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LANDOWNERS' ORGANISATION AND FORESTRY DEVELOPMENT IN PORTUGAL

A definition of an action strategy for the Pinhal Sul region based upon the local actors' views

BY

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To my parents, my wife and my children

Table of Contents

List of Tables

List of Figures

Glossary

CAP	Common Agricultural Policy
CPF	Confederation of Portuguese Farmers (Confederação dos Agricultores de Portugal - CAP)
CUMA	"Co-operative de Utilisation en Commun de Materiel Agricole"
DGF	Portuguese Forestry Services (Direcção Geral das Florestas)
EEC	European Economic Community
EU	European Union
FANCP	Forestry Association of North and Centre of Portugal
FAP	Forestry Action Plan (Programa de Acção Florestal - PAF)
FES	Forestry Extension Service
GAEC	Integration of agricultural enterprises for common utilisation
GNP	Gross National Product
LFA	Local Forestry Association
NFC	National Forestry Council
NFP	National Forestry Policy
NPFL	Non-industrial Private Forest Landowner
CMO	Common Market organisations
PEDAP	Programa Específico para o Desenvolvimento da Agricultura Portuguesa (specific programme for development of Portuguese agriculture)
PDF	Forestry Development Programme
PDR	Rural Development Programme
PFP	Portuguese Forestry Project (financed by the World Bank)
PP	Parish President - "Presidente da Junta de Freguesia", (Local government)
PPF	Afforestation Plan (Plano de Povoamento Florestal)
PS	Pinhal Sul Region

Council Mayors	Presidentes das Câmaras Municipais (Local government)
Population census	Recenseamento Geral da População.
Maritime Pine	Pinheiro Bravo
Community lands	Baldios

Landowners' Organisation and Forestry Development in Portugal: A definition of an action strategy for the Pinhal Sul region based upon the local actors' views

Celestino A. Morais de Almeida

ABSTRACT

Portuguese forestry plays an important role in the economy of the country. Woodlands are mainly owned by non-industrial private landowners (NPFLs). Properties are very small and scattered. These structural characteristics, the social changes that have taken place in rural areas and the recurring forest fires make its future development (in terms of economic, social and ecological values) dependent on the implementation of new forms of forestry management. The history of farmers' organisations in Portugal is not a very successful one, particularly in relation to forestry, which has been managed under individual systems. Hence farmers mentality towards forestry, their individual interests as well as their attitudes towards organisations can be seen as major impediments to the implementation of collective management strategy.

The study examines the main features of the NPFLs involvement in forestry, and it concludes that they have held a specific forestry culture grounded in both affective and economic values. Their attitude towards organisations is also analysed and it seems favourable towards the implementation of an organisational process in the region. The study suggests some shifts to the organisational model in order to match both interests and the opinions of farmers and local agents.

On the assumption that the implementation of new models and strategies for collective action in forestry must be based on specific features and interests of the target population, we have studied these issues in a particular region of Portugal, in order to test the acceptability of an organisational model and to put in place some of the strategic actions necessary in order to at later date implement a forestry organisational process.

The thesis concludes by presenting a strategy for implementation of an organisational process in the region based upon knowledge acquired in the field study about landowners' attitude and behaviour in relation to forestry, their attitudes towards organisations, and the acceptability of the organisational model. Other significant local actors, the forest service and the municipal Presidents, have also been included in the analysis.

Key Words: forestry, organisations, farmers, attitudes, extension, collective-action, Portugal.

PREFACE

During the six years that we have been teaching forestry extension and rural extension we have come across several problems regarding Portuguese agriculture in general and forestry in particular. From the discussions arising from several lectures, the ideas presented by forestry technicians invited to bring their experience to the school, the several discussions with technicians and others of the Forestry Services, and also from literature about Portuguese forest issues, the wish to study a topic regarding forest issues became stronger year by year. As a teacher with responsibilities in developing research and supporting the development of the community in the School's area, to which Pinhal Sul region belongs, and considering the potentialities of this region's forestry, it seems clear that our research field - a field where we could intervene and contribute towards forest and rural development - would regard the sociological aspects of forestry.

The lack of research, at national level in general, and at the level of the Zona do Pinhal region in particular, into the forest landowners' relationship to their forest and their attitudes towards their own organisation, has committed us to a research project. Knowledge of the area, our excellent relationship with the staff at the Forestry Services and the results of a previous research developed in the region about the implementation of the Forestry Action Programme (see Almeida 1996), also constituted scientific and empirical reasons to proceed with such a task. Ultimately, another factor, has contributed to reinforce the reasons for developing this study: the possibility to use the results as a starting point for a new research and action project regarding Zona do Pinhal. So, with such a study we hope that we can satisfy personal, scientific and empirical goals, and that it can contribute towards the knowledge of forestry culture of private forest landowners and also towards their organisation (in the region in particular and the country in general) as well as lead to further research and action upon forestry and rural development.

1 INTRODUCTION

This thesis is the result of research work undertaken in the Pinhal Sul forest region, in the centre of Portugal, during the years 1995 and 1996, and it has 11 chapters. In order to make its use easier, we will proceed to a summary description of each of them.

Chapter 1, Introduction, includes four parts: in the first one we present the framework of the study through a brief approach to forestry at the world, European and national levels. The second part contains a discussion of the problems related to Portuguese forests which form the basis of this research. Following this, part three consists of a discussion related to the previous part, which supports the significance of the study and at the same time leads to a formulation of the main questions and main objectives of the research. The last part is, in a broad sense, a personal justification of our aims.

Chapter 2, Portuguese forest, is a descriptive and critical analysis of the situation of Portuguese forestry, and its development in recent years. The main problems facing the Portuguese forest are discussed, and particular attention is paid to aspects that emerged after Portugal joined the EEC. In an independent section is also presented a description of the forest in the area where the study took place and its main problems are discussed.

Chapter 3, Forest landowners' organisations, is based on the literature review of the subjects that need to be analysed and discussed in order to give theoretical support to the research. There is a discussion of the theoretical and other aspects related to farmers' organisations and also a description of the present forest organisation and of the model that has been recently implemented in the Northern part of the country which will be the object of our study.

Chapter 4, Methodology, is a description and justification of the methodological choices made to undertake the research in general and the field work in particular. The sampling methods are discussed in order to place the study in the field of sociological studies. It describes and discusses how the data collecting procedures and instruments were developed and used. The data analysis is also discussed according to the research objectives.

Chapter 5, The Pinhal Sul region, results from documentary secondary data research about the social and economic characteristics of the study area. It is basically a social and economic description of the Pinhal Sul region, which supports its specificity as a forest region in contrast to other regions of the country. At the same time, it shows the importance of forestry development as a factor in the rural development of the region itself.

Chapter 6, Forest landowners and their relations towards forestry, in a broad sense is a presentation and discussion of the first field work, which was a survey of the non-industrial private forest landowners (NPFLs) in one parish of the Pinhal Sul region. This presentation includes four general issues: personal data and socio-economic description of the NPFLs; land use and land tenure; forest activities and problems perceived in forestry; the NPFLs relations to the state services regarding private forest.

Chapters 7 & 8, NPFLs facing the organisational process, reports the findings of the second field work held in a group of parishes representative of the Pinhal Sul region. Data from two different groups, NPFLs residents in the region and NPFLs non-residents, were collected through two questionnaires and are analysed and discussed. Given the sort of data, and according to the objectives, the data analysis of each questionnaire is divided into four sections: social characterisation of landowners involved, their attitudes towards organisation, their acceptance of the organisation model implemented in the north of the country, and their disposition and perception of strategic aspects related to the creation of an organisation. After a discussion of the results of each questionnaire, we proceed with a comparative analysis between them in regard to certain variables which are more closely related to the main objective of this study - the definition of a strategy for forest landowners in the region. The chapters end with a summary about the NPFLs' acceptance of the model and their perceptions about the process of creating a forestry organisation.

