ABSTRACT

With about 93.4% of private forest, Portugal is one of the countries in the world where the percentage of private forest is higher. In spite of this fact, associative organisations to give technical support to the private forest owners only appeared in the beginning of the 90’s and after some failed attempts to create extension services under the public programmes co-funded by the European Union. Nowadays there are about 173 Forest Owners Associations in Portugal which mission should be to help forest owners in the management of their forest holdings regarding the Sustainable Forest Management (SFM) that benefits the whole society with the production of several public goods. This paper attempts to make a first assessment of the effectiveness of the FOA’s from the North and Centre of Portugal, identifying the ones that are over passing the constraints and that keep working to increase their membership and to encourage forest owners to manage their forests in a sustainable manner asking for the services they are supposed to provide.

Keywords: Forest owners associations, private forest, forest owners, effectiveness

1. INTRODUCTION

During the 90’s, an important associative phenomenon among forest owners emerged in Portugal, mainly in the Northern and Central regions where small scale forestry is largely predominant. This movement was led by FORESTIS - Associação Florestal de Portugal, a non profit organisation of national scope set up by forest owners and professionals related to forestry whose main role has been to promote the start up of forest owners’ associations (FOA’s) at the local level.

In the beginning, the main objective of these organisations was to assist the forest owners in the applications for financial support coming from programmes co-funded by the European Union and in the implementation of the approved afforestation and forest management plans. By doing so, these organisations were filling a major gap, since there was a shortage of institutions on the ground capable of providing technical advice to small forest owners.

After more than 10 years of evolution, some FOA’s acquired capacities which enable them to offer a more diversified set of services. The importance of these organisations should be recognized not only because they are filling a gap in the provision of private services for forest owners for which a price can be charged, but also because they are making an important contribution to SFM and consequently to the provision of several public goods (gathering of private forest owners accustomed to operate individually for a long time, provision of environmental services by forests, mitigation of forest fires, production and dissemination of information about sustainable management or sustainable use of forests) which benefit the whole society and where collective organisation of the forest owners is needed. This relevance is obvious in country where 93.4% of the forest land is privately owned and small scale holdings are predominant.

In spite of the progress made, FOA’s in Portugal are still at their “infant” stage where the provision
of public goods still makes most of their activity. Also, the large majority of them could not yet step into the marketing of forest products because of the insufficient capacities they have to face the type of imperfect competition prevailing in those markets. For this reason they rely a lot on the public funds they can get through application to a diversity of programmes, not necessarily designed to meet their needs.

With about one decade of experience of this associative movement, time is coming for making a first assessment about their effectiveness in meeting their major objectives, that is, to increase their membership, as well as the quantity and diversity of the forest management services they provide to their members. This assessment is needed not only to evaluate the public support they already got, but also to come up with recommendations about what it should be in the future, in order to be more in line with the needs of these organisations for improving their delivery of public goods to the benefit of the whole society.

Taking the objectives described above as the target for the effectiveness analysis, this paper presents the characteristics of one of the seven case studies taken from the regions of North and Centre Portugal where small scale forestry is predominant.

2. GOAL OF THIS STUDY AND RESEARCH QUESTIONS

The purpose of this work is to find out, through a comparative study, which are the factors supporting or impeding the effectiveness of FOA's from the North and Centre of Portugal in the achievement of two objectives: increasing their membership over the years and increasing the diversity and quantity of forest management services provided to forest owners over the years. To develop the comparative study two central questions were posed:

1) Are there any differences in the extent Forest Owners Associations from the North and Centre of Portugal meet the two objectives described above?
2) If there are any differences in the effectiveness of the Forest Owners Associations concerning the two objectives described above, why this it happens?

