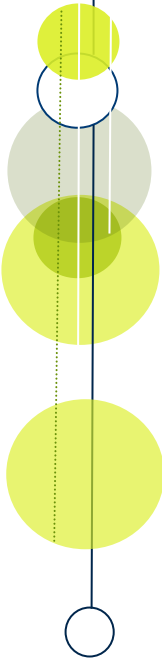




Universitatea
Ștefan cel Mare
Suceava

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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 2013

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

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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 behaviours 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 behaviours 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 2013 phase

The 2013 phase has set three operational objectives:

1. The final tuning of the methodological approach for the integration of the socio-economic elements with the ones from geomatics and forest management

Results delivered: [*Integrated methodology for the identification of the impact of entrepreneurial activities in the post-communist period upon forest management in Romania*](#) (D1)

2. The identification of institutional changes impacting on the behavioural typologies of the stakeholders from the forest sector

Results delivered: [*Hypothetical behavioural typologies in private forest management*](#) (D3)

3. The identification of forest cover dynamics in the post-communist period

Results delivered: [*The identification and mapping of areas with significant anthropic and natural disturbances*](#) (D2) and [*The identification of typologies of forest regeneration in forests with high degree of natural and anthropic disturbances*](#) (D4)

3. Methodological approach

Deliverable 1: Integrated methodology for the identification of the impact of entrepreneurial activities in the post-communist period upon forest management in Romania

In order to fulfil the two objectives of the phase 2013 an interdisciplinary method has been designed across the three working groups of the project. The methodology links the estimation of the degree of perturbation (WG1-geomatics) with the identification of regeneration patterns in disturbed areas (WG2 – forest management) and with behavioural practices on private forest management (WG3 – socio-economics)

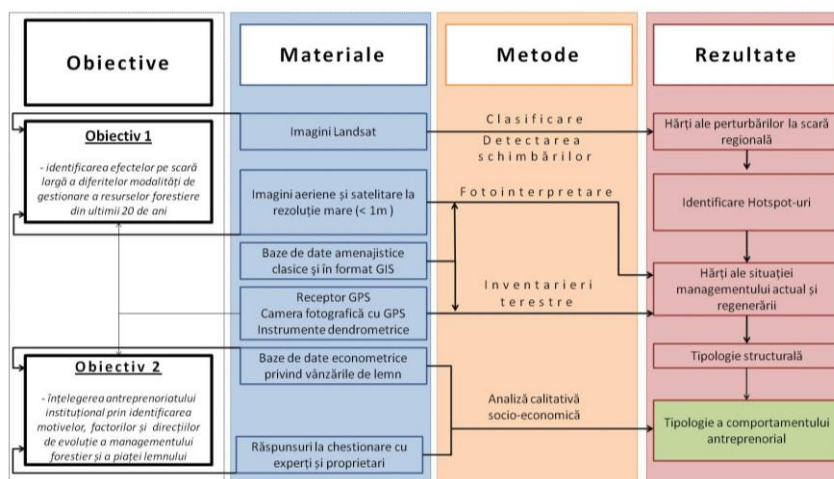


Figure 1 Integrated methodology

4. Results

Deliverable 2: The identification and mapping of areas with significant anthropic and natural disturbances

Based on specific technics for image classification and their post-classification comparison, two type of maps have been delivered as preliminary results at the regional scale covered by the LANDSAT scene: maps of the evolution of the forest vegetation cover and maps of the highly disturbed forest areas (figure 2 and 3). The provided maps will serve in the second phase (2014) for:

- The identification of different types of forest disturbances by fractioning the current periods in shorter periods linked to the steps of the forest restitution process
- The selection of the hot spots for the inventory of the forest regeneration status

An example of such o a comparative analysis of the degree of deforestation in forests restituted in the three different steps done at the level of Dolhasca case study shows the impact that the institutional changes had in reducing the effects of deforestation in private forestry (figure 4).

