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LAND RESOURCES – STRUCTURAL EVOLUTIONS AND GAPS AT THE LEVEL OF SUD-MUNTENIA REGION IN THE POST-ACCESSION PERIOD

BUCUR SORINEL IONEL¹

Abstract: *Among the essential resources of a particular area, the land resources have an important role in the economy, due to their economic importance at local level, in terms of its capitalization, and on the other hand, from ecological perspective, i.e. in terms of environment quality and of ensuring the necessary habitat for various animal species. Without making a clear-cut difference between the two dimensions, i.e. economic and ecological, the present approach aims at making an X-ray of the stock of land resources in the third development region of Romania, namely the Sud-Muntenia region. Consisting of seven counties with different demographic, economic and social characteristics, the region Sud-Muntenia is characterized by divergent evolutions of the stock of land resources, both at inter-county and intra-county level, with direct impact upon the local durability and sustainability and in reducing the gaps between Romania and the EU average.*

Key words: *land resources, gaps, regional dimension.*

JEL Classification: *Q2, Q20, Q23.*

INTRODUCTION

Land resources have been a subject of expert debates over time, both in terms of their sustainable use and of their structure and concentration level. Land resources, together with the population, represent the core elements of the economy, the construction of any development strategy, be it national or local, starting from the available stock of resources. Romania's land resources have been subject to significant structural changes, mainly after 1989; these processes have been continued with different intensities at local level both during the pre-accession period and later on.

The radical changes generated by the need to adjust to the EU requirements, as well as the increasing globalization trends have determined reorientations in the economic activities and at social level as well, with impact upon the utilization modality of the existing land resources. The current structure of national land resources is the cumulated result of the modifications produced at regional and local level (i.e. at county or component localities level). From this perspective, the present approach intends to make an X-ray of the modifications produced in the structure of land resources, forestry resources included, in the third region of Romania in terms of size and importance, namely Sud-Muntenia region.

MATERIALS AND WORKING METHODS

In order to capture the main modifications produced in the stock of land resources from Sud-Muntenia region, after 1990, the public statistical data were used, provided by the National Institute of Statistics, through Tempo-Online database. In this context, it is worth noting that national statistics provide quite limited information at county level, in terms of time horizon. Thus, while at the forestry resources level, the information stock has been updated up to 2017, in terms of land resources, the information stops at the level of 2014.

From the methodological point of view, the current approach uses consecrated statistical methods, of comparison, dynamics and structural type, in order to highlight the main changes produced in the structure of land resources from Sud-Muntenia region. Having in view the investigated period (1990 – up to the present), as well as the fact that the analysis is made up to county level, the results were presented under table form, which provide a much clearer visual picture compared to the graphical method.

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RESULTS AND DISCUSSIONS

The period 1990-2014 is characterized by a noticeable structural modification of land resources. Thus, in the 25 years, the agricultural land area decreased by almost 1%, with significant decreases of the land areas under orchards and vineyards. An exception is represented by the counties Giurgiu and Ialomița, as predominantly agricultural counties, whose agricultural and arable land area increased. While the agricultural and arable area slightly decreased, to reach a maximum decrease of 4% in Dâmbovița county, it is worth noting that the land areas under pastures and hayfields increased in all counties, to double in Călărași county (Table no. 1). At the opposite pole, the non-agricultural land (including here all the other land areas) increased in the reference period by about 2% per total economy, similarly to the regional trend, with percentages ranging from -2,5% (Giurgiu) to 6,45% (Călărași).

Table no. 1. Dynamics of the agricultural land resources in the year 2014 compared to 1990 (%)

	Agricultural	Arable	Pastures+hayfields	Vineyards and vine nurseries	Orchards and nurseries	Other non-agric. land
TOTAL	-0.9	-0.6	2.1	-24.5	-37.2	1.53
SUD-MUNTENIA	-0.7	-1.1	11.2	-28.6	-35.3	1.65
Argeș	-0.8	0.8	5.2	-75.6	-29.1	0.83
Călărași	-1.2	-2.5	119.3	6.7	-74.8	6.45
Dâmbovița	-1.0	-4.0	15.1	-76.5	-18.7	1.54
Giurgiu	0.7	0.5	33.2	-33.0	-52.6	-2.52
Ialomița	0.4	2.3		-28.4	-83.6	-1.86
Prahova	-3.5	-2.4	4.2	-25.8	-44.5	5.02
Teleorman	0.0	-2.6	69.7	-15.8	-86.4	-0.14

Source: author's own calculations based on Tempo-Online data, 2018.