3) THEORETICAL FOUNDATIONS

The theoretical framework adopted for effectiveness analysis in this study represents the relation between the FOA's and the forest owners as a multiple agency problem, with asymmetric information, where the FOA is viewed as a single principal and the multiple forest owners are viewed as the agents supposed to behave in a rational way. To contribute to the SFM of the region where is implemented the FOA has to increase its membership and the diversity and quality of the forest services provided. To collect new members and to increase the quantity of services provided, FOA's should give to the forest owners incentives. These incentives can be:

1) The provision of a set of diverse forest services which no other structure is able to provide;
2) The provision of forest services at a lower price than the one charged by other kind of structures that are able to provide the same types of services;
3) The provision forest services, more qualified than the ones provided by other kind of structures.

The forest services that a FOA should be able to provide to the forest owners can be classified

<table>
<thead>
<tr>
<th>Exclusion</th>
<th>No exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivalry</td>
<td></td>
</tr>
<tr>
<td>Private goods: technical advice; forest works in order to reduce the risk of forest fires, wood quantification, preparation of forest management plans.</td>
<td>Club goods: training actions to the forest owners, certification of forest products.</td>
</tr>
</tbody>
</table>

Public goods: information about forest policies, information about the best forest practices, representation and defence of the collective interests of their members.
according to their nature in: public goods, club goods and private goods.

Then, in the relation between the principal (FOA) and the agent (forest owners), one consider that the “obligation” of the principal is to offer the incentives described above in order to increase its membership and to make the forest owners ask for more forest services, contributing to the SFM of the region where the FOA (principal) is implemented. This situation can be represented by the figure below:

This work follows the definition that states the effectiveness as the “extent to which an organisation is able to fulfil its goals” (Lusthaus et al. 2002), being those goals, in the case of the FOA’s from the North and Centre of Portugal, the membership’s increase and the provision of diverse and qualified forest services.

To analyse the effectiveness of FOA’s the following steps are taking into account:

1) Identification of the possible implementation failures or successes in meeting those goals;
2) Identification of the factors that possibly explains the implementation failures or successes, which, according to Mendes (2005) can be related to the following types of constraints:
   2.a) Feasibility constraints;
   2.b) Individual rationality constraints;
   2.c) Incentive compatibility constraints.

2.a) Feasibility constraints

To achieve the objectives of increasing the membership and providing more diverse and qualified services to the forest owners, FOA’s depends on the availability of material or immaterial resources needed for that purpose.

- Availability of human capital resources:
  As Stockley (n.d.) stated: “although an organisation is a separate legal entity, it ceases

![Diagram of possible relation between forest owners and FOA's](image-url)
to exist if it has no people - leaders, directors, members, employees – are required to maintain and organisation’s existence”.

Nowadays, the human resources of most of the Portuguese FOA’s are constituted by its board, 2 or 3 foresters assisted by an office clerk and by 1 or 2 brigades of forest sappers with 5 men each. This staff, together with the board contributes to the accomplishment of the objectives of the organisation and their education and training are important for the accumulation of human capital, accountable for a great part of an organisation’s value. This study will consider the availability in human capital of a FOA depending on one type of professional experience as defined by Laursen et al. (2004), firm-specific experience, which refers to “experience obtained by the employees within their current firm”.

- Availability of physical capital resources:
  According to UNESCO the physical capital are the instruments, machines, equipment, furniture and facilities needed to the production of goods and services. In the case of Portuguese FOA’s, one can point as examples of material resources needed to accomplish their basic functions: the office to attend the forest owners; computers with spatial analysis programs to produce the maps and save the spatial data gathered at the field; the ordinary office stuff; GPS to make the cadastre of the forest holdings and 4x4 vehicles to take the foresters to the field. One considers that a lack of those material resources can difficult the quality and diversity of the services provided.

