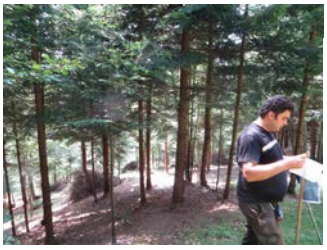
Universitatea Ștefan cel Mare Suceava

INOVARE SI CREATIVITATE



Institutional entrepreneurship and impacts on sustainable forest management in Romania: bridging socio-economic and remote sensing tools (INFORMA)

Contract PN-II-RU-TE-2012-3-0304, nr. 32/29.04.2013

Executive summary of the deliverable report of the phase 2015

Authors: Liviu Nichiforel, Ionut Barnoaiea, Ovidiu Iacobescu, Radu Cenușă, Cătălina Barbu, Roxana Barnoaiea, Ramona -Elena Scriban

December 2015

1. General objectives of the project

The general objectives of the project are organized in two directions that examine: (1) the identification of the broad scale effects of different rent-seeking behaviors in the management of forest resources and (2) the understanding of institutional entrepreneurship through identifying motives, drivers and arenas occurring in the context of forest management and market evolution.

The operational objectives of the research proposal are:

- to **compare, categorize and quantify**, using remote sensing tools and field inventory, structural patterns of management in state vs. private forests, at a regional scale (Q1);
- to delineate, by linking remote sensing tools to sociological tools, **a typology of management attitudes** of resource owners corresponding to different structural forest patterns (Q1);
- to identify, by means of econometric and geomatics instruments, **rent-seeking behaviors influencing market transaction** and their impact on forest management patterns (Q2);
- to integrate the identified **institutional entrepreneurship practices** in the context of forest governance in post-communist countries (Q3).

2. Specific objectives of the 2015 phase

The 2015 phase has set three operational objectives:

1. The identification of institutional aspects regarding the management types at the regional scale.

   Results delivered: *Identifying the influence of institutional changes on the forest management resources*- the synthesis of results was also officially submitted to the Romanian President – Klaus Johannis as part of changes on Romanian Forest Code.

2. Identifying the impacts of entrepreneurial behaviors on the spatial distribution of disturbances by integrating the economic, geomatic and structure of forest ecosystems information.

   Results delivered: *Creating ArcGIS geodatabase of economic, geomatics and structure of forest ecosystems information* and *The impact of spatial forest management patterns on market behavior*

3. Methodological approach

At the methodological level has been identified two distinct objectives which practically correspond to the analysis on the specific objectives of the 2015 phase:

1. Identify the influence of institutional changes on the forest management resources has been achieved through qualitative analysis of the representative stakeholders about forestry perceptions which is based on two components:
   - Questioning the managers of certified Forest District under private administration;
   - Interviewing the experts from forestry sector present at the forest fair Forest Romania, held in Brașov

   Both groups of experts were selected in order to structure the questionnaire distributed to quantify the statistical perceptions on the role of institutional changes in the context of forest management resources. The questionnaire was developed in Google Drive Platform® and was distributed to forestry engineers from public and private sector, to companies of forest operations sector on 1st November 2015. The data collection are being in progress.

2. The synthesis of the results achieved during the project implementation through GIS geodatabase which was achieved by applying the DPSIR model. (Scriban, 2015)