Chapter 9, The points of view of the local authorities and forest technicians. In this chapter data from a questionnaire administered to the local parish Presidents are analysed and discussed, and interviews conducted with the Councils Mayors and with technicians of the national services are also discussed. Although some data relates to the model, most of them concern strategic issues in order to be used, like the data from the previous chapter, in the strategy definition for the implementation of forest organisation in the region.

Chapter 10, Global analysis of the all entities' points of views (NPFLs resident and non-resident, technicians and local authorities) regarding the acceptance of the model and regarding the strategic issues related to the implementation of the organisation process in Pinhal Sul. Finally the research findings are discussed in order to suggest some guidelines for action seeking to contribute to the implementation of such a process.

Chapter 11, Conclusions. First we present a brief summary and discussion of the results of the research in general. Further, the strategy that we propose for the promotion of the forest organisation in the region is presented and discussed. Finally, there are some considerations about how the research developed, and some suggestions for further research to complement and follow the aims of this thesis.

1.1 Forestry, a general outlook

At first sight this study seems to have a regional character, but in reality, given the similarities between the problems of the Portuguese forest and other countries' problems, the character of the study becames generalisable to many other, not only in the European Mediterranean countries but all over the world. Hence, it is important to make some general points about forestry development. After that, and as the topic of the research is related to private forestry, we also consider the situation of private forestry in Europe, trying, through such an approach, to present the global framework of the research as we see it.

1.1.1 World forestry

Almost one third of the earth's total land area is covered by forest. Its values and functions have widely been discussed and are becoming more diverse and important to our society. Throughout the world people are increasingly recognising the importance of forests and trees in improving human welfare. Recently, due to environmental concerns caused by industrial development, forests have become an instrument in protecting the climate, the environment, and nature. Adding to their environmental benefits, both natural and man-made forest have economic and social benefits. Forests and the wood industry play an important role in the economic development of rural areas, providing jobs, income and foreign exchange and at the same time having an increasing social use, mainly for recreation, including tourism which may be a source of income to the forest owner and to the nation itself. Forests can also represent capital when converted to desirable forms and are also an integral component of the biosphere, helping to stabilise natural systems (Digby and Edwardson, 1976; Sharma, 1992; Zeeuw, 1993). In general, the different objectives, interests and perspectives of the people who use the forest, make it difficult to harmonise forest's values (economic, social, ecological and biologic) and its functions. The need of such harmonisation, under a sustainable development policy, raises the problem of finding out how far these values should be observed in each case, always trying to manage the forest in a sustainable way.

The essential role of the forest in the working conditions of the biosphere as a whole, as well as evidence of global warming, has persuaded scientists that grave peril must underlie the destruction of the world's forest. Yet the immediate value of the timber, often very modest, continues to dominate virtually all considerations of management of forested land by individuals, corporate owners, and governments representing the public trust (Ramakrishna and Woodwell, 1993).

One of the first approaches to the concept of sustainable forest management made by FAO points out that:

> "The sustainable management of forests for the production of wood is based on a deceptively simple principle. All that needs to be done is to harvest the wood on the average annual rate no greater than the forest in question can grow it." (FAO, 1993: p11).

This definition focuses on the production of wood and does not address the wider issues of the ecological and social functions of forests. The concept of sustainable forest management has therefore evolved to encompass these wider issues and values.

At the moment forest management is oriented to the sustainable multipurpose use of forests so that their overall capacity to provide goods and services is not diminished, and their role in the preservation of genetic resources and biological diversity as well as in the protection of the environment can also be maintained. Such an approach to forest management requires a strong engagement and the participation of all agents at local, regional, national, and global levels (FAO, 1993).

Since forest has become a global concern, it has been discussed in international meetings, conferences and symposiums. The global forest's problems are already well identified and can be summarised as follows: the unprecedented rate of deforestation and forest degradation in large parts of the world and the increasing demand of multi-purpose forest products' services for both industrial and domestic uses.

Regarding these problems and the consequent increasing amount of people suffering due to environmental and economic problems, countries are advised to develop forestry polices based on the sustainable management of their forest resources. As Pelink *et al.* (1984: p416) concludes,

> "each country should make all possible efforts towards assisting the realisation of the global afforestation goal and prepare plans to integrate afforestation policies with overall land-use planning and policy formation."

As countries try to stabilise existing forests and increase forest resources, they face many important questions: How much forest should be maintained to meet the desired economic, social, conservation, and environmental objectives? The answer goes beyond the scope of economics or the market. Important ecological, ethical, and socio-political considerations are involved as well (Sharma, 1992).

There are various types of problems arising in relation to forestry decision-making at national level. In general, foresters are concerned with trees as economically productive organisms yielding a few physical products through manipulation according to an optimum mix of scientific and economic controls. Other people are more concerned with the many functions or meanings associated with trees - from the traditional and/or subsistence concerns (food, fuel, shelter, decorations, spirit homes, and sources of pests and diseases) to the modern imperatives of biodiversity conservation and recreation. Such functions, and thus the perception of the value of trees, will vary according the social group, but all tend to have their roots in forest diversity (Morrison and Bass, 1992). Hence the forest policy of a country has to face the fact that the trees and the land where they grow are being competed for by several sets of opposed interests. On one hand, the decision most commonly left to the Forest Department itself concerns the balance between conservation and commercial forestry claims upon the forest resources. On the other, there are conflicts either in afforestation or in deforestation and alternative land-uses which are likely to involve several bodies (Morrison and Bass, 1992; Shepherd, 1992).

1.1.2 European private forestry

In Western Europe, where private ownership is the main form of tenure of woodlands and forests, there is a diversity of traditions and forest histories. But, there are also currently different new trends and different emphases in public policies (for example the growing concern to create "near to nature" forests) which are emerging. According to Grayson (1993), in practice, the different sets of policy objectives adopted in countries may not be so great. While on the other hand, it is reasonable to expect a large variation in the range and weights given to each of the tools used by governments to implement their policies towards private forestry (Grayson, 1993).

Espinosa (1991), in his discussion about European forest policy, refers to the lack of a forestry common policy, and claims the urgent necessity to develop and implement a clear common forestry policy which would at least design a co-ordination system which could permit an articulation and harmonisation among the forest policies of individual countries. He also presents such forest diversity, its multiple functions and the different owners' interests as the main reasons for the lack of a common policy. However, the first step to design a policy is to recognise it as useful. Before the new Common Agricultural Policy (CAP), developing a forestry policy was outside the EEC's objectives. The Treaty of Rome, the document that created the EEC, in its list of products to be included in the community policy, has not a single reference to forest products such as wood, although there are some references to hunting. Only with the new CAP did the first mention of forestry appear. In this domain forests are explicitly (see Turrado, 1991: p128) referred to as sources of raw-material, and their function in providing employment is emphasised, improving industrial development in the regions, protecting the environment, leisure and social uses (Solana, 1989; Turrado, 1991; Kula, 1992).

Even not following a formal forestry common policy, most of the agricultural programmes involve forestry as a component. According to Kula (1992: p108)

> "despite the absence of a clear forestry policy, in the past the European Community invested heavily in forestry in the context of its other policies".

However, such intervention and related investment in forestry was done without the global framework which could be called a common forest policy. Because of such dispersed interventions on forestry, conducted in a non-co-ordinated manner, some of the interventions occurred without any kind of congruency.

Now, the European Union (EU) strategic principles for intervention on forestry are based on the document COM (88)255 of September 23rd 1988, named as the "EEC's Strategy and Actions for the Forestry Sector", which contains the first reflections on forestry, since the creation of EEC until 1987 (Turrado, 1991). Although forests and the timber industry are greatly affected by the economic recession, despite the difficult situation, rural forestry is gaining in importance due to structural changes related to forests in European agriculture. In general terms it seems important to change the EC approach from a forest policy which is CAP oriented to an internally consistent forest policy, in which consideration is given to the present situation and the trends in the market for wood and non-wood products and to the social benefits and cost of forest programmes within the framework of a regional development strategy (Oliveira and Alves, 1993; Zeeuw, 1993).

