

SOCIAL NETWORKS AND NORMS DRIVING THE FIREWOOD MARKET FOR HOUSEHOLDS NEEDS

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BIOMASS

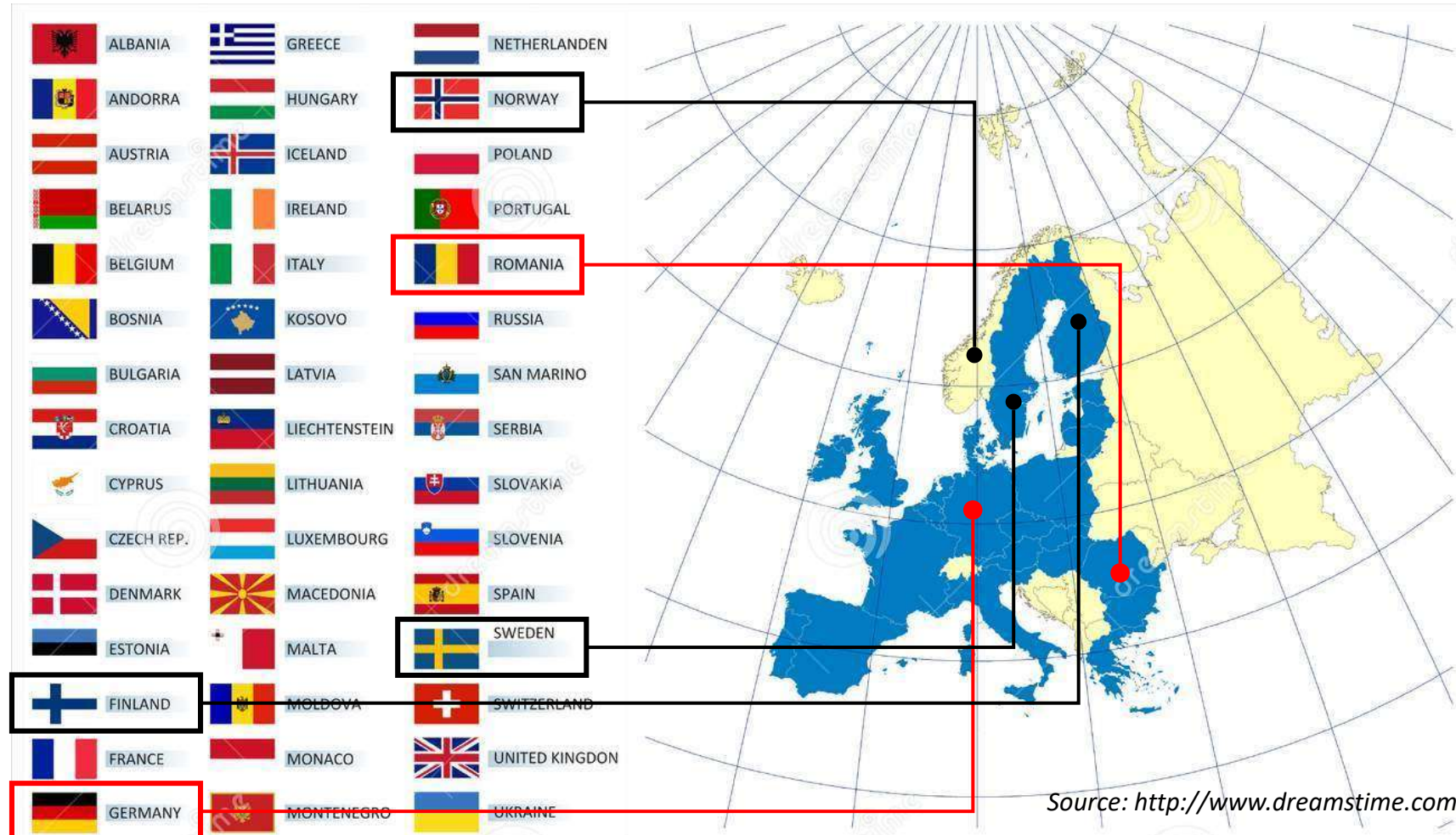
*”Social sustainability and acceptability of biomass production and utilization in
Northern Eastern Romania”
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1. INTRODUCTION

CONCERN of sustainable use of the biomass resource = scarce in Europe, while considering the increasing demand

Notable exception in Scandinavian countries

Wood demand = gap between the official recorded removals, and the estimated domestic consumption



2. MATERIAL AND METHODS

Same methodology used in 2009 by National Institute of Statistics (NIS) **TO ESTIMATE** the characteristics of the households energy consumption.

