

Scientific report on implementing the project for the first reporting period

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Project PN-II-RU-TE-2014-4-0017, Contract 286/2015: *Social sustainability and acceptability of biomass production and utilization in Northern Eastern Romania (Biomass)*

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1. Objectives of the reporting period

The overall objective of this project is to evaluate social sustainability of the current model of allocating resources in the production of wood biomass.

In the first phase of the project we have had the following specific objectives:

- 1) Identify the set of players involved in the allocation of biomass (O1) and
- 2) Identify the set of actions allowed the allocation of biomass (O2).

2. Activities

To achieve the first objective we have tried to identify which are the reliable sources of information about the timber market participants. Given the absence of regional data about timber market (but also about the forest resource, given de fact that the results of the second cycle of the National Forest Inventory are not released yet), we have contacted the National Institute of Statistics and Foresters' Association in Romania (ASFOR) who are managing national data basis on firms from the forest sectors. We have acquired, analyzed and compared the two databases with the aim to identify the participants' position along the timber value chain.

For achieving the second objective, we used two search engines for legislation (the legislative site of the Romanian Chamber of Deputies to http://www.cdep.ro/pls/legis/legis_pck.frame and the legislative data basis provided by Wolters Kluwer Romania). The purpose of this action was to identify the set of allowable actions (legal and technical restrictions) regulating the biomass procurement by industrial operators and by local communities.

3. Results obtained in the reporting period

3.1. Identifying the actors with forestry activity (database ASFOR)

To address the first objective of the reporting period, we have analysed the ASFOR database containing the firms registered for forest harvesting activities (NACE code 0220) at the national level. The operating capacities of the harvesting firms overcome one million cubic meters in few counties, such Suceava (2.628 million m³), Neamt (1.430 million m³), Harghita (1.362 million m³), Maramures (1.270 m³), Bistrita-Nasaud (1.183 million m³) and Arges (1.004 million m³) (Figure 1). Suceava is the county with the largest operating capacity of logging firms from Romania.