For the land areas under vineyards and orchards, the strongest diminution trend is noticed in the counties located in the plain (except for Călărași county for the land area under vineyards and vine nurseries), while the counties Argeș, Dâmbovița and Prahova, characterized by important resources and potential from this point of view, have followed a downward trend, to reach a diminution of areas under orchards by about 45% in the case of Prahova county.

From the structural point of view, in relation to the first two categories of resources (agricultural and arable), whose oscillation over 25 years has been quite low, the following aspects are to be considered:

- Compared to the year 1990, in the year 2014, the 2.4 million ha of arable land in the region Sud-Muntenia accounted for 70.6% of total area of the region, slightly decreasing by 0.5%; the high percentage of the agricultural area in the region is determined by the high percentage (over 50%) of the agricultural area in all the seven counties; the counties Călărași, Giurgiu, Ialomița and Teleorman are by far above the region's average, where (except for the county Giurgiu) the agricultural land area represents over 80% of the total area of the respective counties (Table no.2).

Table no.2. Evolution of the share of agricultural land area in total land area in the period 1990-2014 (%)

Year	TOTAL	SUD-MUNTENIA	Argeș	Călărași	Dâmbovița	Giurgiu	Ialomița	Prahova	Teleorman
1990	62.0	71.1	50.6	84.7	61.7	77.6	83.8	59.2	86.0
1991	62.1	71.1	50.6	84.7	61.7	77.6	83.8	59.2	86.0
1992	62.0	71.0	50.6	84.7	61.6	77.6	83.7	59.2	85.8
1993	62.1	71.1	50.6	84.7	61.6	78.2	83.7	59.2	85.7
1994	62.1	71.1	50.5	84.1	61.6	78.7	83.9	59.2	85.7

1995	62.1	71.1	50.5	84.1	61.6	78.6	83.9	59.2	85.7
1996	62.0	71.1	50.5	84.1	61.6	78.6	84.0	59.2	85.7
1997	62.1	71.1	50.5	84.1	61.6	78.6	84.0	59.2	85.7
1998	62.1	71.1	50.5	84.1	61.6	78.6	84.0	59.2	85.7
1999	61.8	71.1	50.5	84.1	61.6	78.6	84.0	59.3	85.6
2000	62.3	71.1	50.5	84.2	61.6	78.6	83.9	59.2	85.7
2001	62.3	71.1	50.5	84.2	61.6	78.6	84.0	59.2	85.9
2002	62.2	71.1	50.5	83.9	61.5	78.6	84.0	59.2	85.9
2003	61.7	70.9	50.5	83.9	61.5	78.6	83.9	57.6	86.3
2004	61.7	71.1	50.5	83.9	61.5	78.9	84.1	58.5	86.2
2005	61.8	71.1	50.5	83.9	61.5	78.8	84.1	58.4	86.3
2006	61.8	71.0	50.5	83.9	61.4	78.8	84.1	58.4	86.2
2007	61.7	71.0	50.5	83.8	61.4	78.6	84.1	58.3	86.2
2008	61.7	70.9	50.5	83.8	61.3	78.5	84.0	58.2	86.2
2009	61.6	70.9	50.5	83.7	61.3	78.4	84.1	58.2	86.2
2010	61.4	70.8	50.0	83.5	61.3	78.4	84.2	57.9	86.2
2011	61.3	70.6	49.3	83.6	61.2	78.3	84.2	57.8	86.1
2012	61.3	70.6	49.6	83.5	61.1	78.2	84.2	57.6	86.1
2013	61.3	70.6	49.6	83.5	61.1	78.2	84.1	57.4	86.1
2014	61.4	70.6	50.2	83.7	61.1	78.2	84.1	57.1	86.0
2014/1990 (%)	-0.6	-0.5	-0.4	-1.0	-0.6	0.6	0.3	-2.1	0.0

Source: author's own calculations based on Tempo-Online data, 2018.