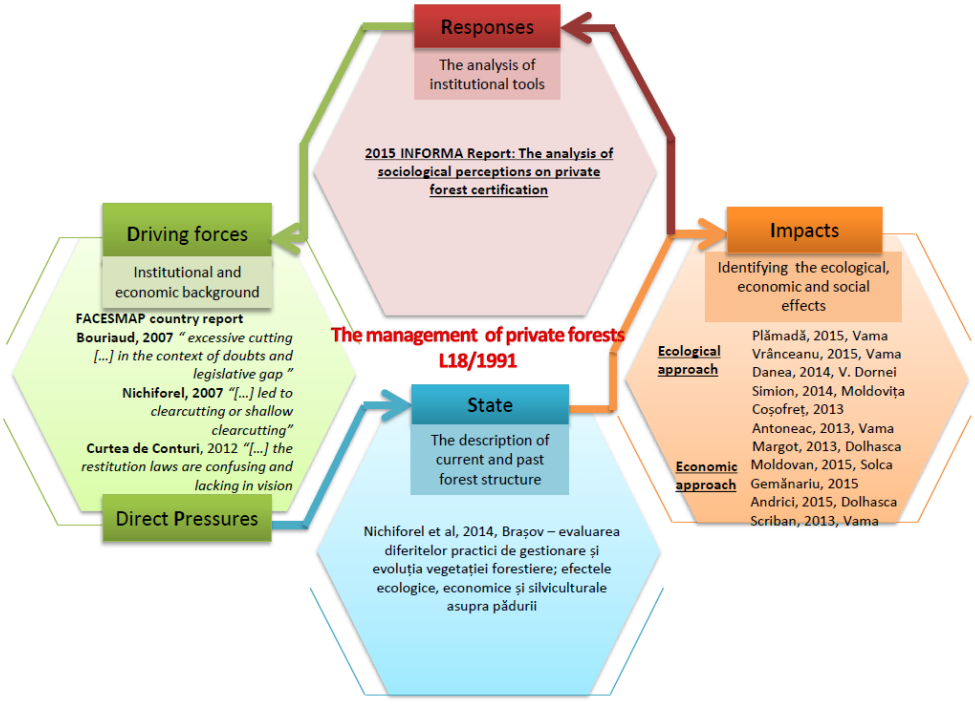


Figure 1 Methodological approaches integrated in DPSIR model

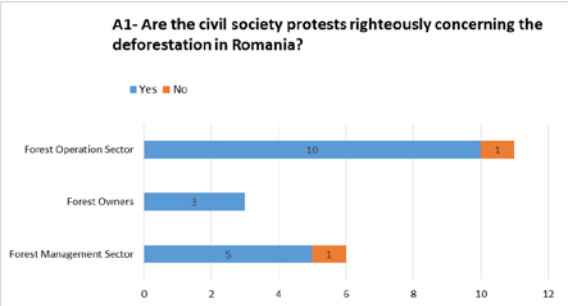
4. Results

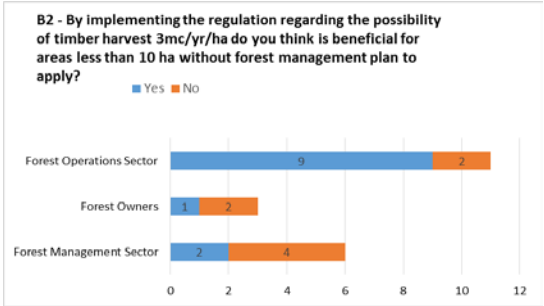
4.1. Identifying the influence of institutional changes on the forest management resources

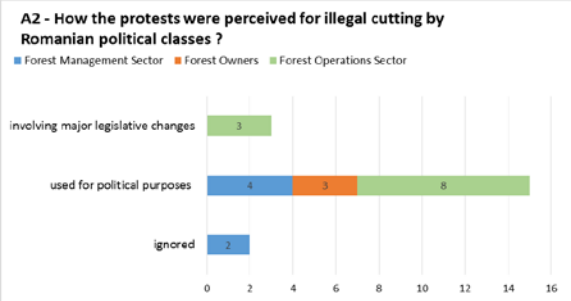
The quantification analysis of institutional changes on the forest management resources has been achieved on the interview structured into three parts corresponding to its category: t**he role of forest in society (A)**, **the new regulations of Forestry Code (B)** and **measures concerning illegal cutting (C)**. Concerning the aim of the interview, the procedures led to the identification of stakeholders and producers/distributors of forestry equipment to ensure the quality of answers.

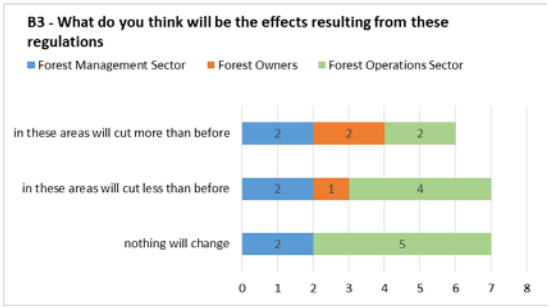
Figure 2 Interviewing the stakeholders at the Forest Romania seminar on „ Challenges and needs of wood market in Romania ”