Given the problems in dealing with agricultural surpluses, the EC is considering possible measures for the development of forestry as an alternative to agriculture. The actual European forestry concerns give priority to the extension of the forest area in the EC in an environmentally acceptable manner, and to the improvement of productivity in the existing forests. About 60 per cent of the Community's forests held in the private sector meet, in many countries, an important need for industrial materials, providing economic activity and employment for a large number of people, and supporting activity in wood-processing industries. Such private forest is characterised by problems of small size: the average holding is about 8 hectares. Most of these holdings have a poor infrastructure which does not make the extraction of timber as well as other forest activities easy. So the high cost of extraction and timber transportation, associated with the lack of demand in remote areas, have a strong negative effect on the owners' interest in their forests. Related to this, Grayson (1993) pointed out that all countries (in Europe) recognise that private forestry suffers from scale diseconomies, and many legislate to capture the potentially large efficiency gains to be made through economising in the use of labour, machines, supervision and planning through co-operation. With a similar perspective Kula (1992: p180) state that:

> "this situation could be improved by the creation of forestry associations for the forest owners".

1.1.3 Portuguese forest

The purpose of this section is not only to present some aspects of the development of the Portuguese forest in general, but also to focus on private forest, in a process that we think is important to design the framework of the main issues addressed in this study. Therefore, a further description of Portuguese forestry as well as the forest in the actual study area will be presented in Chapter two.

Portuguese forests, as the Spanish, correspond to the "Mediterranean West" ecological forest region, where the average size of the private holdings is very small. Therefore forest work cannot be rationalised and mechanised properly, as the income per owner is too low to maintain economic interests. About 71 per cent of forest landowners have less than 4 hectares and only about 1 per cent has properties over 100 hectares (DGF, 1992b). Approximately 60 per cent of the Portuguese forested area is privately (not publicly) owned by persons or corporations who are not the timber processors. Much of this land is in ownership too small to be operated economically as single forest enterprises. Many of the small privately owned forests are owned for reasons other than the profit to be gained from growing wood, or their recreational value, or hope of speculative profit from a rise in the land values, because the land was inherited and there is sentimental attachment to it, and for other similar reasons. Ownership is often a status symbol. The inheritance system continues to fragment holdings into smaller and smaller plots (Clawson, 1975; Kuusela, 1994).

Portuguese forests constitute an important sector in both economic, social and environmental fields. The level of private forest management is fairly weak: thinnings are rare and cuttings serve the interests of the purchasers; natural regeneration is thus from unselected seed. This state of affairs is due to lack of finance, indifference and insufficient forestry knowledge on the part of landowners. However, as Soares (1994) states, besides the lack of an active forest management on private Portuguese forest, even under unorganised (oriented by human needs) management, the forest has been fulfilling its productive, environmental and social functions; furthermore the author supports the idea that the definition and determination of the level of each of those functions should result from human intervention, in a way to widely satisfy all of them.

Forests' contribution to national policies can be summarised as follows:

- improved production and productivity in agriculture;
- better and more complete use of the land resources;
- increase of the positive trade balance;
- improved balance between regions and stabilisation of populations in sparsely populated areas;
- strengthening of intersector relations;
- soil conservation and restoration and the regulation of water regimes in certain regions;
- improvement of the quality of life and the environmental equilibrium (FAO, 1988).

In global terms the Portuguese forest is affected by both external and internal constraints. As external constraints there are problems with marketing, economic recession in developed countries, world over production of paper pulp, increasing Eastern countries' competition which offer lower prices and the increasing competitiveness of Nordic countries. The internal constraints, belonging to different dimensions, are mainly the decrease of quantity and quality in pine wood due to forest fires, the high frequency and extension of forest fires, the distrust of landowners towards state legislation and its intervention and the total absence of a national forest policy (EUROFOR and Rey, 1994). In addition to the above mentioned factors others could be pointed out as factors that have been having a negative effect on Portuguese forest development:

- the structure of property, divided in small and disperse plots;
- inhibition of forest landowners to invest because of their inability to assume the risk of fires;
- lack of forest landowners' and producers' organisations;
- low technical levels and almost non-existent forest management.

Looking at all these constraints the property structure appears as a central problem which does not allow a proper intervention under correct forest management techniques, and this fact strongly affects the productive systems and consequently forest development in general. However, the development of private forests in Portugal could take into account the following positive elements: the high productive potential of the forest species already implanted in the country; the wide areas which could be afforested; and the high possibility of increasing forest productivity through the implementation of management and protection systems, by avoiding forest fires as well as by decreasing their effects. Finally, one last but not least positive element in Portuguese forest development is the fact that, in financial terms, forest landowners are eligible to receive funds from the EU (DGF, 1992a; DGF, 1992b; CFC, 1993; IF, 1994).

One of the more relevant studies of the Portuguese economy, the Porter Report, has an exhaustive analysis on the national forestry in relation to the competitiveness of the industrial sector. As causes of the crisis currently (1994) faced by the forest sector, the report makes clear two main points: first, the dependency of the forest sector on several ministries; second, the lack of organisation among landowners, producers and industries which would enable participation in policy making. Recognising the country's forestry potential, the report suggests the development of scale economies as a way to allow an appropriate and balanced forest management that would lead to the complete fulfilment of all the desired forest functions. It also points out that the best way to reach these scale economies should be grounded in the organisation of forest landowners, adding that such organisations would allow them to participate in a strategy definition to defend their interests and that:

> "puts an end to the huge confusion installed in the sector." (CAP, 1994: p5).

This will be the only way to develop communications channels between the decision makers and those directly affected by the decisions (Bourke and Luloff, 1993; CAP, 1994).

The EU policy supporting the abandonment of marginal agricultural areas and the retirement of older farmers, will in the near future cause an increase in the forest area, which is already considerable in terms of the percentage of national area covered by forest. The expectation created around this process is high. However, several authors have been advising that to increase the forest area does not itself necessarily mean an improvement in forestry development. If we want such an improvement to occur, before the increase of area some of the main forestry problems must be solved. Only working in this way can a contribution to real forest development be achieved (FAO, 1988; Conway, 1990; CFC, 1993; Morais, 1995). These authors agree with the need to create a management model that allows forest exploitation in a more efficient and productive way, not forgetting, but respecting, ecological and social values. The alternative and complementary ways to develop such a forest management system, are also identified:

- to implement educational programmes to develop the forestry mentality in forest landowners in particular and in the public in general;

- to redraft the legislation on inheritance rights and the tax system related to forest property;

- to develop actions to improve the actual property structure and increase the size of operations such as land-consolidation, rent system, and the creation of associations;

- to train both owners and workers, and provide them with specific, easy and quick financing;

- to revise the present model of action of the forest department regarding the private sector: it should undertake a specific policy for the private sector, and not try to deal with it using an action model that has been used in state forests, which are more oriented to the social and environmental functions of the forest (Summers, 1977; FAO, 1988; CFC, 1993; Morais, 1995).

Discussing forest fires, the worst problem to affect the Portuguese forest in general, Luis (1994) uses a picture where the forest is a sick individual, the fires are the fever and the lack of an active and correct forest management the virus. There seems to be no possibility to solve the problem of forest fires (to solve the disease problem) without undertaking an action that attacks the forest management problem. This means that only with a correct management system of forest areas will it be possible to protect them. Moreover, the same author adds that the creation of forest landowners' organisations should be one necessary step, since such organisations could play a decisive role in the implementation of forestry management systems.