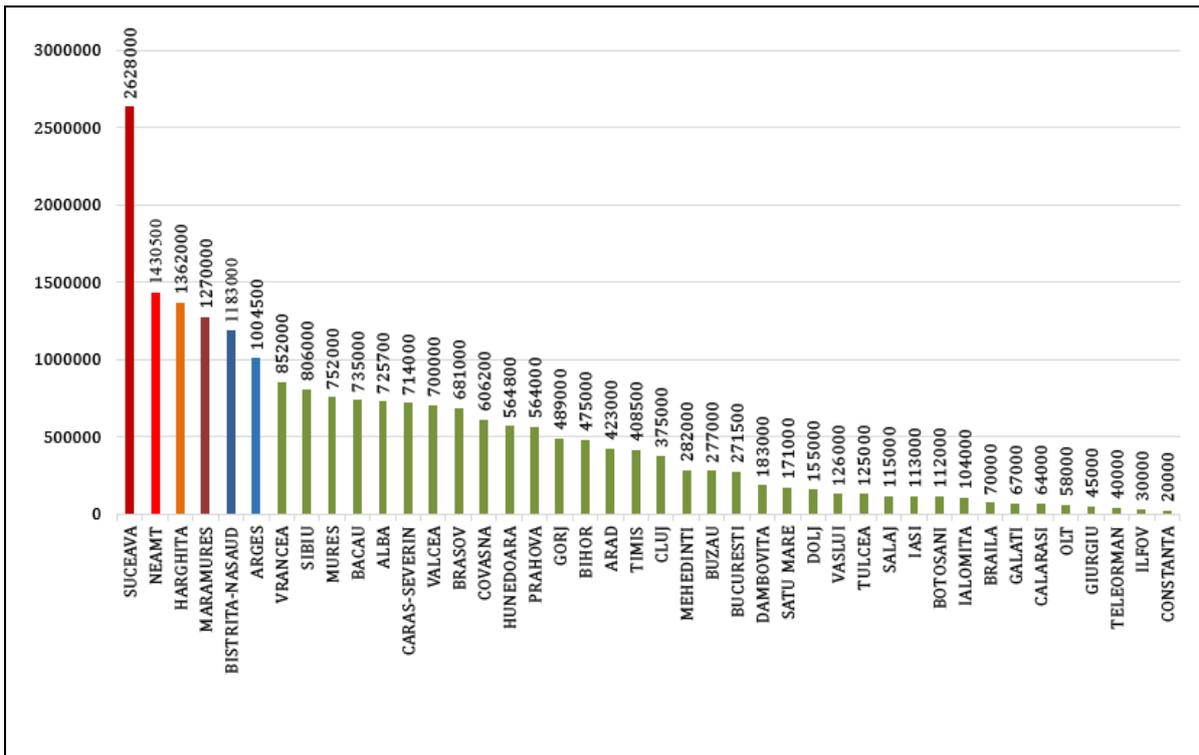


Fig. 1: Operating capacity of harvesting firms at the level of counties for the period 2012-2014 (source: Asociația Forestierilor din România)

The Figure 2 shows the counties with the largest number of harvesting firms. The top counties are Suceava (272), Harghita (172), Maramures (155), Neamț (121), Vrancea (121), Argeș (118) and Bistrita-Nasaud (106). If comparing the figure 1 and 2, we may remark that there are counties with a bigger concentration of harvesting firms (smaller number, but larger operating capacities).

For example, Neamț county (121 firms with a harvesting capacity of 1.430 million m³) is different from Harghita county (172 firms with a harvesting capacity of 1.362 million m³).

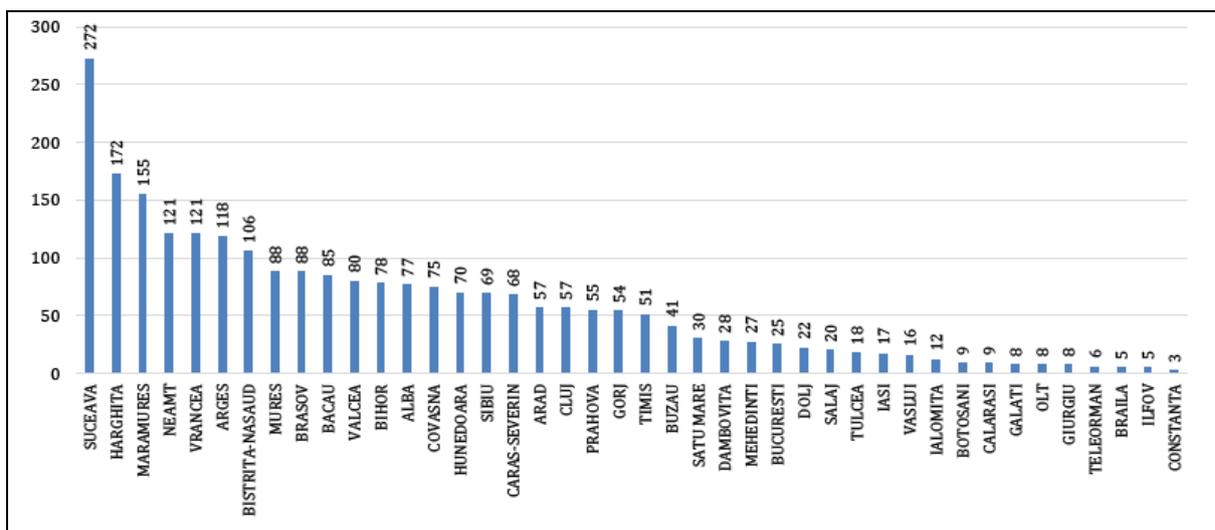


Fig. 2: The number of harvesting firms registered by county (source: Asociația Forestierilor din România)

3.2. Identifying the actors from the business sector timber processing (database of the National Institute of Statistics)

Out of 10616 firms analyzed for the 9 codes NACE considered (Table 1), the primary processing and logging accounted together for 51% of the firms, followed by the firms with timber sales activities (28%).