- Availability of financial capital resources:
  To assure resources of human and physical capital the organisations must have financial capital resources. In Portugal, FOA’s still rely a lot on public funding which can constitute up to $\frac{3}{4}$ of its annual budget. The remaining funding comes from the annual fees paid by the members and from the payment of private services rendered to the forest owners, municipalities and other entities. According to Mendes (2005), this is a justifiable rate of public support given the quantity of services with nature of public goods provided by these organisations. However, in Portugal the public financing to FOA’s depends on the approved projects they apply for and has a problem of reliability, that is, considerable delays on the payments. This situation can put Portuguese FOA's in serious difficulties as they have to guarantee the wages of the human resources indispensable for the provision of services and to collect new members. Cases of good practice in terms of use of public incentives show that some organisations are progressively reducing the dependence on public incentives to a range between $\frac{1}{2}$ and $\frac{2}{3}$. The capacity of increasing gradually the percentage of their own profit and to get positive net profit results over the years helps FOA’s to face the financial restrictions they have to deal because of the delayed payments of public incentives.

- Availability of social capital resources:
  According to Coleman (1988), social capital is a resource to the several actors of society (people, enterprises) because it facilitates their action inside the structures they belong. As the other types of capital, social capital has productive value and because of that, to invest on this resource is to endow an organisation with means that helps it to accomplish some objectives that without this resource could not be achieved. Following Putnam (1995) who relates the social capital with the connections existing among individuals, that is, the social networks and the norms of reciprocity and trustworthiness that arise from them, this study will try to analysis some characteristics of the FOA’s networks which can be oriented to the exterior (outward looking) and to the interior (inward looking). The internal networks concerns the connections between FOA’s and their membership and the external networks concerns the connections between FOA’s and other entities (municipalities, units of research, government, other FOA’s.),

- Path dependence effects
  In the perspective of analysing path dependence effects, this study considers relevant to the achievement of FOA’s objectives the past history and what was the arrangement of resources when they started up.
- Social context
  The proximity of forest owners to their forest holdings can probably make them more interested on their forests than if they live far from them.

- Natural resources
  Good natural conditions for having species with high economic value can make forest owners more interested on their forests and can stimulate them to ask for forest services in order to reduce the risk of forest fires or to improve the condition of their forests.

2.b) Individual rationality constraints

The individual rationality constraints concern the following condition: forest owners, being rational agents, do not take an action voluntarily if that action does not make them better off. This means that, for a given forest owner to become member of a FOA or to ask for its services, his private benefits have to be higher than his private opportunity and transaction costs. In general, the private benefits that a forest owner can get from belonging to a FOA are:

- To benefit from the economies of scale in the provision of forest services;
- To have access to a structure that can assume part of the forest holdings’ management in the absence of the forest owners;
- To benefit from the reduction of the market imperfections of forest products;
- To have access to green certification;
- To benefit from the reduction of the transaction costs between the forest owners and the forest policies.

2.c) Incentive compatibility constraints

In the agency problem, incentive compatibility constraints are related with information asymmetries arising from problems of adverse selection and moral hazard. In adverse selection the principal do not know the characteristics of the agent when the relation begins. For example, FOA’s can have difficulties to know if a given forest owner tells the truth concerning the forest area he owns when he become member. In moral hazard situations, after the relation starts, the principal cannot observe the agent’s behaviour (actions or decisions) and because of that, the agent can act in a way that is inconsistent with the objectives of the principal. An example is when a forest owner asks to prepare forest management plans but does not follow the management plan and does not solicit the forest services needed to accomplish the plan and the good management practices.

4) METHODOLOGY AND DATA

The methodology followed by this study is the case study research. The reasons that explain this choice are:

1) Lack of databases to accomplish a quantitative study with a significant sample of FOA’s;
2) As the goal of this study is to identify the factors that explain the successes or failures of the FOA’s effectiveness in meeting two objectives, is needed an adequate amount of cases with differences in terms of membership and diversity and quality of services provided and in terms of availability of resources, incentive compatibility constraints and individual rationality constraints;

The case studies chosen are FOA’s implemented in the North and Centre of Portugal, the regions where they are more relevant in the management of the small scale forest holdings. The case studies belong to the network of local associations represented by FORESTIS, the most representative federation in those regions.

According to the differences concerning membership and social context, seven FOA’s were chosen (Table 2).

As showing in figure 2, the evolution in terms of membership is different in the seven case studies chosen. Two examples are the two FOA’s (AFVS and AFL) implemented in the same year (1994), with different number of initial members and with differences in the evolution of the number of members.