Survey sample:

- *NIS -10.920 homes in 780 centers with 14 households / center*
 - *our research survey: 9 centres of medium size, with at least 40 households per center:*
 - 3 urban localities, 6 rural; mountain, hilly and plain regions
- Systematic selection with **(a) random start** (*one departure street chosen randomly*) and **(b) fixed pitch** (*a house of four*)

2. MATERIAL AND METHODS

1st step:

- *to estimate consumption of firewood per household*
- *to identify the type of wood used and the procurement practices*
- *to record socio-demographic potential explanatory variables of firewood consumption*
(questionnaire with households, N=526)

2nd step:

- *To record practices and norms governing the local firewood trade*
(semi-structured interviews with individual transporting firewood)

3. RESULTS: consumption

Table 1 Characteristics of the centers

| No | Locality, County | Inhabitants/Households | Region* | Sample |
|--------------|---------------------------|------------------------|---------|------------|
| 1 | Borca, Neamț | 6658 / 2835 | 2 | 16 |
| 2 | Pârteștii de Jos, Suceava | 2793 / 980 | 1; 2 | 60 |
| 3 | M. Eminescu, Botoșani | 7871 / 2149 | 1 | 79 |
| 4 | Vânători, Iași | 4701 / 1891 | 1 | 40 |
| 5 | Copălău, Botoșani | 4380 / 1556 | 1 | 60 |
| 6 | Vatra Dornei, Suceava | 17176 / 5987 | 2 | 60 |
| 7 | Dolhasca, Suceava | 11439 / 3321 | 1; 3 | 50 |
| 8 | Marginea, Suceava | 11058 / 2500 | 1; 2 | 61 |
| 9 | Bertea, Prahova | 3182 / 1146 | 1; 2 | 100 |
| Total | | 69258 / 22365 | | 526 |

* [1] hills; [2] mountains; [3] plains

coverage probability of 95% and the size of the population being 22365 households, the **error margin is 4.22%**

3. RESULTS: consumption

Q1. What fuel do you use to heat the house?

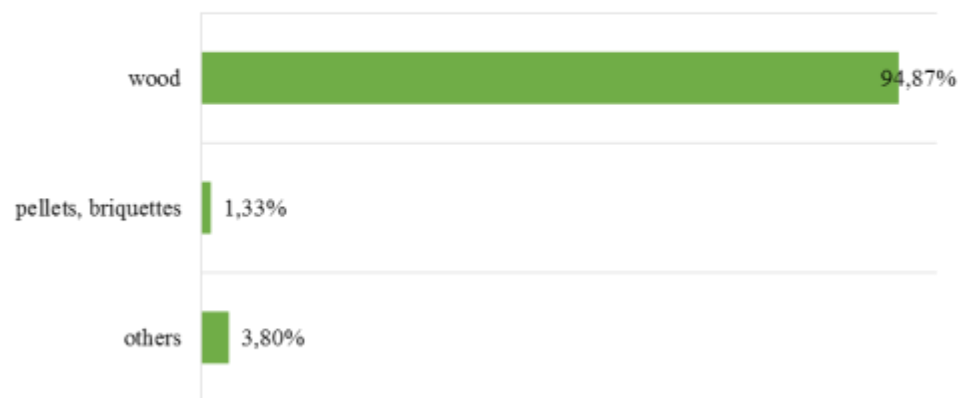


Figure 1 Type of firewood used

Table 2 Mean and standard deviation of annual wood consumption

| No. | Locality, County | Mean \pm standard deviation (cubic meters) |
|-----|---------------------------|---|
| 1 | Borca, Neamț | 7.75 \pm 3.04 |
| 2 | Pârteștii de Jos, Suceava | 9.16 \pm 2.42 |
| 3 | M. Eminescu, Botoșani | 6.97 \pm 1.25 |
| 4 | Vânători, Iași | 5 \pm 1.73 |
| 5 | Copălău, Botoșani | 5.98 \pm 2.31 |
| 6 | Vatra Dornei, Suceava | 10.8 \pm 2.99 |
| 7 | Dolhasca, Suceava | 11.5 \pm 4.09 |
| 8 | Marginea, Suceava | 14.2 \pm 6.35 |
| 9 | Berteia, Prahova | 7.77 \pm 4.53 |