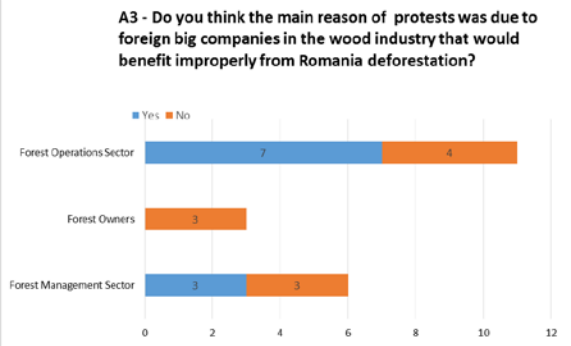
As a result of the survey has been identified the following target groups present at the Forest Romania: **forest owners** - with 3 stakeholders, **forest management sector** - with 6 stakeholders, and **forest operations sector** – with 11 stakeholders.

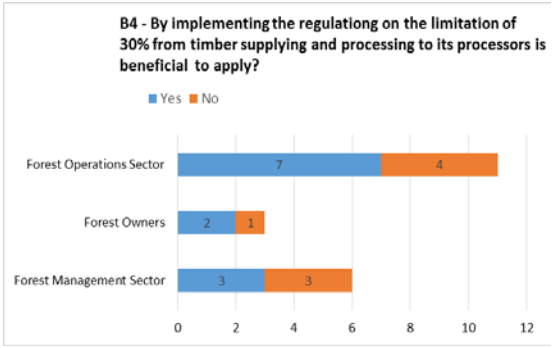

A1- Are the civil society protests righteously concerning the deforestation in Romania?
Yes
No
Forest Operation Sector
Forest Owners
Forest Management Sector
10
1
3
5
1
0
2
4
6
8
10
12

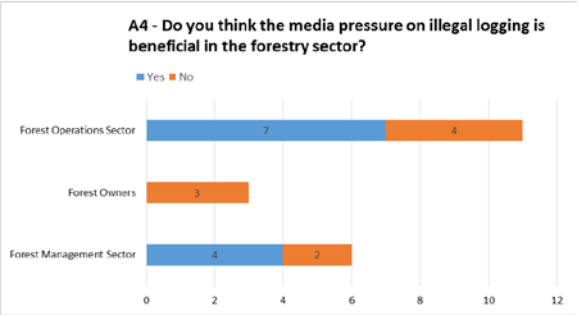

B2 - By implementing the regulation regarding the possibility of timber harvest 3mc/yr/ha do you think is beneficial for areas less than 10 ha without forest management plan to apply?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
9
2
1
2
2
4
0
2
4
6
8
10
12

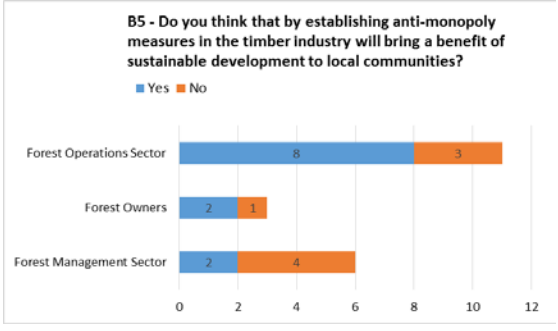

A2 - How the protests were perceived for illegal cutting by Romanian political classes ?
Forest Management Sector
Forest Owners
Forest Operations Sector
involving major legislative changes
used for political purposes
ignored
3
4
3
8
2
0
2
4
6
8
10
12
14
16

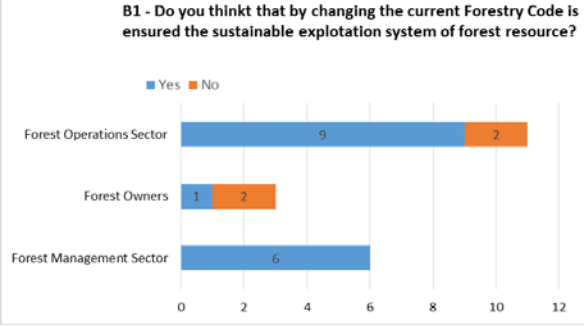

B3 - What do you think will be the effects resulting from these regulations
Forest Management Sector
Forest Owners
Forest Operations Sector
in these areas will cut more than before
in these areas will cut less than before
nothing will change
2
2
2
2
1
4
2
5
0
1
2
3
4
5
6
7
8