To verify which are the factors impeding or supporting the membership’s evolution and the evolution of forest services provided by FOA’s
from the North and Centre of Portugal, the following indicators were analysed:
- Feasibility constraints:
The indicators for this type of constraint are related to the availability of human, physical, financial and social capital. Data comes from FOA’s annual reports.
- Individual rationality constraints
In this study, one considers that the forest owners are better off if they become members of a FOA if that given FOA is able to provide them forest services which no other structure in the region can provide or if that given FOA is able to provide them forest services with higher quality or to charge them lower prices than other kind of structures established in the same region (e.g. forest contractors).
Data comes from the annual reports and from interviews with forest members.
- Incentive compatibility constraints
Evidences for this problem are more difficult to be achieved. In this case, only the knowledge and experience of the foresters and board of a given FOA, as well as the careful reading of the annual reports can reveal some of the actions taken by the members which are inconsistent with the objectives of membership’s increase and with the increasing of diversity and quality of the services provided.
As this is study is part of a master thesis that stills in progress, the data that is going to be presented concern only the case showing the best

TABLE 2: Differences concerning social context

<table>
<thead>
<tr>
<th>FOA</th>
<th>Reason why it was chosen</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTUCALEA</td>
<td>The area where is implemented are the municipalities neighbouring the big city of Porto</td>
</tr>
<tr>
<td>URZE</td>
<td>It is implemented in the inner part of Portugal</td>
</tr>
<tr>
<td>EDV</td>
<td>It is implemented in a rural area but in strong connection with the production forests belonging to the pulp industries</td>
</tr>
<tr>
<td>APFLOR</td>
<td>It is a FOA working in strong partnership with the municipality of the region where is implemented</td>
</tr>
<tr>
<td>AFVS</td>
<td>It is implemented in an area that makes the transition betweens the rural and the urban and it is in strong contact with the production forests belonging to the pulp industries</td>
</tr>
<tr>
<td>AFL</td>
<td>Implemented in a rural area</td>
</tr>
<tr>
<td>AFLODOUNORTE</td>
<td>In the area of implementation is present communal and private forests</td>
</tr>
</tbody>
</table>

FIGURE 2: Differences in terms of membership
Source: FORESTIS
effectiveness in terms of the membership’s increase - AFVS.

5) CHARACTERISTICS OF THE
BEST CASE

The Forest Owner's Association of Sousa’s Valley (AFVS) is a non-profit organisation providing services to the forest owners of 6 municipalities from Portugal North, with a total forest area of 34,668 hectares.

AFVS was implemented in 1994 and it is the first FOA at sub-regional level promoted by FORESTIS.

In terms of membership, AFVS admits as members not only forest owners but also whoever desires to become a member and the positive evolution of the number of members has also contributed to the increase of forest area covered by this FOA.

In terms of forest services, AFVS is implemented in a region where small scale holdings are predominant contributing to the provision of forest services which have direct results on 25.4% (in 2004) of the total forest area of the region and indirect results on the remaining forest area, since the forest services provided in a given area can also have results in the adjacent areas (e.g. forest services held in a forest holding in order to reduce the risk of forest fires can protect also the adjoining areas from that risk).

The forest services provided by AFVS include technical assistance given to the forest owners in AFVS’ facilities or by phone and visits to the forest holdings.

TABLE 3: Indicators of resources’ availability

<table>
<thead>
<tr>
<th>Resources</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human capital</td>
<td>Firm specific experience</td>
<td>Training actions attended by the technical staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Permanence of human resources</td>
</tr>
<tr>
<td>Physical capital</td>
<td>Availability of material resources</td>
<td>Availability of material resources</td>
</tr>
<tr>
<td>Financial capital</td>
<td>Own profit</td>
<td>Evolution of the percentage of FOA's own profit</td>
</tr>
<tr>
<td></td>
<td>Net profit results</td>
<td>Evolution of the FOA's net profit results</td>
</tr>
<tr>
<td>Social capital</td>
<td>External networks</td>
<td>Contacts and connections with entities related to forest sector</td>
</tr>
<tr>
<td></td>
<td>Internal networks</td>
<td>Contacts and connections with its membership</td>
</tr>
</tbody>
</table>