1.2 The problem: NPFLs' mentality towards forestry and organisations

Pinhal Sul region is a particularly forested area in the centre of Portugal (Appendix 5.1, Maps1 and 2). This region is in itself the most forested in the country with more than 40 per cent of its area covered by forest, the average forested area in the country (mainland) being about 35 per cent (Rebelo and Casaleiro, 1994). Since Zona do Pinhal is the target area of this study, its description will be the subject of a later chapter. The dependence of the region's development on forestry is emphasised by IERU (1994) and by Rebelo and Casaleiro (1994) generally claiming an urgent strategy for forest development in the region, dealing with forest constraints in order to increase the interest of the people in forestry as well as its income, quality and productivity. However such forest development should pay attention not only to technical aspects of forestry, but also to the sociological factors involved. As Hespanha *et al* pointed out:

> "From the point of view of rural development there is no reason to be in doubt. The support of forestry and afforestation is always justified whatever the reason since the results provide a contribution for the primordial objective: the guarantee of a decent life level for the rural populations in general." (Hespanha *et al.*, 1994: pVIII).

As in other parts of the country, the forest property in Pinhal Sul is divided in small and diverse plots where some forest owners face a situation in which rather than seeking economic values they seek to maximise something different from their forest ownership, perhaps personal satisfaction. They have many economic and technical difficulties with the productive side of their forestry. If small forest owners seek to manage their forest carefully and intensively, they find they must spend a lot of time, and the time spent in management of their forest may offer them little return. On the other hand, almost all forest owners are farmers as well, and as such they have to develop their agricultural activities, since agricultural products secure the subsistence of the household. As a result, most of the small private forest owners neglect or ignore their forest, letting nature take its course in tree reproduction and growth.

For many NPFLs, according to Hespanha *et al.* (1994), forestry represents a complementary activity to agriculture, not likely to constitute an autonomous economic source, and being often viewed as a mere capital reserve. The author also states that although the NPFLs' interest and capacity of decision making in the forestry domain is low, their activity is still related to forestry as such. However forestry makes only a small contribution to their incomes, and because of that the NPFLs are vulnerable and have a weak capacity for dealing with the marketing of forest products.

Apart from the above mentioned aspects there are also other related to forestry as an activity in which the small private forest owners often face difficulties in marketing the wood that grows on their land to their best advantage. Their need for cash may be more decisive than forestry considerations about optimum harvest date. In many cases, to sell trees is a consequence of the woodbuyers' intervention, often a small sawmill owner, rather than making an option taking into account economic or silvicultural considerations. In general these woodbuyers take every tree that they think will repay the cost of manufacturing products from it without regard to the effect of such a harvest upon the productive capacity of the remaining forest. The decision to sell is sometimes made without getting bids from other possible purchasers, and, as a result, in most cases forest owners will not get the full value of the cut wood. It is claimed that farm owners do not very often consider other alternatives to their decisions, and that in their economic operations they strive for a satisfactory rather than the best possible result (Hahtola, 1969; Clawson, 1975; Hespanha *et al.*, 1994). However, in Portugal, at both a regional and a national level, there is a lack of sociological studies about the relations between non-industrial private forest landowners (NPFLs) and their forest. This lack of information raises doubts about the NPFLs' feelings about forestry, and about the importance of forestry in their family farming economy. Given this, forestry is frequently assumed to be a poor job, but as Clawson (1975: p96) said

> "It is often said that the typical small private forest owner does a poor job of forestry. In the technical sense this is true, and in the economic sense this forest owner often gets less than a full return from his resource. But it is also true that this small forest owner often does a good forestry job, considering the handicaps under which he must operate. He may get little income from his forest, but he spends little money on it too."

Forestry for NPFLs could appear as a profitable activity in this particular case. According to this, a new important subject emerges, the interest in understanding and discussing the small forest owners' perspective rather than the economic returns from the production, to what extent do they achieve their own objectives from their forest. If one knew precisely the objectives of any small forest owner, then one could better judge how good a job he has been doing in his forest management and judge how to advise him better on how to attain more of the outputs he seeks (Clawson, 1975).

In Pinhal Sul, as referred by IERU (1994) and by Rebelo and Casaleiro (1994) the area of small private forests is so large, the potential productive capacity so big, and the present output is so much lower than its potential that there would be a substantial gain if these forests were to be managed more intensively. Such gain would be in economic terms and under the form of larger wood supplies or in other forest products related to the forest's sociological and ecological functions. There would be a common interest in forestry development. If there is a public interest in increasing the social and ecological functions of these small private forests, this suggests that there are potentially more successful approaches as different from the simple provision of financial support from the government and EU programme (Portela, 1993; Soares, 1994). The answer depends upon the technical assistance provided by an extension service and the development of the NPFLs in order for them to become more productive and more powerful in defending their interests. The desired change, as Clawson (1975: p97) pointed out, would involve the creation of:

> "forest management organisations which would lease the timber growing capacity from the small owner, conduct planned forestry operations on a substantial proportion of all forest land within a local

> area, sell the output on the best terms, and share the income from the wood production."

Moreover the author adds that there would undoubtedly be many difficulties in working out equitable arrangements, but this approach might provide for greater wood production and more financial returns to the forest owner.

The diversity of interests among the NPFLs will be another problem to face. Some of them are interested in growing trees for reasons other than, or additional to, the financial revenues from wood production. For private landowners, these reasons can be broadly classified into three groups: one lies within the protective benefits that trees may supply, another within the amenity benefits, and the third within the commercial products other than timber wood. Land and forest belonging to a family for several generations are considered in many rural cultures a value in itself, and a private owner may use it as a means of economic profit but is then limited by what is allowed by the norms and uses of the community (Hahtola, 1969; Gremer, 1990). Doubts persist in regard to the kind of interests shown by the NPFLs of Pinhal Sul and how important they are, in other words, the role of these interests in their family's economy.

In Portugal, until now, sociological research supporting forest policy has not been carried out to any extent; consequently, the possibility of using sociology to meet the needs of forestry policy has been largely unexploited. The main studies carried out in this field and to which it is important to refer were developed in the Universities in collaboration with the State Forestry Services (Martins, 1993; Castro, 1994; Gomes, 1994; Morais, 1994; Correia, 1996).

Nersten (1969) also suggests that the study of the behaviour of forest owners, as well as the factors affecting it, can be considered as one important part of a sociological investigation. Problems belonging to this group are specific and different from the agricultural ones, which have been frequently studied. Following on from this idea, Silva *et al.* (1994: p5) adds that

> "the need of knowledge to support the transformation of rural world is critical, thus the research sector assumes a capital role. Hence, it is imperative to set objectives and priorities for the actions to be used in the formulation of the action plan..."

thus, enhancing the need of studying the "NPFLs' mentality and attitudes towards forestry and towards the role of silviculture in rural development".

Given the perceived lack of a "forestry culture" among Portuguese farmers, their absenteeism regarding forest activities, and their reluctance to take part in any associative process, the NPFLs' intervention in their forest have been reduced to sporadic actions, which have been carried out without any kind of forestry management system (Silva *et al.*, 1994). To change such a scenario, requires research studies about new methodologies of forestry management of small properties in order to improve the forests' quality, increase forests' productivity, and diversity their products. At the same time, it is indispensable to develop strategies which could lead to NPFLs' adoption of these new methodologies as well as to instigate their organisation process. Further the author specifies that:

> "the methods of forestry intervention, either classic or modern, would be adopted according to associative level achieved among farmers, or to the plots' dimensions, regarding the requirement of a continuous presence of the NPFLs in the forest, and the NPFLs' adoption of multi-benefits systems more productive." (Silva *et al.*, 1994: p6).

To Silva, association of the NPFLs has a relevant role to play, not only in Portuguese forestry in general but also in the Pinhal Sul region in particular. This is so highlighted in all the literature related to Portuguese forestry development that there seems to be a dependence of the private forestry development on the capacity and disposition of the NPFLs to organise themselves. In the next paragraphs, some of these references are presented in order to provide a broad idea of this issue, supporting the necessity of further research and the promotion of forest landowners' organisations.