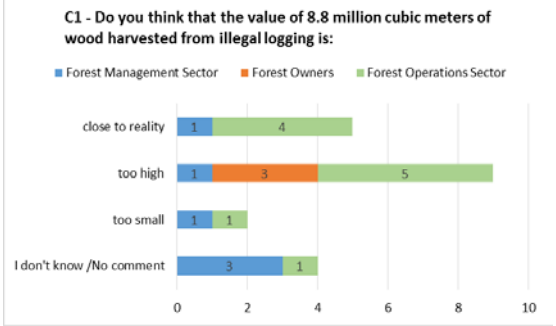

A3 - Do you think the main reason of protests was due to foreign big companies in the wood industry that would benefit improperly from Romania deforestation?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
7
4
3
3
3
0
2
4
6
8
10
12

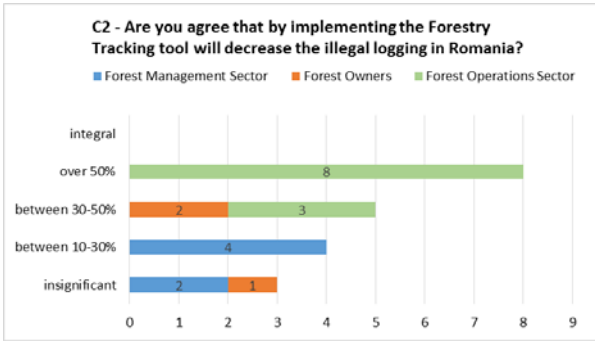

B4 - By implementing the regulationg on the limitation of 30% from timber supplying and processing to its processors is beneficial to apply?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
7
4
2
1
3
3
0
2
4
6
8
10
12

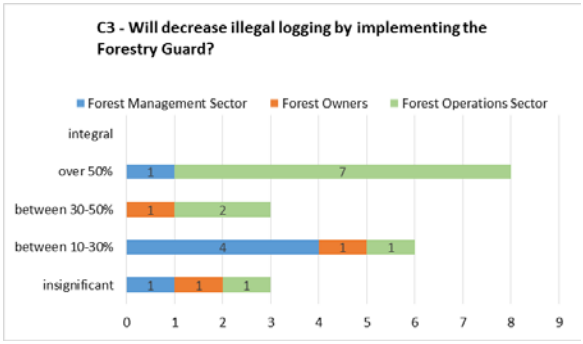

A4 - Do you think the media pressure on illegal logging is beneficial in the forestry sector?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
7
4
3
4
2
0
2
4
6
8
10
12


B5 - Do you think that by establishing anti-monopoly measures in the timber industry will bring a benefit of sustainable development to local communities?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
8
3
2
1
2
4
0
2
4
6
8
10
12


B1 - Do you thinkt that by changing the current Forestry Code is ensured the sustainable explotation system of forest resource?
Yes
No
Forest Operations Sector
Forest Owners
Forest Management Sector
9
2
1
2
6
0
2
4
6
8
10
12


C1 - Do you think that the value of 8.8 million cubic meters of wood harvested from illegal logging is:
Forest Management Sector
Forest Owners
Forest Operations Sector
close to reality
too high
too small
I don't know /No comment
1
4
1
3
5
1
1
3
1
0
2
4
6
8
10





4.1 Creating ArcGIS geodatabase correlation of economic, geomatics and structure of forest ecosystems information

The complex database processed in the project framework were tabular and spatial organized by using ArcGIS Geodatabase Platform. The format allows the integration, into an interactive database to vector, tabular and imaging information.