Table 1. *The number of firms per business segment (NACE code)*

NACE code	Activity	Nr. firms	% of total
210	Forestry and other silviculture activities	1166	11
220	Logging (harvesting)	2326	22
1610	Sawmilling	3030	29
1621	Panels	129	1
1711	Pulp and paper	5	<1 (0,05)
3101	Furniture for offices	820	8
3102	Furniture for kitchens	199	2
4613	Intermediaries in timber trade	1273	12
4799	Retailers in firewood trade	1668	16
Total		10616	100

The number of firms is lower in the counties with a low forest coverage.

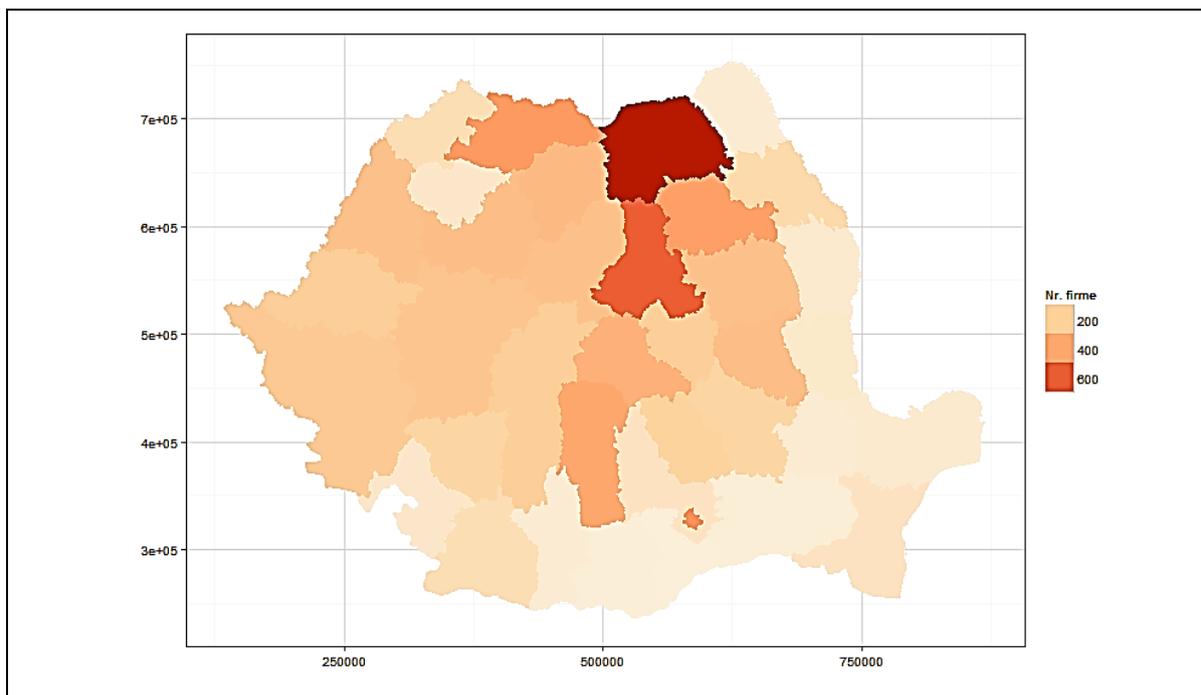


Fig. 3. *The distribution of the firms from forest sector per county*

3.3 Identifying structural characteristics

3.3.1 The index sawmill-harvesting (MILLHAR)

The index MILLHAR results by reporting the number of harvesting companies to the number of the sawmills. The index is useful in the context of adoption in November 2015 of the new rules for the timber sales, forcing the buyers to process the wood purchased in a proportion of 40% in their own processing plants. For the whole country the index value is $2326/3030 = 0.8$ that shows a rather poor vertical integration, and a strong competition in both NACE segments.

The only factor significantly influencing the index MILLHAR defined above is the employment (number of employees per company), a simple linear regression explaining 12% of the variability index (Table 2). The higher the index, the smaller the number of employees per county.