The **dominance** of the round firewood

Annual consumption/household:

8.9 m³/yr

94.87%
wood for heating

variation

from 5 m³

poor locality, plain region

to 14.2 m³

rich locality, mountain area

3. RESULTS: consumption

Q5. Do you know how much you consume annually for heating the house? (cubic meters)

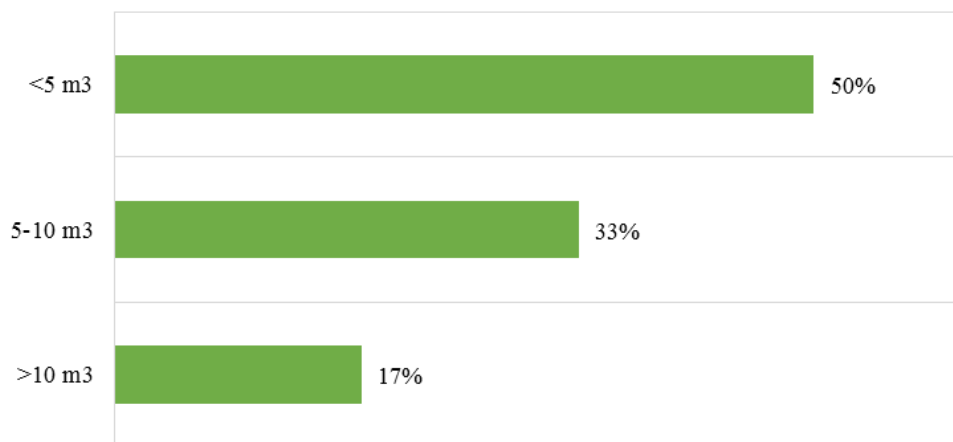


Figure 2 The distribution of the wood consumption

Inhabitants uses < 5 m³
36 households (7%) consume > 20 m³

Q6. What heating system do you have?