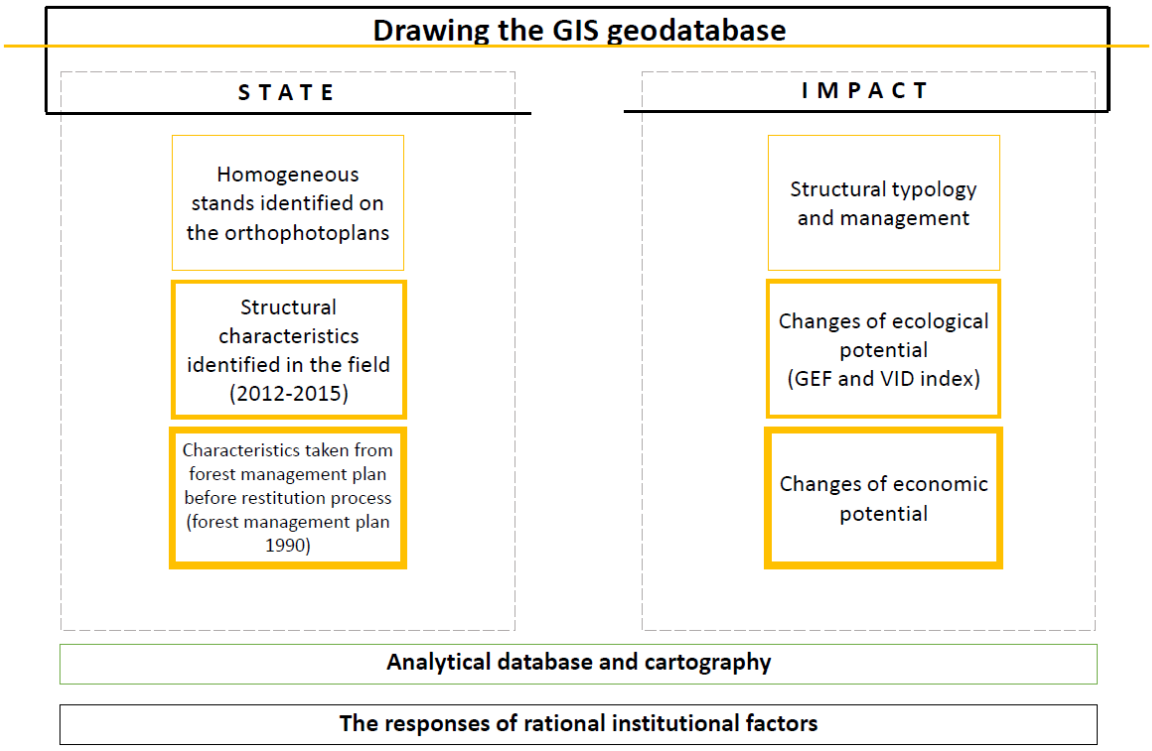


Figure 3 Drawing the ArcGIS geodatabase

The subdivisions of the geodatabase *(figure 4)* created include the following datasets (Feature classes):

- Data taken from GIS management plan (the limits of forest units, including those restituted to private owners, forest roads, localities);
- The limits of elementary units; with homogeneous stands identified by orthophotoplans
- Survey inventory, containing vector files with GPS points generated inside the elementary units, browsing tabular data resulting from these points, point-vector file resulting from the photo conversion tagged with geographic coordinates.