Individuality rationality constraints

Concerning individual rationality constraints there are some evidences that forest owners are better off if they become AFVS’ members.
1) Quality of the services
- Forest owners ask for technical assistance (by phone or in AFVS facilities) more than once which can suggest the quality of the services provided. This is possible to see through the number of services of that kind provided (figure 4) and the number of AFVS’ members (figure 2);
- Forest owners can have technical assistance on their forest holdings which is probably an advantage for them;
- AFVS can give technical assistance according to the characteristics of the forest owners and in the according to their preference (in AFVS facilities, in their forest holdings).
- In the annual reports can be read that the feedback from the forest owners concerning the forest services is positive: members who ask for the forest works provided by the brigades of forest sappers in order to reduce the risk of forest fires were satisfied with the quality of the services;

2) AFVS is filling a gap in terms of forest services provided or the prices charged are lower than the ones charged by other structures:

The evidences of the quality of the services provided by AFVS and the shortage number of structures in the region that can also provide forest services are strengthened by the results of an inquiry done to 179 AFVS’ members in 2003: 79.9% of the inquired members answered that they had already asked for AFVS’ services, against only 20.1% that had asked for services to other structures or never had asked for services. The evidences concerning the quality, the range of available forest services and the lower prices charged seem to be a supporting factor to increase the membership and the number of services provided by AFVS.

TABLE 4: Examples of private forest services provided by AFVS and by other structures in the region of Sousa’s Valley

<table>
<thead>
<tr>
<th>Forest services</th>
<th>Provided by AFVS</th>
<th>Provided by other structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical advice</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Visits to the forest holdings</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Preparation of forest management plans</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Forest works provided by the brigades of forest sappers</td>
<td>Yes but at a higher price</td>
<td>No</td>
</tr>
<tr>
<td>Wood evaluation</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cadastre of forest holdings</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Incentive compatibility constraints

According to the technical staff, the incentive compatibility constraints resulting from the occurrence of information asymmetries are not relevant for the evolution of AFVS’ membership and for the number and quality of services provided because monitoring imperfections are reduced given the knowledge of the technical staff about the population of forest owners. Problems of moral hazard and adverse selection are more difficult to happen in situations where reduced monitoring imperfections are low.

Feasibility constraints

- Human resources

According to the annual reports, the permanence of human resources is a characteristic of AFVS.

Probably the permanence of most of the foresters is a result of some measures implemented by the board elected in 1996:
 a) To give them autonomy concerning AFVS’ management;
 b) To give them financial incentives;
 c) To encourage them to attend training actions and meetings with other foresters.

The permanence of foresters for long periods can bring advantages in terms of learning by doing which concerns the increasing of knowledge about the social and natural context where AFVS is implemented and the increasing of quality in the services provided.

These facts together with the capacity revealed by the foresters to develop forest extension works
and the decision of the board on focusing their activity in the collecting of new members seem to be supporting factors to increase the membership and the number of services provided by AFVS.

**Physical capital constraints**

AFVS have been endowed with physical resources gradually and according to budget’s availability. Its board has been given more attention to the endowment in terms of human resources than in terms of physical resources, only acquiring the indispensable material resources needed to provide a considerable and qualified range of services.

**Budget constraints**

According the account annual reports, AFVS’ board has been taking the following measures in order to reduce the dependence on public funding:

- a) Costs minimization;
- b) Increasing the supply (quantity and diversity) of private services paid by the members or by other kinds of customers.