- The counties Călărași, Giurgiu, Ialomița and Teleorman grow mainly cereals, cereal production being the specific activity of the agricultural sector in these counties; this is put into evidence by the high share of arable land in their agricultural area; thus, in the total area of the four counties, arable area accounts for more than 90%; practically, on cumulated basis, in the year 2014, the four counties had about 75% of the arable area of Sud-Muntenia region (Table no. 3).

Table no. 3. Evolution of the share of arable area in total agricultural land area in the period 1990-2014 (%)

Year	TOTAL	SUD-MUNTENIA	Argeș	Călărași	Dâmbovița	Giurgiu	Ialomița	Prahova	Teleorman
1990	64.0	81.3	50.0	97.7	73.0	94.2	92.2	52.6	93.8
1991	63.7	81.0	49.8	97.7	73.0	94.1	91.7	52.6	92.8
1992	63.3	80.7	49.6	97.7	69.8	94.1	92.2	52.6	93.0
1993	63.1	80.5	49.4	96.7	69.8	93.6	92.8	52.6	92.9
1994	63.1	80.2	49.4	96.7	69.8	93.5	92.7	52.6	91.1
1995	63.1	80.2	49.5	96.7	70.1	93.5	92.7	52.6	91.1
1996	63.1	80.3	49.6	96.7	70.3	93.5	92.9	52.6	91.1
1997	63.1	80.3	49.6	96.7	70.0	93.7	93.0	52.6	91.1
1998	63.2	80.3	49.5	96.4	69.9	93.3	93.1	52.6	91.4
1999	63.5	80.2	49.5	96.6	69.9	93.6	93.2	51.6	91.4
2000	63.1	80.2	49.5	96.6	69.9	93.6	93.2	51.6	91.3
2001	63.3	80.2	49.5	96.7	70.0	93.7	93.3	51.6	91.1
2002	63.3	80.3	49.8	96.8	70.0	93.7	93.3	51.6	91.3
2003	64.0	80.7	49.9	97.4	70.1	94.5	93.4	52.8	90.8
2004	64.0	80.6	49.9	97.5	70.1	93.9	93.9	52.6	90.8
2005	63.9	80.7	50.0	97.5	70.2	93.9	93.9	52.8	90.9
2006	64.0	80.7	50.0	97.5	70.3	93.9	93.9	52.7	90.9
2007	64.1	80.7	50.0	97.3	70.3	93.7	94.0	53.0	91.1

2008	64.0	80.7	50.0	97.3	70.3	93.7	94.0	52.8	91.1
2009	64.2	80.8	49.9	97.3	70.5	93.7	94.0	53.0	91.1
2010	64.3	80.7	50.6	96.6	70.6	93.7	93.8	52.9	91.1
2011	64.1	80.8	50.2	96.7	70.6	93.8	93.9	52.8	91.2
2012	64.3	80.9	50.5	96.7	70.7	94.0	93.9	53.1	91.4
2013	64.3	80.9	50.6	96.7	70.7	94.0	94.0	52.9	91.4
2014	64.2	80.9	50.8	96.4	70.7	94.0	94.0	53.2	91.3
2014/1990 (%)	0.2	-0.4	0.8	-1.3	-2.2	-0.2	1.8	0.6	-2.5

Source: author's own calculations based on Tempo-Online data, 2018.

- As regards the land area under pastures and hayfields, in the period 1990-2014, the counties Argeş, Prahova and Dâmboviţa, characterized by the existence of all relief units and pluri-activity oriented, had a significant share of land under pastures and hayfields in total agricultural area, ranging from about 25% (Dâmboviţa) to 43% (Argeş); thus, in the year 2014, the three counties together had no less than 317.8 thousand ha pastures and hayfields, accounting for 80.4% of total area under pastures and hayfields of the region Sud-Muntenia (Table no.4).