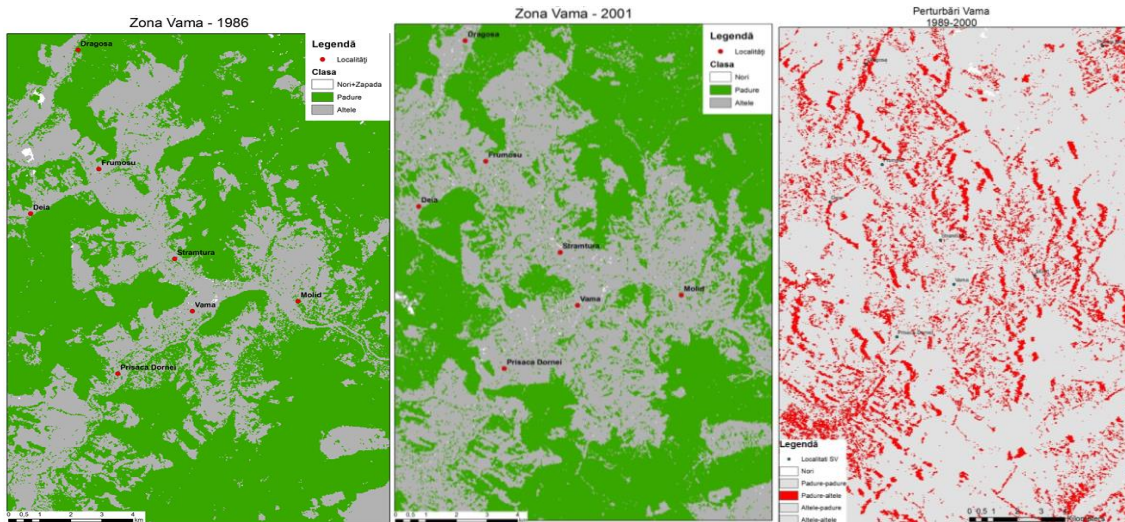


Figure 2 The evolution of the forest vegetation cover in Vama area between 1986-2001

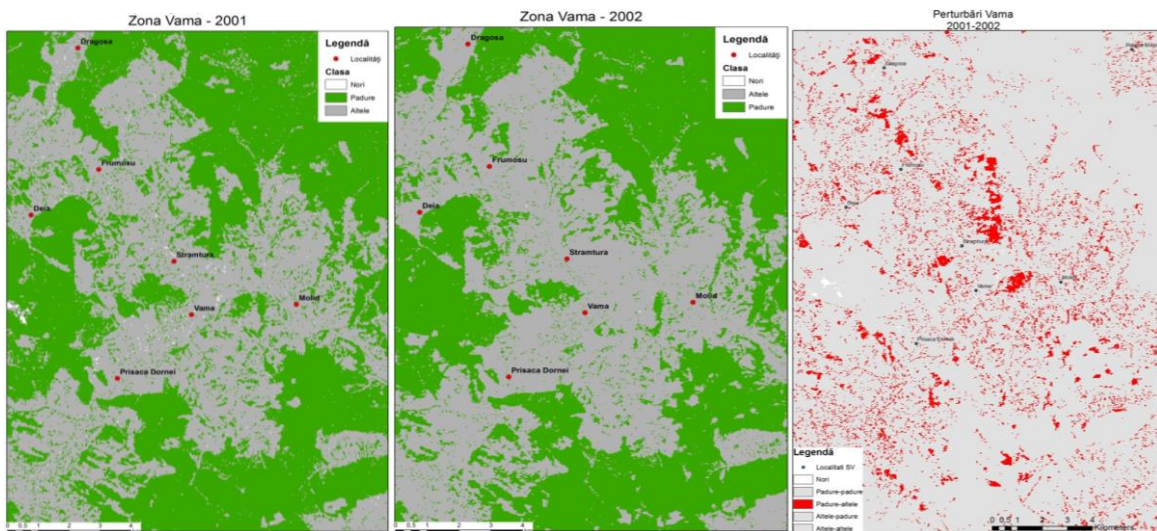


Figure 3 The evolution of the forest vegetation cover in Vama area between 2001 - 2002