These measures have been permitted AFVS to achieve positive net profit results year over year (except in the first one) which, even with the scarce budget and the difficult situation lived by the treasurer’s office, has been avoiding (since 1994

### TABLE 5: Evolution of AFVS’ human resources

<table>
<thead>
<tr>
<th>Years</th>
<th>Human resources</th>
<th>Human resources hired</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>1 Engineer (CabralMachado) TIMBEX</td>
<td>1 forester (Amália) 1 office clerk (Maria Luís)</td>
</tr>
<tr>
<td>1997</td>
<td>1 forester (Amália) 1 office clerk (Maria Luís)</td>
<td>1 forester (José) 1 brigade of forest sappers</td>
</tr>
<tr>
<td>1999</td>
<td>1 forester (Amélia) 1 office clerk 1 forester (José) 1 brigade of forest sappers</td>
<td>1 office clerk 1 forester (Ana) 1 forester (Alda)</td>
</tr>
<tr>
<td>2002</td>
<td>1 forester (Amélia) 1 office clerk 1 forester (José) 1 brigade of forest sappers</td>
<td>1 office clerk (Nazaré) 1 brigade of forest sappers 1 forester (Luís)</td>
</tr>
<tr>
<td>2004</td>
<td>1 forester (Amélia) 1 brigade of forest sappers 1 forester (Ana) 1 forester (Alda)</td>
<td>1 forester (Ana) 1 forester (Alda)</td>
</tr>
</tbody>
</table>
until 2004) its financial rupture and have permitted AFVS’ increase.

Social capital

One of the policies implemented by the board elected in 1996 concerning social capital was the decision of cooperate with the maximum number of forest’s intervenient. This decision permitted to strengthen or to create an external net of relations with:

a) the 6 municipalities of Sousa’s Valley - attending meetings concerning forests protection, protocols of collaboration;

b) FORESTIS - partnerships in forest projects (ex: FORGEST), attending periodic meetings;

c) Universities – partnerships in research projects (Ex: FORSEE);

d) Schools – receiving the visit of the students;

e) Forest industries;

c) Foreign scientists and foresters – receiving the visits of scientists and foresters from foreign countries.

This network is extended by the good position of the president of the board who belongs to several national and international research networks and has contributing as “expert with recognized merit” to the formulation of forest policies. He usually writes articles concerning forest matters on national newspapers and magazines.

In terms of internal networks, one concludes that they increase in parallel with the number of members and the number of contacts with AFVS.

An extended network of contacts can facilitate the resolution of problems, improve the knowledge about the social and natural context where AFVS is implemented and enhance the image of AFVS at forest owners’ eyes. One considers the social network a supporting factor that helps AFVS to increase its membership and the number and quality of services provided.

Path dependence effects

Concerning its past history and its start up, AFVS benefited from the knowledge of the social context and from the charisma of a person (Eng. Cabral Machado) belonging to its founder board. This person was very important for the collection of the high number of initial members in the first year.

Social context

AFVS is implemented in a region with high demography which makes the transition between the rural and the urban once is not far from the urban area of Porto. So, it is frequent to find forest owners living close to their forests or living in Porto but visiting them often. Some are forest owners with some interest on their forest holdings and caring about their conditions but without possibilities to manage them by their own. This can be seen as a supporting factor to the membership’s increase and to the requisition of services.

Natural resources

The natural mean where AFVS is implemented is favourable to the production of economic interesting species (ex: Eucalyptus globulus). The possibility of getting revenues from their forests can be a stimulus for the forest owners to become AFVS’ members and to require forest services in order to reduce the risk of forest fires or other forest services turned to the improvement of the condition of their forests.

6. CONCLUSIONS

The analysis of this case study shows that the main factors impeding the development of AFVS are the financial resources constraints resulting from the delays in public funding which limit the acquisition of human resources. Although this situation the objectives of increasing the number of members and increasing the quantity and quality of services provided have been achieved over the years. One considers as supporting factors to this achievement the following factors:

a) high dedication, motivation and experience of its human resources;

b) the increasing number of private services for which the forest owners can be charged and which can help AFVS to reduce the dependence on public funding;
c) the permanent measure of costs reduction;
d) the extended and qualified social network;  
e) the existence of species with economic value in  
    the region, which makes forest owners to have  
    some interest on their forests.

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