COMMUNICATION PROBLEMS AT IMPLEMENTING INFORMATION SYSTEMS IN THE MANAGEMENT OF ROMANIAN STATE FORESTS

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Abstract: - Within the framework of the FDP (Forestry Development Program) project, inside the Ministry of Agriculture, Forestry and Rural Development the management developing and the information’s monitoring was structured in three stages: FORMIS, FORCES and FORGIS. Because of compression of some stages for implementing these developing phases of informational systems, some communication problems occurred which has as result the compromising of SUMAL program function (as part of FORMIS) which has as objective to offer the Control Department of the Ministry of Agriculture, Forestry and Rural Development and territorial ministerial forestry inspectorates a flexible tool for monitoring the timber trade from forest to the final consumer, and hang up the GIS (Geographical Information System) usage within the state forest management.

The communication problems between the center of information management and monitoring (FMIMS) and the main stakeholders, but also between the stakeholders and the system designers made questionable the future usage of the SUMAL system.

The SUMAL system can eliminate bad practices through companies reporting all documents records (those reports already exist but only in hard copies) in the proposed data base format.

By offering the users a detailed database regarding legally produced timber (local sources or from import), detailed information regarding transformations suffered through all the custody chain, will expand the control capacity over the illegal logging by limiting trading with illegal timber and by making much more difficult “launder” activities.

The present paper analyses the effectiveness of the system using a simple assessment method based on questionnaires to the main stakeholders.

Key words: communication, information management system, chain of custody information management, custody chain

1 Introduction

1.1 Background

Before implementing the SUMAL system, the Romanian wood supply circuit monitoring and controlling system, as defined in the regulatory framework was base on:
- Management Plans: approved by the ministry, defining the works to be done in the forest and the volumes to be harvested;
- Volume Estimation Documents (APV), approved in accordance with the competences, evaluating (with a tolerance of 5%) the volume to be harvested. All the trees to be harvested – in accordance with the provisions of the management plans- are marked with marking hammer (a special personalized tool), introduced in the inventory, and

the volume is calculated based on a calculation methodology included in a APV calculation software. The APV has also a technical character but also an economical importance because it is the document that is the base for the wood auctions for companies. The most important problem at this moment is that the software for APV calculation is not official with certified results. In the same time, there is no system for recording those documents, assuring that they are not modified in the mean time. This is where the first task of the system came from – certified calculation of the APV and recording them;
- Transport documents for the wood. – the use of those documents is compulsory, they are documents with special use regime, and with security elements; they are distributed to every wood market player (forest land administrator,
harvesting and processing companies), with series and numbers. When the wood is transported, in those documents there should be data regarding the identification data of the supplier, the beneficiary of the wood, the transported wood inventory (quantity) and, very important, the number of APV (provenience). The companies send records in hard copies containing the entire emitted document (a kind of transport documents utilization justification) to the Territorial Inspectorates (TI) of the Ministry of Agriculture, Forestry and Rural Development (MAFRD) before new documents being distributed. If those documents are used illegally (without recording the provenience, containing volumes bigger then the volumes in the APV, etc.) the companies will not receive new documents.

The main issues raised by the former system were:
- the companies emitted transport documents for quantities bigger than the volumes in the APV being very difficult to cumulate the emitted documents for one APV;
- some of the companies are using false documents;
- documents received by one company are used by other companies for making transport and provenience of illegal wood legal;
- inactive companies are used to emit transport and provenience documents for active companies that are buying illegal wood;
- after the transport, those documents are not recorded and they are declared destroyed or lost.

The SUMAL system, implemented starting from November 2008, tried to overcome those issues by using an IT based information management system.

1.2 Objective of the system

The main objective of the system is to offer to the Control Department of the MAPDR and ITRSV a flexible tool for monitoring the timber trade from forest to the final consumer. By offering to the users a detailed database regarding legally produced timber (through APV or from import), detailed information regarding transformations suffered through all the custody chain, will expand the control capacity over the illegal logging by limiting trading with illegal timber and by making much more difficult “launder” activities. [4, 6]

1.3 Short description of the system

The proposed aimed to eliminate all the bad practices described above by forcing all the companies (forest administrators and economic agents harvesting, processing or transporting wood) to report all documents records in the proposed data base format. The system is able to:
- Distribute all the transport documents on APVs signaling over utilization of authorized volume, or utilization of transport documents for wood with illegal provenience;
- Verify the series and numbers of the transport documents – false documents or utilization of other companies’ documents;
- To make a cross control in order to see if all the documents are recorded at the wood beneficiary, making the supplier unable to declare the documents as being lost or damaged. Usually, the beneficiaries are big legal companies recording all the supply.

By recording electronically all the documents that are produced by the forest administrator, the provenience of every piece of wood should be possible to track (fig. 1).

By recording all the documents that are created by the economic agent (transporting, processing, sales documents) the wood with the known provenience has a certain defined chain. In this way, the wood with no legal provenience can be easily identified along the chain (fig. 2).

1.4 Regulatory changes

SUMAL system implementation was possible by serious changes in the legislative framework, creating the obligation of the forest districts and forest economic agents for introducing all the requested data into the system. The wood for which the provenience is not introduced into the system is not considered legal. The wood transportation legality was closely linked to the data introduction. The already Romanian prescriptive regulatory system becomes even more prescriptive.