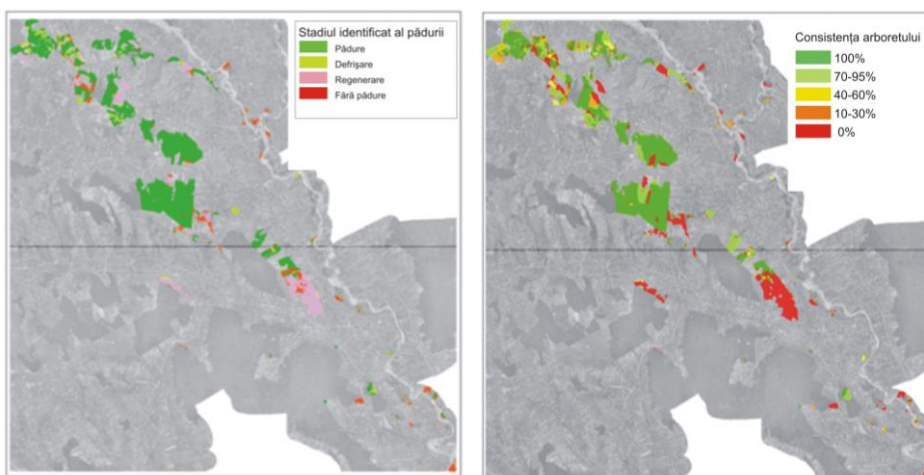


Figure 4 Degree of perturbation of the forest in Dolhasca case study

Deliverable 3: The identification of hypothetical behavioural typologies in private forest management

The hypothetical behavioural types have been identified based on an exploratory social analysis by discussing the results provided from the deliverable 2 (disturbances maps) with nine key experts from state and private forest management.

The hypothetical categories are to be validated by field inventory in the next phase (2014)

For the three types of the entrepreneurial behaviour (productive, institutional and predatory) the typology has identified hypothesis regarding:

- Pre-conditions for taking a certain path of behaviour (e.g. size of forest estate, imposed forest administration, lack of control etc)
- Identified patterns of behaviours ranging from different investments in responsible forest management to chaotic forest use.

The hypothetical categories identified for the conditions of forest management in Romania are the backbones of the next step of the analysis. In the second phase (2014) the patterns of behaviours will be validated by field inventory while in the third phase (2015) the pre-conditions and the identification of motives will be done via an extensive survey.

Deliverable 4: The identification of typologies of forest regeneration in forests with high degree of natural and anthropic disturbances

Based on the analysis of the forest degradation maps four case studies have been selected as in-depth case studies for the field inventory (Vama, Dolhasca, Frasin, Solca). The preliminary field inventory had the aim to calibrate the data collection on the field in order to be able to extend in the second phase (2014) the analysis at the level of the entire forest administration unit (*ocol silvic*).

The field inventory in this phase resulted in the identification of existing patterns of forest management in the disturbed areas and the consequences on the forest regeneration typologies (figure 5).

Therefore a matrix of possible interactions between the management types and the forest regeneration patterns has been designed for the further quantification of the possible interactions.

The methodology has been tested in the mentioned specific hot-spots showing the potential of the extrapolation of the results at a larger scale (figure 6).