Table 2. The index MILLHAR correlation with total employment in the county

	Estimate	Er. Std.	Val. <i>t</i>	Pr(> <i>t</i>)
Intercept	1.6474	0.2448	6.728	4.5e-08 ***
Employement in the county (thousand people) ¹	-0.0015	0.0006	-2.379	0.0222 *

3.3.2 The size of the firms from forest sector

On average, the firms analyzed have 8 employees. The biggest employer is ROMSILVA, with 18601 employees, followed by the two companies from Maramures: POLIMOB SA (1490 employees) and AVIVA SRL (958) and one of Mures - KASTAMONU ROMANIA SA (833) (figure 4).

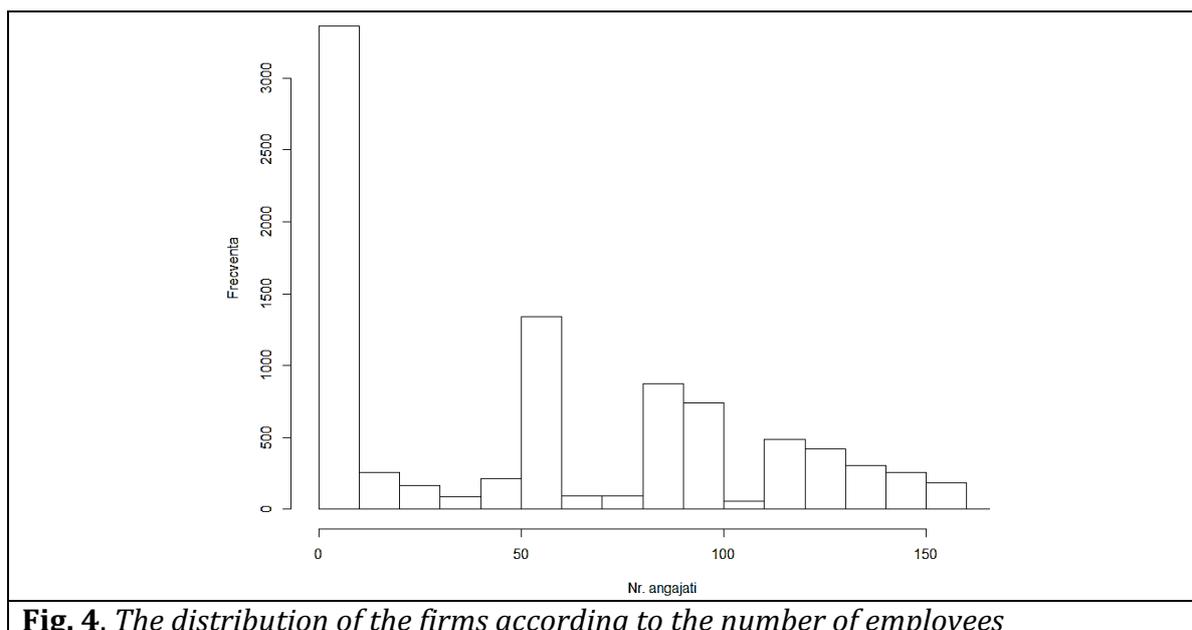


Fig. 4. The distribution of the firms according to the number of employees

¹ Institutul Național de Statistică, baza de date TEMPO

The distribution shows that the most numerous are micro (8775) and small (169) firms, while only 17 companies fall into the category of medium-sized enterprises (excluding ROMSILVA). The largest number of microfirms are located in Suceava (769) Harghita (587), Bucharest Municipality (443), Maramures (430), Neamt (416) and Arges (392).

Table 3. *The hierarchy of the firms (top 10) according to the turnover and the number of employees per NACE code*

