %.

Despite high total scores of the indices of the second group (6.4 points), active restrictive regime in use on the area of forestry were considerable (-5.5 points).

The restrictions are due to the areas included in of Natura 2000, and to the large percentage of forests with protective and recreational functions, and those included in protected areas.

After determining of SFE category it was found that for the each corresponding group of indices the average category of SFE for SFE Karlovo was second, while Plovdiv and Hissar were third.

Conclusions

The results of this study allow the following conclusions:

1. Suggested categorization of SFE and SHE reflects not only the potential of forest area in qualitative and quantitative way, but also restrictive regimes, which lower down the average annual use provided by the forest management plan.

Table 2. Comparison between results for each group and State Forestry Enterprise (SFE).

Group of indices	SFE Karlovo		SFE Hisar		SFE Plovdiv	
	Value index	Valuation	Value index	Valuation	Value index	Valuation
First group						
1. Forest – ratio to total area	36.8 %	0.5	28.7 %	0	22.0 %	0
2. Altitude above sea level	650 m	1	655 m	1	1050 m	0
3. Slope of the area	steep	0.5	slopingly	1	slopingly	0.5
4. Duration of timber harvesting	9–11 months	1	9–11 months	1	9–11 months	1
5. Density of road network	0.01 km·ha ⁻¹	0	0.01 km·ha ⁻¹	0	0.01 km·ha ⁻¹	0
Total points		3		3		1.5
Second group						
1. Average site index	III (3.4)	0.5	IV (3.8)	0.2	II (2.2)	1
2. Stand assortment structure	41.0 % /fuel wood/	1	35.6 % /fuel wood/	1	29.6 % /large saw timber/	1
3. Total area of the forest enterprise	25,614 ha	1.4	27,696 ha	1.4	26,458 ha	1.4
4. Geometrical shape of the forest enterprise	irregular	0	irregular	0	irregular	0
5. Division of average annual use by type of harvesting	53 % improvement	0	53 % improvement	0	59.6 % regeneration	1.5
6. Volume	128 m ³ ·ha ⁻¹	1.1	139 m ³ ·ha ⁻¹	1.1	220 m ³ ·ha ⁻¹	1.5
Total points		4		3.7		6.4
Third group						
1. Non-governmental forests ratio to total timber production area	6.3 %	0	41.3 %	–3	30.1 %	–1.5
2. Accessible forest areas	98.0 %	–1	97.7 %	–1	89.0 %	–1
3. Distribution of forests according to their functions	81.0 %	0	68.0 %	–0.5	26.8 %	–2
4. Restrictive regimes of use of areas included in ecological network Natura 2000	11.0 %	–0.5	17.0 %	–0.5	27.0 %	–1
5. Public functions – number of protected forest areas to number of urban areas ratio	0.77	–1	0.52	–1.5	0.24	0
Total points		–2.5		–6.5		–5.5

2. Making the annual income plans based on wood use, every SFE could determine separately the full range of incomes, as well as merited taxes from selling of timber, due to the current value of indices or category of SFE.

3. The categorization developed can be used for determining plans and limiting values of expenses for harvesting timber in the respective forest enterprises.

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