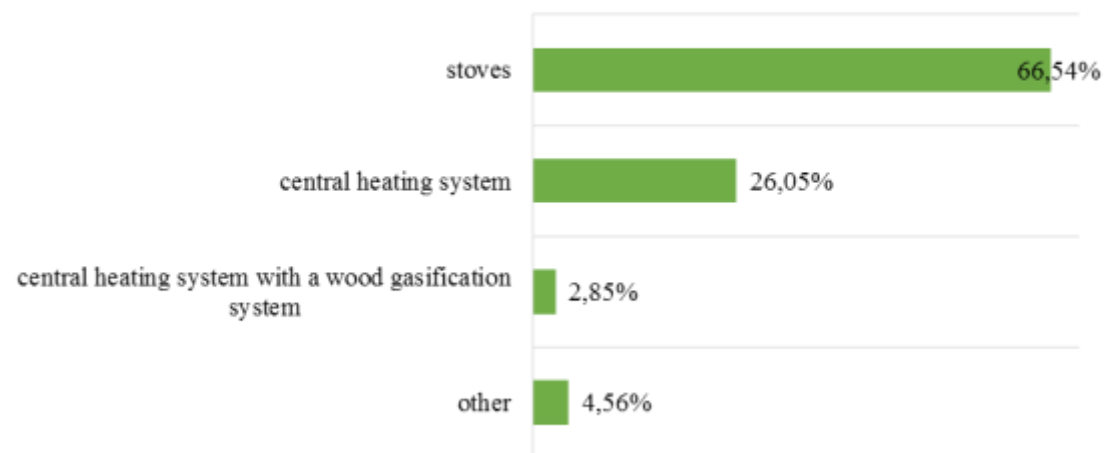


Figure 3 Type of heating system

share of the heating systems in the profile

151609 household
rural households Suceava
county

NEEDED
927847 m³
Demand households
Suceava county

GAP
300000 m³
between supply & demand
unrecorded logging

3. RESULTS: practices in local firewood trade

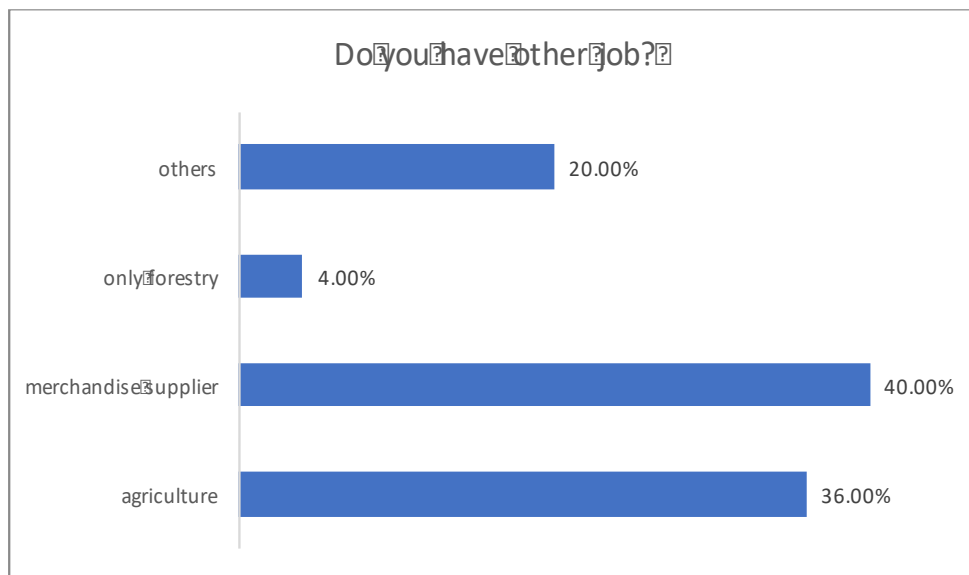


Figure 4 The employment of the individuals transporting timber

Forestry jobs: only 4% of the firewood traders

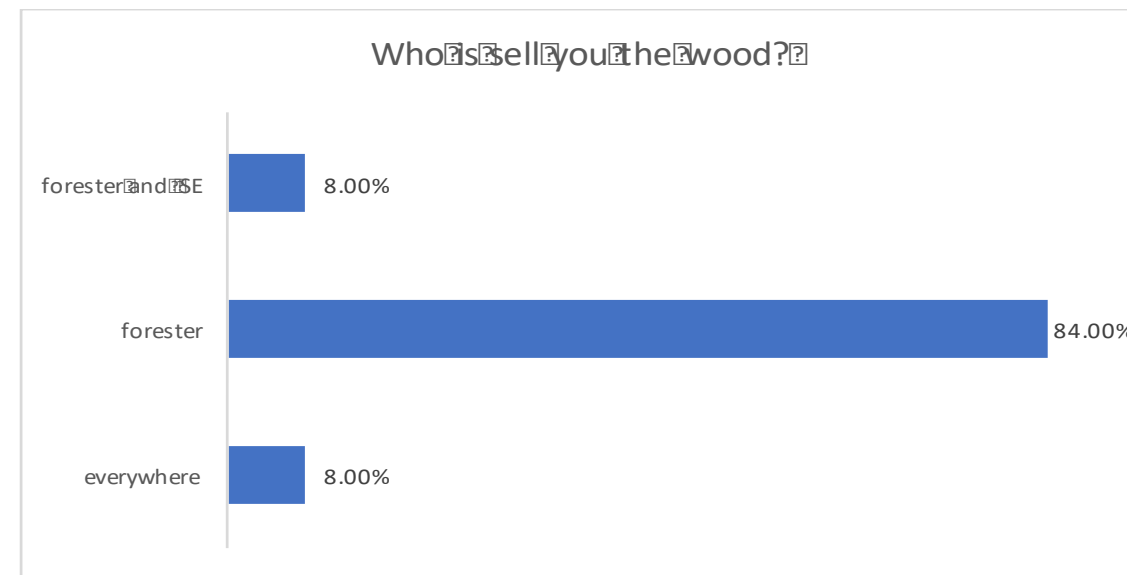
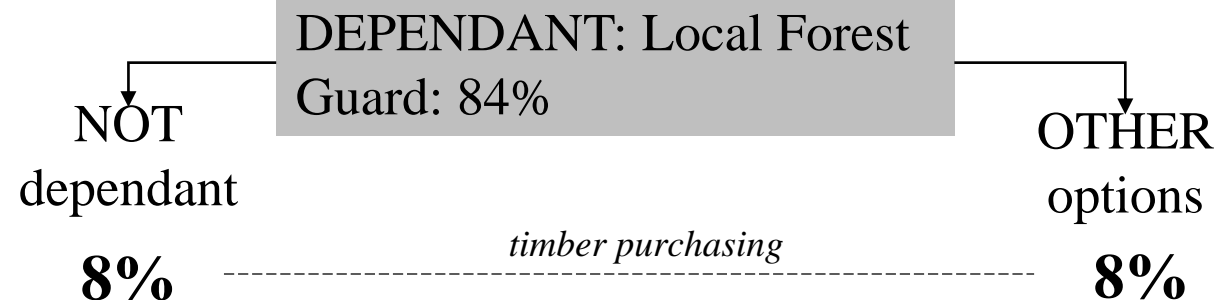