Table no.4. Evolution of the share of areas under pastures and hayfields in total agricultural area in the period 1990-2014 (%)

Year	TOTAL	SUD-MUNTENIA	Argeş	Călăraşi	Dâmboviţa	Giurgiu	Ialomiţa	Prahova	Teleorman
1990	32.0	14.5	40.5	1.1	21.7	3.4	5.8	37.3	4.3
1991	32.3	14.6	41.1	1.1	21.7	3.4	5.8	37.3	4.2
1992	32.7	14.8	41.3	1.1	24.9	3.4	5.1	37.3	4.2
1993	32.8	14.8	41.6	1.1	24.9	3.1	4.7	37.4	4.3
1994	32.9	15.3	41.8	1.1	25.0	3.2	5.1	37.4	6.0
1995	33.0	15.3	41.9	1.1	25.1	3.2	5.1	37.5	6.0
1996	33.1	15.4	42.4	1.2	25.0	3.3	5.1	37.5	6.0
1997	33.1	15.4	42.5	1.2	25.4	3.2	5.0	37.6	6.0
1998	33.1	15.5	42.6	1.4	25.6	3.6	4.9	37.6	5.9
1999	32.8	15.7	42.6	1.4	25.7	3.2	4.9	38.8	6.2
2000	33.3	15.7	42.6	1.4	25.7	3.2	4.9	38.7	6.4
2001	33.2	15.7	42.6	1.4	25.6	3.2	4.9	38.7	6.4
2002	33.3	15.8	43.2	1.3	25.9	3.2	4.9	38.7	6.4
2003	32.9	16.0	43.1	1.3	25.9	3.8		39.2	7.3
2004	32.9	16.1	43.1	1.3	25.9	4.3		39.5	7.3
2005	33.1	16.0	43.1	1.3	25.9	4.3		39.4	7.2
2006	33.0	16.0	43.1	1.3	25.8	4.4		39.5	7.2
2007	33.1	16.2	43.1	1.4	25.8	4.6		39.6	7.3
2008	33.1	16.2	43.1	1.5	25.8	4.6		39.8	7.3
2009	33.0	16.2	43.1		25.4	4.6		39.9	7.3
2010	32.9	16.3	42.9	2.2	25.4	4.6		40.4	7.4
2011	33.1	16.3	43.3	2.2	25.3	4.6		40.5	7.4
2012	32.9	16.2	43.0	2.2	25.2	4.5		40.3	7.2
2013	33.0	16.2	43.1	2.2	25.2	4.5		40.5	7.2
2014	33.0	16.2	42.9	2.5	25.2	4.5		40.2	7.3
2014/1990 (%)	1.0	1.7	2.4	1.4	3.5	1.1		3.0	3.0

Source: author's own calculations, based on Tempo-Online data, 2018.

Besides agricultural land resources, the seven counties of the region also have significant forestland resources, with significant oscillations across counties, with a total area of 659.3 thousand ha, which accounted for about 10% of the country's forestland in the year 2017. One should not forget that out of total area of forestland in Sud-Muntenia region, the counties Argeş, Dâmboviţa and Prahova together had about 82% in the year 2017, only the county Argeş having 277.3 thousand ha of forestland (42% of region's total forestland area).

Compared to the year 1990, forestland had a divergent evolution in the seven counties, with a slight overall diminution per total region (by 0.2%), determined by the involution of areas under forests, i.e. deciduous forests (Table no.5).

Table no.5. Dynamics of forestland in the year 2017 compared to the year 1990 (%)

	Total	Forests	Resinous	Deciduous	Other land areas
TOTAL	3.0	2.5	-0.2	3.7	33.9
SUD-MUNTENIA	-0.2	-0.6	2.0	-1.3	17.7
Argeş	-0.3	-0.3	5.8	-2.7	0.0
Călăraşi	5.2	4.4	0.0	4.4	22.2
Dâmboviţa	0.4	0.3	-3.9	1.0	8.3
Giurgiu	-2.3	-4.9	-50.0	-4.2	100.0
Ialomiţa	1.2	0.0		0.0	44.4
Prahova	-1.9	-1.9	-3.0	-1.6	0.0
Teleorman	3.2	0.8	-33.3	1.1	41.2

Source: author's own calculations, based on Tempo-Online data, 2018.

From the structural point of view, forests cover about 97% of the forestland at region's level, with percentages ranging from 92% (Teleorman) to 98% (Argeş, Dâmboviţa and Prahova), the remaining two percentages being represented by other land categories. It is worth noting that the deciduous forests accounted for more than 70% in the year 2017, ranging from 69.1% (Argeş) to 100% (Ialomiţa), with a noticeably increasing compared to 1990.