NACE Code	Firm	County	Nr. of employees
220	SC ALREDIA SRL	Alba	241
	SC CIRESUL SRL	Vâlcea	152
	SC RO XI WOOD SYSTEMS SRL	Hunedoara	144
	SC EX-FOR SRL	Covasna	121
	SC T C COMPILIMPEX SRL	Neamț	86
	SC SILVA FOREST SRL	Ialomița	84
	SC ALDONA FOREST SRL	Hunedoara	78
	SC MALINIC SRL	Covasna	71
	SC LIMSILVA FOREST SRL	Vrancea	66
	SC KENOTHEOZ COM SRL	Neamț	64
1610	SC AVIVA SRL	Maramureș	958
	SC MASIFPANEL SRL	Brașov	418
	SC ROMANEL INTERNATIONAL GROUP SA	Municipiul București	337
	SC ROWO SA	Mureș	320
	SC FORESTCOV SRL	Vâlcea	286
	SC MASSIV FOREST PRODUCTS SRL	Caraș-Severin	285
	SC FORESTA ARGES SA	Argeș	271
	SC KARELIA - UPOFLOOR SRL	Maramureș	247
	SC FORESTAR SA	Neamț	240
	SC FRASINUL SRL	Bistrița-Năsăud	239
1621	SC KASTAMONU ROMANIA SA	Mureș	833
	SC HOLZINDUSTRIE SCHWEIGHOFER	Bacău	667
	EGGER ROMANIA SRL	Suceava	662
	SC R.G.HOLZ COMPANY SRL	Maramureș	531
	SC LOSAN ROMANIA SRL	Brașov	494
	SC SIGSTRAT SA	Maramureș	491
	SC KRONOSPAN SEBES SA	Alba	457
	SC J.F. FURNIR SRL	Brașov	351
	SC ROMPLY MEROPS SRL	Călărași	296
	SC WERZALIT LEMN TECH SOCIETATE IN	Timiș	250
1711	SC SOMES SA	Cluj	27
	SC PANELOR SRL	Nemț	4
	SC FUSUL SRL	Vaslui	3
	SC MOARA VECHE SRL	Maramureș	1
	SC HAPPY PARISIAN SRL	Buzau	0

The multiple regression analysis showed that the only significant variable influencing the number of the employees at the county level per NACE code is the volume harvested (thousand m³). This model explains 20% of the variability (Table 4). Thus, the average number of employees per company in the sector is positively correlated with average volume harvested per county in 2010-2014.

Table 4. *The correlation between the harvested volume and the average number of employees*

	Estimation	Er. Stand.	Val. t	Pr(> t)
Intercept	48.0968	1.365849	35.214	< 2e-16 ***
Harvested volume (thousand m ³) m ³)	0.0071	0.002248	3.191	0.00276 **

3.3.3 Turnover value per employee

The value of turnover per employee is useful to identify the proportion of companies practicing the subcontracting or the out-sourcing. The ratio is 90.690 lei, with extremes ranging from 0 to 26.38 million lei. Thus SC KT SRL Brasov has 2 employees for a turnover of 52.77 million lei net, showing perhaps a business model exclusively based on subcontracting. The biggest value per employee is recorded in București (323.983 lei), followed by the counties Ilfov (274.596 lei), Brașov (178.335 lei), Iași (158.287 lei), Constanța (141.846 lei), Maramureș (117.999 lei) and Dâmbovița (112.380 lei).

3.4 Identifying the set of actions allowed in using forest biomass

For the "forestry" section, the search engine iDrept generated 1066 references which have been classified according to the regulatory domain identified as:

1. Accessibility of the forest (forest roads)
2. Forest management planning
3. Natural protected areas (Natura 2000)
4. Forest Reproductive Material
5. The Authorizing Commission for the harvesting firms
6. Forestry Staff regulation
7. The organization of the national forest administration Romsilva
8. The allocation of volumes of wood to special purposes or special categories of users
9. The establishment of private forest districts
10. The regulation on timber sales from public forests
11. Environmental law
12. Forest Guards regulation
13. Controlling the movement of timber on public roads (Wood Tracking System)
14. Implementation of EU 995/2010 "due diligence system" and SUMAL
15. Controlling the sawmilling activities
16. The regime of the waste wood from sawmills

The search with the keyword "timber" generated a total of 54 acts for legislation search engine of the Chamber of Deputies and a number of 236 references in the search engine iDrept. We have identified thus 34 laws and regulations that have a direct impact on the current model of timber resource allocation, that is set up along a logistic flow of timber marking, harvesting and procurement – timber transportation – timber processing.

In analyzing the acts whose updated text is provided by the search engine iDrept we found that the timber selling and procurement is the area with the most frequent changes, but also with the most substantial changes.

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