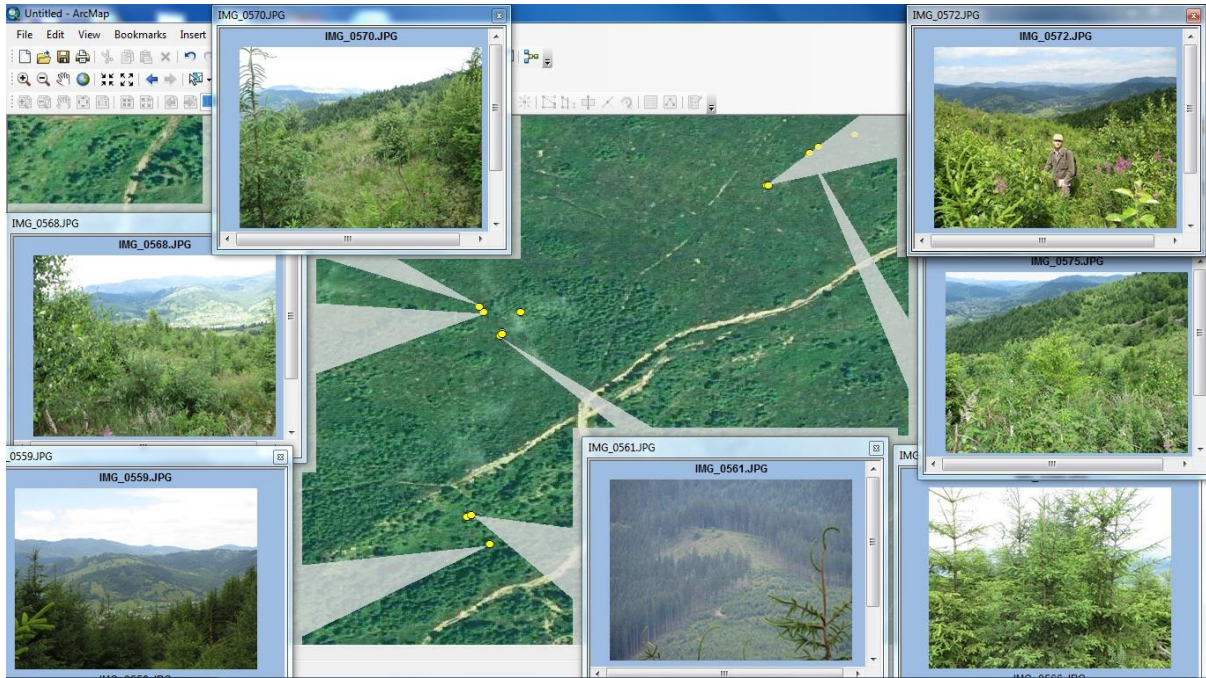


Figure 5: Different patterns of forest regenerations in perturbed areas from the case study Vama

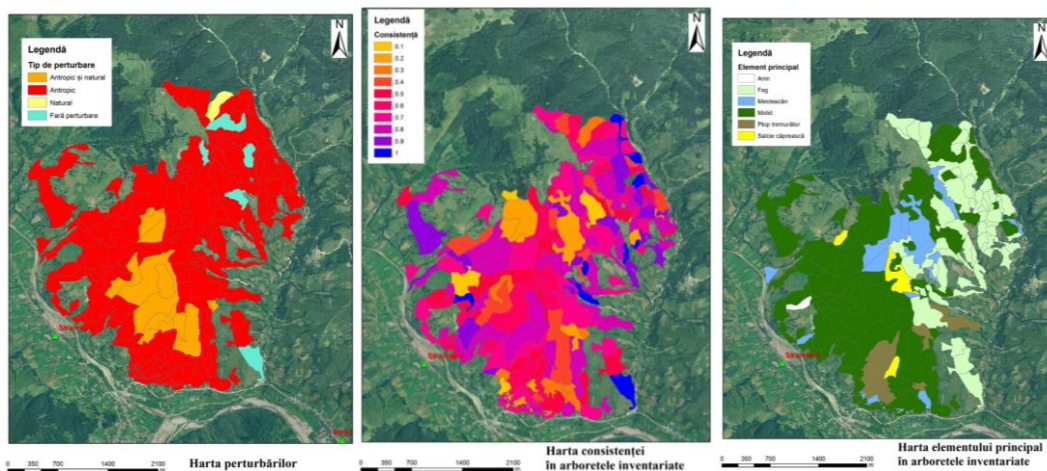


Figure 6: Maps of the forest regeneration characteristics in the Vama case study

5. Conclusions

The results delivered in the first phase of the project prove that the analyse problem has a high potential for a more analytical integrative approach. Analysing the problem just by means of providing geo-spatial maps of forest cover changes, even though is a fashionable technique with a growing use in the last 2-3 years, distorts the information by neglecting the causes and the motives of forest perturbations. On the other hand the identification of forest management behavioural patterns only by sociological means needs a special quantification as to be relevant for policy makers in designing institutional changes.