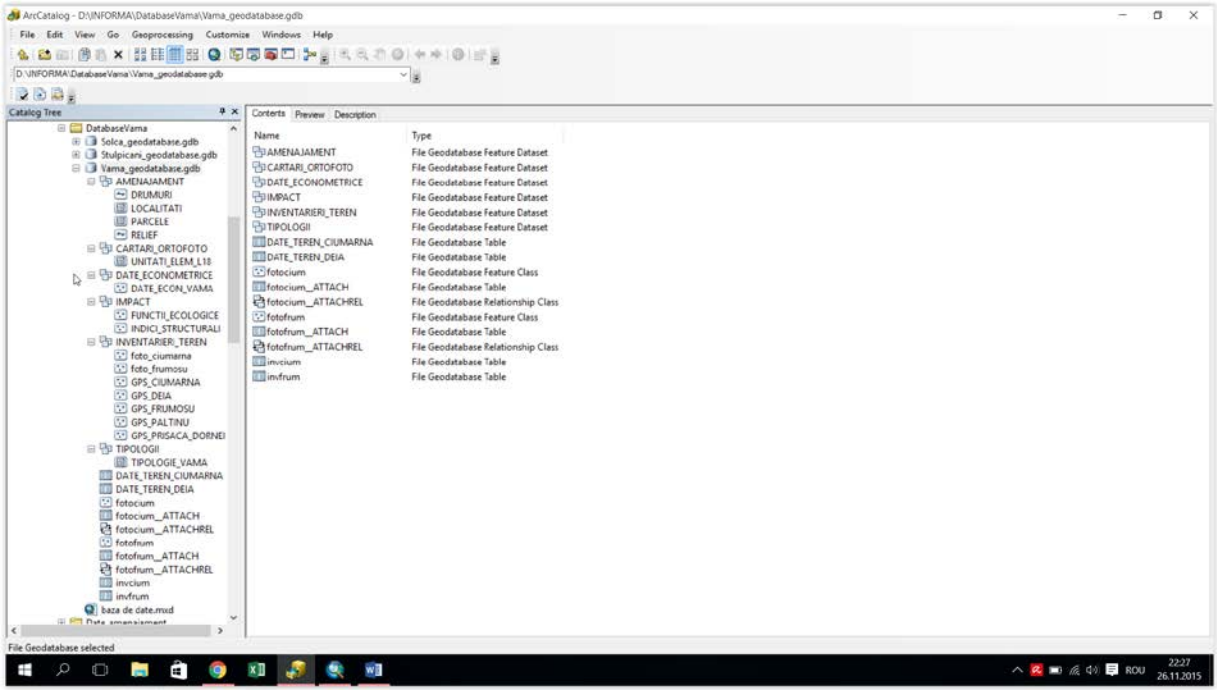


Figure 4 Datasets integrated in ArcGIS geodatabase

4.2. The impact of spatial forest management patterns on market behavior

The identification of spatial patterns of market behavior on the forest management was achieved by analyzing the datasets at the national scale. The analysis aims to identify the establishment of market relations between legal timber supply and potential demand have an impact on the forest management. The results of the analysis are materialized in achieving differentiation competitive environment identification at the county level.

The timber demand have been analyzed in terms of the indicators present in the National Institute of Statistics reporting *(figure 5)*:

- Forest area overall, by type of ownership (public or private) and groups of species (broadleaves and coniferous) – the indicators were expressed in hectares at a national value in 2013 and as average between 1990 and 2013.

- The volume harvested per total and by groups of species (coniferous, beech and oak) – the indicators were expressed in cubic meters at a national value in 2013 and as average between 1990 and 2013.

The timber harvested in 2013 have increased to 19.063,8 thousand m^3 which brings an increase of 14% from the volume that was harvested in 2003.

The identification of spatial forest management patterns on the illegal logging is difficult to achieve in missing of the results published by National Forest Inventory. Therefore, the analysis uses the latest of Greenpeace analysis which has achieved the illegal logging identified and investigated by the authorities within 2013-2014. This means, they cover a total of approximately 1 million m^3 of timber volume while the government reports indicate an average of 8.8 million m^3. In the 2013-2014 period were identified 45.509 cases of illegal logging whose privatization distribution is made at the counties level.

The economic potential demand for timber was identified based on the summation of existing volumes in the certificate of forest operations companies which are acting on the primary timber market according to data provided by the Ministry for the period 2012-2014 *(figure 6).*

The analysis reveals how the economic potential demand rises to 45 million m^3 distributed to a number of 5.250 of forest operations companies certificated at the end of 2014*(figure 7)*. The potential demand is higher with 236% compared with legal demand which shows additional pressure exerted by the firms operating on the market for illegal timber.

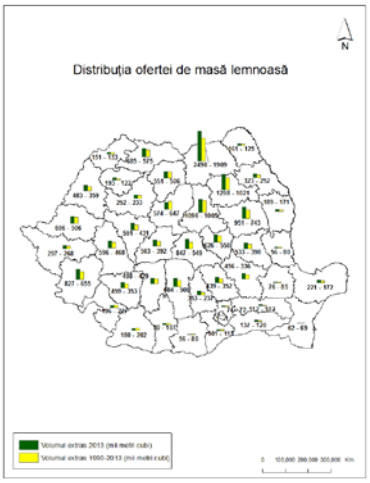


Figure 5 The distribution of timber demand

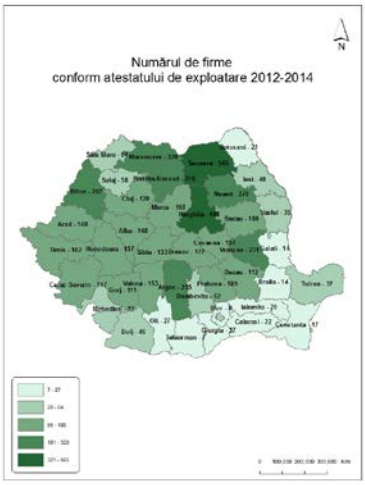


Figure 6 The potential demand by timber volume

Figure 7 The potential demand by number of firms