Figure 5 The source of the wood sold as firewood



3. RESULTS: practices in local firewood trade

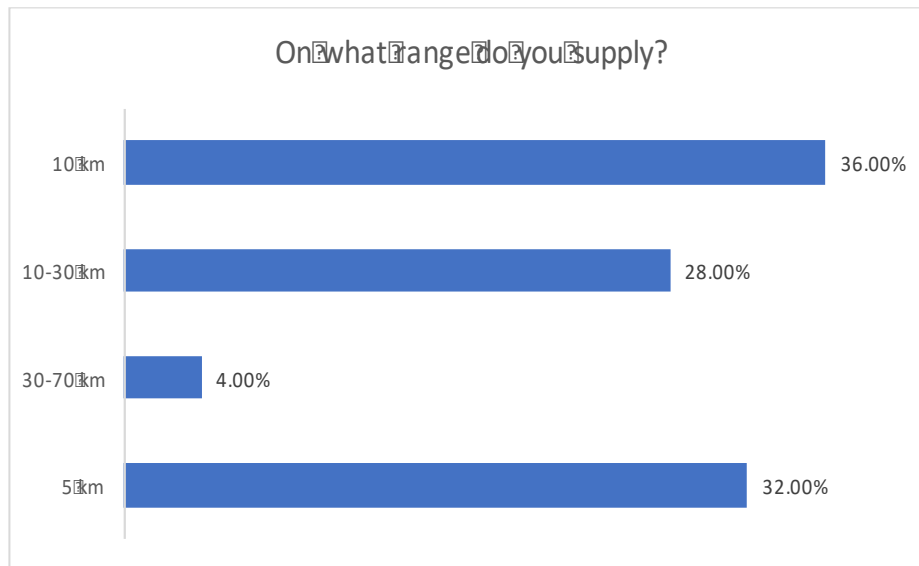


Figure 6 The distance of firewood transportation

Dominance of the local firewood procurement



68% of individuals are selling the wood in a radius of less than 10 km.



...how often they sell/transport timber with legal forms

28%

of them recognises the fact that they never had papers for the sold firewood

28%

Recognise that "it may happen that they do not have papers"



Illegal transportation

4. CONCLUSIONS

A survey based on questionnaires with 526 households and interviews with 25 firewood middleman allow us:

1. **to determine** the average household consumption (8.9 cubic meter per year);
2. **to confirm** the estimation provided at the national level in 2009 by the National Institute of Statistics (firewood consumption might be equal to the official removals in Romania!);
3. **to confirm** the fact that the firewood trade is driven by the local networks, centered around the local forest guards as main suppliers of middleman;
4. **to confirm** the hypothesis that local firewood markets are mostly informal (grey or black markets);
5. **To draw the attention to a latent conflict** between the local and legal norms regulating the access to the firewood resource.



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**THANK YOU
FOR YOUR ATTENTION !**