The regular annual reports published by the government Forestry Services DGF (1991), DGF (1992a) and IF (1995) have been highlighting the need to ground the intervention on forestry and on the remaining areas of the forestry sector in a policy of farmers' organisation. Such an idea became enhanced with the specification of the Forestry Action Programme (FAP) objectives. However, hardly anything has been done in this area by the state services. The initial attempt to improve the NPFLs organisation through the FAP has produced fairly weak results as stated by Baptista (1994). According to the former author this failure in organising the NPFLs comes from the times of the implementation of the forestry programme supported by the World Bank Project, as we will discuss in Chapter Two.

As to the implementation of the EU Regulation Reg. 2080/92, and the way of seeking its objectives, as well as regarding the other EU regulations, Baptista (1994) raises the condition, if we seek the correct and adequate conception of the social, ecological and productive functions of the Portuguese forest advisory services, it is indispensable to promote the associative process among the NPFLs potentially interested in forestry development, in order for them gradually to become real forestry entrepreneurs. The same position is stated by CFC (1993: p20), to whom the

> "application of the financial programmes for forestry development, as recently was the FAP or as the new ACP's regulations (Reg 2080), requires, more and more, the responsible organisation of the forest landowners."

References emphasising this idea can also be found in the studies developed by Baptista (1994), Morais (1994) and Correia (1996).

In Silva's *et al.* (1994) point of view, the indispensability of a developing and organising process among the NPFLs is grounded in their huge dispersion and in their dependence on a market system which does not allow them to manage their forest according to correct forestry criteria. The only way to achieve fair prices and to create the necessary infrastructure to carry out forestry activity (cutting, transport, stocking in wood parks, and the mechanisation of the forestry tasks) which would bring more income and profits to the NPFLs, is the creation of organisations among them.

In a study of the economic importance of the maritime pine, DGF (1983) besides recognition of this species as having a high economic value, found that its potential is under-utilised. Moreover, among the measures presented in order to improve the productivity and the profitability of pine, is included the NPFLs association process.

Discussing the outcomes of the Porter Report, Hespanha *et al.* (1994) advise the use of correct management systems grounded in the NPFLs organisations, whose dynamics must be increased in forestry regions. Such organisations would be very important to forestry's development, not only from an economic perspective, but also as a way to give the NPFLs the opportunity to become active in designing a forestry development policy. In the same way, and also discussing the same report, Hughes *et al.* (1994) state that the answer to improving the forestry management performance is association of the landowners. One objective of this thesis is to present a first approach to a strategy for the implementation of such an association, that will be discussed later in Chapter Three.

In 1962 Carneiro was already advising the importance of developing a process for forest owners' organisation in Portugal. Furthermore the author proposed forest owners' co-operatives as the best type of organisation. Under this organised form the small forest owners would constitute several well dimensioned forestry areas, which would allow a correct forest management (Carneiro, 1962).

Several authors, when discussing the problems raised by forest fires, also bring to the discussion the problem of the lack of organisation among forest landowners (CNF, 1990; Oliveira and Alves, 1993; Hughes *et al.*,1994; Martins *et al.*, 1994; Soares, 1996). They are confident that a landowners' association would allow different systems of forest management, with positive effects with regard to fire prevention and fire fighting. Such new forestry management systems could be developed by trying to reach an economy of scale. This means, in many cases, the need to join hundreds of plots, which is only possible if the landowners belong to an organisation that helps them in the process, and at the same time gives them the confidence to accept it. IERU (1994) proposes the implementation of specific legislation for forestry association: under a compulsive obligation to take care of the forest, only those interested and able to manage their forest in certain conditions would be free not to be associated. Those not abiding by the law, would not be allowed to be forestry producers, in other words, they would have no way of selling their forest products.

Given the similitude between Portuguese and Spanish forestry problems, namely between Galicia and Centre and Northern regions of Portugal, some authors refer to both regions as a whole. Thus Vilariño (1992a) and Silva *et al.* (1994) present a similar point of view about the forestry development policy for Spain and Portugal in what concerns their position within the European forestry policy. According to these authors the enlargement of the European Market reinforces the need for the professionalisation of the producers, forestry management and the trading of forest products; hence the urgency for a well defined national forestry policy which should have as an objective, among others, the resolution of the problems of forest fires. The same opinion is shared by Luis (1994) who states that the forest should be looked at under an economic dimension scale in order to allow the correct management to prevent forest fires, and that in the case of small forest properties, should be found through adequate organisation form for each region. So, to these authors, the starting point for developing private forestry in Portugal and in Galicia (Spain) is the creation of forest areas large enough to be managed under the correct forestry techniques. For this, it is necessary to promote the forest owners' organisation towards an associative process which could respond to both the required forestry techniques and the owners' aims.

With the same opinion, though with a little more conviction Turrado (1991) states that:

> "In the Spanish forestry sector, forest owners' organisation assumes such magnitude that makes it indispensable to create and to implement real forest owners' associations, otherwise it will be impossible to implement any forest incentives policy to promote private forest development." (Turrado, 1991: p143).

Although there is general agreement about the need to manage larger areas in order to reach a correct forestry management oriented to an increase of productivity in equilibrium with the respect for social and ecological values, association among the NPFLs would not be the only way to achieve such forestry development. Some authors, as Martins (1993) and Vilariño (s/d), defend the idea of reform of land tenure rights of forest land in specific forest regions. Other solutions, such as renting or selling properties to forest enterprises, are discussed by Hespanha, *et al.* (1994), who conclude that the NPFLs, by recognising both their dependency on forest and forestry as profitable activity, will resist the pressure of such industrial enterprises.

> "This forest landowners' attitude seems reasonable and prudent from the point of view of the agrarian systems which they have been using for a long time, and, as it is well known, are very sensitive to change." (Hespanha *et al.*, 1994: pXII).

We can, therefore, conclude that the association form as a potential contribution to the solution of forestry problems is highlighted when compared with others, such as changing the land forest tenure or the inheritance legislation, since it would be less contentious, and likely to be more successful.

1.3 Main questions and general objectives

In the discussion about social and economic relations linking forest owners and their property, Luis (1994) suggests the need to study their own forest culture, as a means to better understand their perception of the role of forestry. In his opinion, the forest owners from the centre and littoral areas of the country may have a stronger forestry culture than others, in that they may achieve higher productivity and profitability in their forest, but only due to geographic conditions. It was this mentality, this forestry culture, that this thesis is interested in exploring and understanding, and it has become the main objective. Hence the importance of asking how do farmers perceive their forest problems?, how specific are these problems?, how do they adress them? and how to justify their intervention in order to solve them? In other words, are the problems faced by the forest owners a sufficient cause for their organisation or would it be necessary to have an external influence for it to happen? Do they feel that this is a problem which only concerns them or not?
The few experiences that NPFLs seem to have on association are based on agriculture as almost all forest landowners are also farmers. It would be interesting to know what each activity represents to them, and to understand the eventual connection between their understanding and their position regarding forestry organisations (Castro, 1994; Luis, 1994).

As main problems of the Portuguese forest, Silva (1994) points to the property structure and the landowners' themselves, whom he accuses of being absentees, individualists and extremely distrustful. This simple and generalised way of seeing the problem shared by others, has served as an excuse to avoid the forest problems. Some questions are therefore raised in our mind: is that true for the Pinhal Sul region? Do forest landowners in the area have any collective or co-operative experience? Are forest owners absent by nature or are they forced to act in such way? Regarding the same questions but with a constructive opinion and willingness to support a forestry development policy, Digby and Edwardson (1976) state that the owners who are absentees, who have not the time, skills or funds to manage their forest, are the ones more likely to profit from co-operative action, though larger private forest owners may be prepared to join a co-operative in order to give a lead for fiscal benefits or because they are interested that conservation and marketing should be carried out in an orderly way for the region as a whole.