1.5 Present situation

There is a growing concern among forestry professionals that the SUMAL system is not achieving the objectives for which it was implemented. One response to this concern was an emphasis on the need to increase the effectiveness of the system. Assessment of the systems issues is a serious need in this context.
2 Material and methods

In order to help the process of increasing the effectiveness of the system, an assessment toll have been developed and tested to assess the areas where the system is not fully effective. It is clear that the existence of a wide range of situations require different methods of assessment. The present paper presents the
results of testing an assessment tool that wants to be cheap, to give a managerial approach to the assessment. The proposed method is a simple method aimed to help reporting progress on the effectiveness of the system and should not replace more thorough methods of assessment for the purposes of adaptive regulation and system improvements. The assessment is based on a questionnaire type tool, with questions oriented towards four elements. Summary of the elements can be seen in the table 1.

The assessment tool was designed in three sections [1, 2, 3, 5]:
- Questions and scores – the main part of the assessment form is a series of 25 questions (aiming to assess one of the elements described in the table 1) that can be answered by assigning a simple score ranging between 0 (poor) and 3 (excellent). A series of four alternative answers are provided against each question to help assessors to make judgments as to the level of score given;
- Comments – a box next to each question allows for qualitative judgments to be justified by explaining why they were made (this could range from personal opinion, document reference, etc.);
- Next steps – 0 for each question respondents are asked to identify a long/medium term need to further adaptive measures for the effectiveness of the system.

A total score is calculated for every evaluation element.

Table 1: Summary of assessment framework

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<th>Elements of evaluation</th>
<th>Explanation</th>
<th>Criteria that are assessed</th>
<th>Focus of evaluation</th>
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</table>
| Planning               | Where do we want to be? Assessment of the SUMAL system design and planning | - Legislation regarding SUMAL  
- SUMAL design  
- Implementation design  
- Testing / pilot projects | Appropriateness |
| Inputs                 | What do we need? Assessment of the resources needed to fully and effectively implement the system | - Resources of the authority  
- Subsidies for imposing additional activity  
- Data availability, reliability and tractability | Resources |
| Process                | How do we go about it?? Assessment of the way the system is implemented | - Suitability of implementing methods | Efficiency and appropriateness |
| Outcomes               | What did we achieved? Assessment of the outcomes and the extend to which they achieved objectives | - Impact: effects of SUMAL in relation with the objectives | Efficiency and appropriateness |

The presented assessment tool assumes, for example, that all the questions cover issues of equal weight, whereas this is not necessary the case. So, the limitation of this approach should be recognized.

The assessment tool was answered by almost 50 respondents in two major forest areas in Romania, correspondent to Territorial Inspectorates Focsani and Ploiesti. Questionnaires were answered by forest inspectors (in charge with regulating and law enforcement), forest districts chiefs (forest administrators, both state owned forest districts and private owned forest districts), economic agents dealing with harvesting, transporting or processing the wood, wood storage facilities owners and operators and also company accountants.

3 Results

The average scores can be seen in figure 2.
Low scores were recorded for all the evaluation elements. The biggest scores was recorded for planning meaning that the planning process was generally appropriate but there are a lot of areas that were not covered by the way the central authority designed the system and the regulatory support framework.

The inputs were considered as insufficient and the implementation process was considered as being far from being appropriate.

The effectiveness of the system, judged from the point of view of the outcomes is considered as being satisfactory.

4 Discussion

After assessing the comments several conclusions/discussions can be developed.

4.1 Planning

- Although the system design focused on the most important issues and it is considered as being satisfactory, still, the regulatory framework is considered unsatisfactory, mainly because of the fact that the wood transportation was linked to the SUMAL data collection. This fact van leads to a serious discontinuity in wood transportation;
- The system is considered as being not friendly enough for all the users.
- The system was not refined enough before implementation causing a lot of bugs to appear during implementation. Almost all the respondents considered that a pilot implementation test was more than necessary;
- Another identified issue is that, having in mind the complexity of the regulatory system (a lot of papers and authorization required) the system still cannot cover all the situations;
- Some of the reports generated by system, which were designed for control purposes, are not accessible for forest inspectors, irregardless of the position in the authority;
- A major issue raised by the companies was also a questionable data security level.

4.2 Inputs

- The main problem was the lack of proper training for users. A lot of them, including inspectors in charge with SUMAL usage at authority level faced difficulties in handling the system;
- Companies and Forest Districts accounted extra costs for implementing a compulsory system and the authority do not cover in any way those costs;
- There is no special department (team of specialists) dealing with SUMAL maintenance in the central authority headquarters. In time maintenance and data handling is therefore extremely difficult.

4.3 Process

- Due to the issues already discussed above, the implementation can be considered as a failure. Extension services for adopting the system were
almost absent. The issue is the application that is
dedicated to economic agents. As for the Forest
districts, the implementation was considered as
satisfactory. The APV calculation was considered
quite a success.

4.4 Outcomes
- The objective of creating a unique platform for
  volume evaluation all over the country was
  achieved in a satisfactory manner. Also the
  objective of gathering the statistical data can also
  be considered a success;
- Unfortunately, the objective of creating the
  possibility for identifying the illegal logging is far
  from being achieved, due to the design and
  implementation issues. Almost all the respondents
  considered that the illegal volume did not diminish
  as a result of SUMAL implementation.

5 CONCLUSIONS
As a conclusion, SUMAL was a pretty good
designed system for the volume calculation and for
statistical purposes. Unfortunately, due to some design
issues and mainly due to an improper implementation
process, the system cannot, at this stage, achieve the
objective of being an effective tool for a clear custody
chain.

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