As regards the structure and evolution of the forestry fund, as raw material base for other industries, it must be specified that in the period 1990-2017, the volume of timber harvested at national level increased by 10%, about 10% being harvested from the region Sud-Muntenia. By species, the most significant increase is found in resinous, beech and hardwoods species, some counties doubling the volume of timber exploited (Argeş, Dâmboviţa, Călăraşi), while the harvested timber decreased in oak and soft species (Table no. 6).

Table no. 6. Dynamics of the volume of timber harvested in the year 2017 compared to 1990 (%)

	Total	Resinous	Beech	Oak	Various hard species	Various soft species
TOTAL	10.0	12.3	25.3	-12.6	7.6	-11.6
SUD-MUNTENIA	16.6	64.3	54.3	-27.6	40.4	-14.0
Argeş	24.3	119.5	49.4	-54.9	27.7	-31.8
Călăraşi	14.0			25.0	101.2	-0.9
Dâmboviţa	26.5	124.1	109.5	0.9	37.7	-13.2
Giurgiu	41.3			8.1	65.3	62.1
Ialomiţa	-1.2			-79.1	77.0	-8.9
Prahova	14.4	12.9	48.0	-26.5	26.7	-31.8
Teleorman	-40.2	-50.0		-39.1	-3.4	-51.8

Source: author's own calculations, based on Tempo-Online data, 2018.

The increase of harvested timber volume was not followed by artificial regeneration, and the regenerated area was down by 58% nationwide over the last 25 years, with significant

oscillations both by species and by component counties. Thus, overall, significant decreases of the artificially regenerated areas up to 82% were noticed in the counties Prahova, Giurgiu and Dâmbovița, a noticeable trend by the two species (resinous and deciduous) (Table no.7).

Table no. 7. Dynamics of artificially regenerated areas in the year 2017 compared to 1990 (%)

	Total	Resinous	Deciduous
TOTAL	-57.9	-34.0	-71.5
SUD-MUNTENIA	-66.1	-50.7	-69.1
Argeș	-43.8	-26.4	-66.7
Călărași	-59.6	-70.5	-59.6
Dâmbovița	-73.4		-74.4
Giurgiu	-80.1	-92.8	-80.1
Ialomița	-67.7	-71.5	-67.7
Prahova	-81.9	-69.1	-77.7
Teleorman	-65.9	-66.7	-65.9

Source: author's own calculations, based on Tempo-Online data, 2018.

CONCLUSIONS

The importance of agricultural and forest land resources resides in the capacity to be efficiently used in the economic process, on the one hand, due to the newly created gross value added, and on the other hand, to the social and economic impact that has been generated.

The evolution of agricultural and forest land resources, after the turning moment 1990, reveals significant changes in their structure and territorial distribution, as well as in the artificial regeneration capacity of these areas.

In the context of the above-mentioned considerations, any economic development strategy at national level can be regarded at two levels, namely the efficient and sustainable use of the available agricultural land resources and the reconsideration of the importance of forestland in local economy and national economy implicitly, on the other hand.

As regards the first aspect, we must specify that the utilization modality of farmland resources is a component part of the rural development strategy and of forestry development strategy at national level.

The sustainable management of natural resources represents a priority of the rural development strategy 2014-2020, the needs identified as a priority in this strategy having in view the biodiversity and the high natural value areas, sustainable management of forests and accessibility, soil and water quality, greenhouse gas emissions (GGE) and adaptation to climate changes.

In close correlation with rural development, without being viewed in isolation, but rather in an integration process, there is also the forestry development strategy, whose main objective is the harmonization of forest functions with the present and future needs of the Romanian society through the sustainable management of national forestry resources.

Practically, starting from the multi-functional role of forestland (economic, ecological and social), the designed strategies have in view the identification of the best ways of action in order to preserve the role of forest resource in national economy.

The ecological character of the forest, as core element of forest fund, resides in its essential contribution to soil protection against erosion, as well as in ensuring water circuit and balancing the climate, at the same time being the habitat of numerous species, with a primordial role in the preservation and improvement the biodiversity of forest ecosystems.

Yet regardless the programmatic objectives, the implementation modality and the measures taken remain at the discretion of decision makers, who, depending on the prioritizations made,

decide on the timing of implementation of any measure targeting the development and preservation of the agricultural and forest land, in the sense of its efficient capitalization on sustainable basis.

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