According to Kula (1992), the EC is ready to help with the infrastructural problems and the creation of woodland associations where they are needed. However, in Portugal there are only some very recent experiences, and no such attempt has been made in Pinhal Sul. When taken together with the high forest potential of the region it seems to be paradoxical. Why is there this lack of organisation among private forest owners? What could be behind this? Do forest landowners not recognise the importance of becoming organised? Are they not prepared or disposed to organise? There appears to be no case where the government services or other organisations tried to create a forest landowners' organisation in the region. However, the literature published by the official services emphasises the lack of association as a dangerous handicap for the competitiveness of Portuguese forestry in the European context. Even the amount of funds coming from EU programmes could decrease due to the Portuguese weak negotiation capacity, at least in what concerns the productive forest (IERU, 1994).
For IERU (1994) one point seems clear; if we are interested in forest development in the centre region, and consequently in its rural development, it is necessary to find alternative associative structures, since the ones created until now have never really been implemented in an effective way, and most of those few cases are already inactive. Given this, it has become necessary to design new strategies in any approach to solve the problem of forest owners' organisation. The author concludes that:

> "as the Galicia region has done in Spain, Portugal, particularly in its centre region, has to organise all entities related to forestry in a regional forest lobby with representation outside the region." (IERU, 1994: p174).

However, as the author suggests, such a lobby should emerge from a structure encompassing all of the regions' forest organisations. This, in its turn, implies the need to cover all the region with effective organisations and to find a way of joining them on a regional basis (IERU, 1994). The Forestry Association of the North and Centre of

Portugal (FANCP) has developed an association model in order to try to achieve these objectives. However, in the centre region there has been no attempt to implement this model. Thus, according to the FANCP, there is high interest in conducting an investigation in the centre region, seeking to understand the acceptability of the model by small forest landowners and to assess their willingness to get together.

Such a will for effective intervention and self organisation has much to do with economic motives. In the opinion of Martins (1993) the creation of an association is more likely in the case where forestry incomes are significant, and forest owners look at forestry as a profitable activity. Hence it is very important to undertake research with the objective of understanding the owners' economic and social relation to forestry, as a first stage to be done before a study of the forest landowners' organisation.

Until now, we have been talking about small forest landowners assuming that all of them are living in the region, but in Pinhal Sul, as in many other interior regions of the country, there has been an out-migration of population, many of whom are also forest landowners. The study would be closer to reality if these owners were taken into account in the research. Vilariño (1993) suggests that the social scientists involved in forestry issues should give priority to research the strategic field, and to design associated management models, since this could solve some of the problems of landowners living out of the region where their forest lies.

To complete the research framework it would be useful to summarise the aims and the main objectives of the study. As we can identify two more or less independent parts, the objectives also seem to embody two dimensions: one related to the experience of forest owners in their every day life in agricultural and forestry activities, and another related to the hypothetical reaction in facing a new situation and leading to the design of a strategic proposal for the future based on the forest landowners' views. Therefore the main objectives of the study are:

- to study and describe the forest culture of the NPFLs of the Pinhal Sul region, describing and analysing the forest landowners' relationship to their forests, their perceptions about forestry, its values, problems and potential solutions;

- to study the NPFLs organisations, their attitudes (taken both from residents and non-residents in the region) towards association and its relation to the acceptance of the model that is being implemented in the northern region;

- to design a strategy towards the organisation of the region's NPFLs taking into account the points of view of resident and non-resident NPFLs, forestry technicians and the local authorities within both parishes and local councils.

1.4 Specific objectives

To address the main objectives and the purpose of the referred study, two field work-based investigations were planned for the Pinhal Sul region. The first field work focused on all NPFLs living in only one parish, Estreito. The second field work was developed within an extended sample representing each of the five councils that make up the study area. This section is divided into two parts: the first part sets the objectives of the first field work (study 1), regarding the non-industrial forest landowners' (NPFLs) relationship with forestry at a parish level; the second part, describes the objectives of the second field work (study 2), regarding the NPFLs' attitudes towards organisation, their willingness to become members of an organisation, and their opinions about the organisational model implemented in the Northern and Central regions of Portugal.

1.4.1 The case of the NPFLs and their relation to forestry in the parish of Estreito (Study 1) - research questions and hypotheses

This study involved a documentary research followed by a survey using a face-to-face questionnaire. Hence, this section includes a description of the documentary research's questions aimed at a socio-economic description of the region where the study took place. It also includes the research questions and hypotheses of the first field work period, which was undertaken in the parish of Estreito. The results of such research will be presented in Chapter 3 and Chapter 6 respectively. First we present the research questions of the (part 1) documentary study. We then proceed to present the research questions and hypothesis used for studying the NPFLs' mentality and their relations related to forestry and its problems, (part 2).

Part 1 Socio-economic description of the region where the study takes place.

This involves a descriptive analysis of the documentary research. Thus, it depends on the available published or unpublished data. Through this analysis we seek to answer the following questions regarding general economic and social aspects: what economic and social changes have occurred in the region which could have affected the forest's management? and, what are the present socio-economic characteristics of the region? In this analysis, given the field of the research, we seek to examine the above aspects of forestry and agricultural activity. We have also tried to answer the questions regarding both activities: what is the economic and social importance of the forestry activities in the region? what is its potential? and, to what extent has its potential been used? Therefore, in brief, we were interested in describing the agricultural activities and forestry in the target region.

Part 2 NPFLs' mentality and attitudes towards forestry problems

In order to describe the features of the non-industrial private forest landowners (NPFLs) involvement in forestry, in the particular case of the Estreito village, we studied five different sets of information: first, NPFLs' socio-economic characterisation; second, land tenure and land use; third, NPFLs' mentality towards forest activity; fourth, forest management and fifth, relationship between the NPFLs and the local governmental Forestry Services regarding technical and financial support. In each part we raised general questions and hypothesis to be answered and tested through the data collected at the interviews. A detailed description of the specific questions is presented in Chapter 4, since in this section we only mean to give a framework of the study's objectives.
To describe the **NPFLs' socio-economic features** we collected personal data from the respondents and their family allowing us to know who are the ones (in a socio-economic

perspective) to whom the private forest belongs (NPFLs). The links between the families' economy and forestry were studied by including questions to describe the NPFLs' family socio-economic characteristics, such as those trying to find economic and social changes which might have affected forest management have occurred in those families? and what is the role of the forestry in NPFLs' family economy? Through such a description we want to test two general hypotheses about the role of the forestry in they families' economy: the NPFLs' family is financially more dependent on forestry than on agriculture and, the agricultural outputs assume a bigger role in the subsistence of the rural families than the forestry output.

The **land tenure issues** were approached by finding how the NPFLs got ownership of their properties. In the study of the **land use** - activities practised in NPFLs' properties - two main questions were asked: what is the role of forestry compared to agriculture in the NPFLs' agrarian activity? what are the more common forestry tasks and how do the forest owners carry them out? Based on the information provided by the answer to these questions, we want to test the hypothesis according to which although the NPFLs live in a forest region, they are more committed to agricultural activity than to forestry.

The **NPFLs' mentality towards forestry** was described by the answers to questions concerning NPFLs' perceptions regarding forestry: what are their feelings, dispositions, interests, rights obligations and duties? In addition to this, we proceeded with an identification of the forest's values in the eyes of its owners. What kind of informal organisations were created by the NPFLs in order to develop their forest activity? and what innovations did they try to implement in forest activity? Given the large number of issues covered by this information, we have formulated a set of hypothesis regarding the way the NPFLs conduct their forest activities: most of the NPFLs are not interested in their forest lands; NPFLs see themselves more as agricultural than forest producers; NPFLs' forest mentality is more related to the forest's economic value (trade value) than with the forest's social value (value for households), and they do not perceive the environmental value of forestry.

To complement the information on NPFLs' mentality towards forestry, some more information was collected regarding **forestry management** by including questions asking the NPFLs opinions: what is NPFLs' opinion about the management conditions of their forest?, what do NPFLs think about their forest's quality?, what problems do NPFLs perceive about forest in general and particularly in their own forest? And what potential solutions do they point out in order to solve or decrease such problems? Assuming that the problem of forest fires would be pointed out by the landowners, we also asked them about the effect of forest fires on their forest and on all forest activities. Finally, focusing issues related to the explanation of the NPFLs' positions about their future involvement in forestry, two more question were asked: do the NPFLs see forestry as a profitable activity and do they carry it out seeking economic perspectives? and, what is the NPFLs' position towards getting together in order to improve forest management? Based in the information collected through the above questions three hypothesis were tested: forest management is based only on short term economic objectives; NPFLs' investment in forestry is very low; and, forest fires are the main problem faced by the NPFLs regarding forestry.

The final issue approached by the study carried out in Estreito, was concerned with the **links between the NPFLs and the state's Forest Services regarding technical and financial support.** In order to identify both the kind of relations between technicians and farmers and the support provided, information was collected through asking to what extent have the NPFLs acknowledged the regional governmental forestry agency? and what kind of support have the Forest Institute have been providing to the NPFLs in order to help them to solve their problems? Moreover, farmers were also invited to give their opinion about the kind of support from the government they suggest would be helpful to promote forest development in the region. Having this in mind two hypotheses were tested: governmental activities have been a weak influence on the improvement of NPFLs' forest management; and the government departments do not support forest owners in solving the problems concerning their forest activities.

1.4.2 NPFLs' forest organisation in the Pinhal Sul region (Study 2) - research questions and hypothesis

The aim of the study of the forest owners' organisational process in Pinhal Sul encompasses two global objectives: determining the NPFLs' willingness to accept an organisational model which has been implemented through the FANCP in the northern part of the country; and, suggesting some guidelines to an organisational strategy for the above mentioned region, which would be considered in the promotion of actions among the forest landowners leading their organisation.

To achieve such main objectives we planned a field work encompassing four different instruments for data collecting: a face to face questionnaire to be administered to the NPFLs residents in the study area, a mail questionnaire to the non-resident NPFLs, a mail questionnaire to the parishes' presidents, and interviews to technicians and mayors of the councils from the Pinhal Sul region.

Given the different sources of data, it is only possible to raise some global questions which can then be related with the objectives of the study in general. In Chapter Four we will then present more operational questions. The same approach will be taken regarding the hypothesis. Therefore, in order to collect information about the organisational process we asked them according two questions: what do the NPFLs think is behind the absence of organisation among them? how do NPFLs perceive their own organisation? Besides this, in order to provide information about the NPFLs positions regarding the model and considering an hypothetical intervention concerning the forest landowners organisational process, three more questions followed: how available are the NPFLs to participate in the organisation process? to what extent they would accept the model? What strategy should be followed to promote the NPFLs' organisation?

The hypothesis formulation was based on our perception of the problem, and grounded in the experience that we gained through the research work. They have to do with the aspects that we think are essential if an effective forestry policy is to be successfully implemented in the region. So, the hypotheses tested in the final conclusion of this study, are as follows: NPFLs' solutions for forestry problems are exclusively based on state intervention in the forest activity; the non-resident NPFLs will not be a hindrance to the process of forest owners organisation; NPFLs have difficulty in accepting the model in its entirety; and NPFLs' attitudes towards organisations are favourable to an organisational process.

The questions mentioned in this section were intended to clarify our general and specific aims in each different case of our research. A more complete discussion and the presentation of the questions used in our field work will be included in Chapter Four regarding methodology.

2 PORTUGUESE FOREST

In this chapter is presented a description of land use in Portugal and a general description of the main characteristics of Portuguese forest, as well as its economic role in the Portuguese economy. As the research study is related to private forestry, we also present a summary description of state intervention in respect of this sector through recent decades. Finally the main issues related to private forest policy, more particularly related to the small forest landowners (NPFLs: non-industrial private forest landowners) are discussed.

2.1 Forests and land use in Portugal

Portugal, a country 91 986 km^2 in area and with a population of about 9,9 million, is occupied mostly by agricultural areas (47%) and by forest areas (35%). Such values put Portugal among the five most forested countries of the European Union, although the Portuguese forest presents a different forestry regime to the others (MAPA, 1994; and CCE, 1992) (Appendix 2.1).

Looking at the natural aptitude of the soils, there should be an inversion of the relative importance of agricultural and forestry activities. The forest should occupy an area superior to agriculture (Table 2.1). The forestry capacity of the country is very well represented by the present forested surface (3,08 million of hectares, 35 per cent of the territory), and by the huge possibility of expanding such an area. The Forest Institute (IF, 1994) estimates that there are 5,3 million hectares (60% of the territory) without aptitude for agriculture, some of which are no longer being utilised for agricultural lands because of the low profit they have been giving, and the Institute suggests that part of these lands could be afforested with the objective of developing multi-purpose forest. One possibility then for the evolution of the Portuguese forest is to proceed the afforestation of such presently agricultural areas.

Table 2.1 Actual use of the soil compared to aptitude (unit area, 1000ha)

Soil uses	Actual	(%)	Aptitude	(%)	Differential (%)
Forest	3 085	35	5 280	60	+ 25
Agriculture	4 181	47	2 337	26	- 21
Others	1 627	18	1 276	14	- 4
Total	**8 893**	**100**	**8 893**	**100**	**0**

Source: (MAPA, 1992; DGF, 1993)

2.2 Physical Description of the Portuguese Forest

The climatic conditions, the soil type, and the sort of intervention that man makes on the forest, are determinants of the nature of the forest. In this context, we can say that Portugal has a climate which is characterised by its diversity, from the Mediterranean influence in the south, to the Atlantic and Continental influence further north. Moreover, altitude and the diversity of topographic and geographical factors are determinants of a vast diversity of ecological areas; this is then a natural influence on the characteristics of forests, namely on species diversity and their potential to be distributed through the different regions of the country. Human influence is mainly shown in the pressures which have been put by man on nature through agricultural activity (DGF, 1992; DGF, 1992a).

2.2.1 Species and areas

Despite the great ecological diversity of the country, only a few species are represented; four species represent, globally, more than 90 per cent of the Portuguese forest area (Table 2.2).

Table 2.2 Distribution of the more representative forest species

Species	Area (*)	(%)
Pinus pinaster	1249	40.0
Quercus suber	660	22.0
Eucalyptus globulus	500	16.0
Quercus ilexspp rotundifolia	464	15.0
Carvalhos	86	2.7
Pinus Pinea	50	1.6
Castanea sativa	32	1.0
Others		1.7

Source: (IF, 1994) - (*) thousand of hectares

- The *Pinus pinaster* - Maritime Pine (Pinheiro Bravo), is a very rustic and versatile species, widely spread over the country, but mainly concentrated in the northern and central regions, where the Atlantic influences are more significant. The characteristics of this specie leads to its utilisation on a large scale in forestry development. Over the last few years, as one consequence of forest fires, the population of *pinus pinaster* has been decreasing, and some burned areas have been substituted the *eucalyptus* species.

- The *Quercus suber* - cork tree (Sobreiro), is planted mainly in the southern littoral of the country. It has been protected by special legislation which has the objective of maintaining its population. Nevertheless, presently it faces several problems with diseases, aging and a decreasing population.

- The *Quercus ilex (spp rotundifolia)* - (Azinheira) is planted mainly in the southern interior of the country, and in some interior areas in the northern and central regions. Despite protectionist legislation, its area has been quickly decreasing over the last few years.

In addition to these three indigenous species, the *Eucalyptus globulus* was planted in Portugal during the last century, and because of its good adaptation capacity, has spread over the country. Its plantation area has increased 600 per cent over the last thirty years (IF, 1994).

2.2.2 Structural characteristics

The Portuguese state is responsible for the management of 15 per cent of the forest area. Compared with the other European countries Portugal has a *sui generis* situation. It is the EU country with the smallest state and public representation in its total forest area, since comparative values, among the other European community countries, are higher at between 26 per cent in France and 78 per cent in Ireland (DGF, 1991). Given this fact, private property is the main forest property regime in Portugal, representing 83 per cent of total forest area. However, it is important to note that the majority of these forest properties are included in agricultural farm holdings (Table 2.3). The industrial enterprises (mainly cellulose) cover and own around 6 per cent of the forest area. The co-operative sector is not significant in forest tenure nor in forestry management.

Table 2.3 Property regime of the forest area

Property regime	(%)
Private sector	77.8
Local communities	11.8
Industrial enterprises	6.4
State property	2.7
Collective worker groups	1.3
Total	**100**

Source: (DGF, 1993)

The extent of private forest property is variable through the different regions in the country, but it is generally small: 71 per cent of the total forest land-owners (of 500 000) have areas lower than 4 hectares and only 1 per cent have areas over 100 hectares (IF, 1994).

To the north of the river Tagus small forest property predominates, often very small and divided into several and dispersed plots, or undivided properties or with unknown landowners. This forest is characterised by the predominance of conifers and with fast growing leafy trees, and with timber production as the main objective. The harvesting of resin and fruits such as chestnuts is very important for landowners' income.

To the south of the river Tagus, there is a predominance of properties with large forest areas. Due to the domain of the forest areas with *quercus suber* and q*uercus ilex spp rotundifolia*, those areas are often integrated with agricultural or agroforestry activities.

In relation to the above values, the Forest Institute has stated (IF, 1994) that considering the importance presented by private areas either in the present and in the future, the development of the Portuguese forest depends on the development of the private forest. According to this author the development of the private forest area occurs in a contradictory framework where there is strong potential but also very severe constraints. Among the potentialities we can highlight the following:

- good productive potential of the principal forest species ;
- availability of large uncultivated or marginal agricultural areas;
- possibility of increasing the production of timber wood, cork and resin;
- considerable availability of financial funds on application to EU programmes.

As main constraints we can highlight:

- the deficient structure of many forest properties, with their small and dispersed areas;
- the number and dimension of forest fires, with the consequent economic and ecological damage;
- the lack of motivation of landowners to face the risk of investment and the high economic costs associated with the long term investment which characterises forest projects;
- lack of an enterprenurial mentality on the part of the small landowners;
- lack of confident organisations of forest producers;
- low level of technical expertise of the forester, and even the complete lack of forest's management system in most cases.

2.3 Economic importance of the forest sector

Forest is one of the most important natural resource of Portugal. Around 12 per cent of GNP comes from the forest industries, and from others directly dependent on them. This contributes to 11 per cent of total exports and to 9 per cent of industrial employment (Hughes *et al.,* 1994). Accordingly to DGF (1992) the contribution of forest to the national economy is very significant, and it involves a complex group of industries which process timber and other factories dependent on the former. There are also industries related to non-timber products, namely working on the transformation of cork and resin products. These mean about 4500 industrial units (which represent 15% of the total product transformed by the industry) and it also provides direct employment to some 100,000 people, 65 per cent of whom are in transformation industries (Table 2.4).

Table 2.4 Distribution of the labour utilised by the industries directly related to forestry

Type of industrial activity	Industrial units (A)	No of employees (B)	B/A
Furniture industry	2000	14000	7
Timber sawing	1000	13000	13
Cork industry	600	13000	22
Paper industry	70	6200	86
Cellulosic paste	7	4300	615
Panels derived from wood	8	1700	213
Resin products	30	600	20

Source: Adapted from DGF (1992)

However, the forest's importance is related, not only to the production of timber wood, cork, resin and fruits, but also to its simultaneous utilisation for pasture, apiculture, protection of fauna and species with cynegetic interest. Besides this, the forest has an important ecological role, protecting soils from erosion, mainly in mountainous regions where the soils are poor and lands are sloping (IF, 1994).

Concerning industrial activity it is important to highlight the following aspects:

(i) Timber wood industries are generally installed near the main source of material, the pine. The principal characteristics of this industry are its flexibility (capacity to produce according to the market demand), the capacity for utilising small diameters, and its high technological potentiality to deal pine wood.

(ii) Portugal is the principal producer and transformer of cork. The cork industry is very heterogeneous: there are several very traditional industrial units which coexist with the modern units using high technology. In terms of external markets, the position of the forest products (cork, cellulosic paste, resin products, wood-furniture, paper and cardboard) constitute an important equilibrium factor. Portugal has a traditional negative balance in external trade, but the forest products have had a major influence in decreasing this deficit. The ratio between exports and imports was about 219 per cent in 1991, and 189 per cent in 1992 (DGF, 1992; IF, 1995).

(iii) After Portugal became a member of the European Economic Community, the paper industry lost all the protection that it had been receiving until then. This fact has put Portugal in an unfavourable position (negative balance) in this commercial sector.

(iv) The industry of resin products has been losing its competitiveness over recent years. Presently, it shows some difficulty in competing against alternative industrial products, in the internal as well as in the external market. Such commercial problems are related to the existence of quotas without rights on the imports from the Republic of China, that have caused the price of imported resin to be 20 per cent cheaper than that produced by the Portuguese industry.

2.4 Programmes supporting private forest

Since the end of the nineteenth century Portugal has had a systematic afforestation policy which has continued up to the present. This century was marked by a process originated by private initiative that led to the transformation of the agrarian space, namely by increasing the cultivated and forested area, and by a deforestation of leafy trees in the northern and central regions. Such deforestation gave place to the increase of the agricultural areas as well as the increase of planted pine areas.

In the twentieth century there was a strong expansion of the afforested area, since afforestation was the principal objective of forest policy. In 1939, supported by law, (Povoamento Florestal Lei Nº 1971, de 1938) appeared the Plano de Povoamento Florestal (PPF). Besides the afforestation of the dunes on the littoral, PPF was characterised by the imposition of afforestation of the commons. The implementation period of PPF was about thirty years (1938 - 1968), but in fact, it finished only in 1972/73. About 230 000 to 300 000 hectares in the mountainous areas were afforested. However, about half of this area were burned during the revolution period (1974/75), and after that the law of the afforestation of the commons was changed.

State intervention in the private forest areas began in 1945 with the foundation of the Fundo de Fomento Florestal. This programme, and others which succeeded it, have carried out actions of forest development between 1965 and 1986. The main action, which deserves to be emphasised, was the Portuguese forest project - Projecto Florestal Português (PFP); this was a collaborative project developed by the Portuguese government and the World Bank.

Under the PFP the afforestation of about 3 millions hectares was planned; however, during the five years of project implementation (1981 - 1986) only 80 per cent of the 150 000 hectares, foreseen for the first phase of the project, were afforested (Devy-Vareta, 1993). This project was characterised by direct or indirect intervention of forestry services in afforestation, the supplying of plants, the implantation of pastures in mountains, design and monitoring of projects, and financial facilities through loans with low interest rates and some subsidies. In discussion this programme presents some positive and negative aspects (Devy-Vareta, 1993). The final project balance was favourable to the industrial sector, which could increase their forestland areas, and which has increasingly influenced on the forest sector. The negative aspects, which led to the impossibility of reaching the project objectives in its global dimensions, relate mainly to the lack of co-ordination between all institutions, governmental and non-governmental, that were involved in the project planning and implementation. There were also some factors pointed to as constraints to project implementation, such as the inadequate and fragmented property structure, problems of financial support, lack of information and the individualistic mentality of the forest landowners.

The biggest deficiency of the project was the lack of maintenance of the projects after plantation:

> "several projects were abandoned after plantation, and most part of the areas were destroyed by forest fires or grazed by sheep and goats." (IF, 1994).

During the integration process of Portugal into the European Community, agreements supporting the afforestation policy were concluded. In 1986, a programme was defined specific to agricultural development, (PEDAP). This programme included a subprogramme of forest development, the Forestry Action Programme(FAP). FAP defined, according to the different circumstances of each region, the species to plant, available areas, different kinds of tasks to develop in the forested areas and priorities in the whole process of forestry development. The following objectives were established:

- afforestation of new areas and reforestation of the burned areas;
- to improve the already existing forest areas;
- to create and improve forest network roads, and other structures.

Besides these objectives, FAP had one innovative aspect, that remains as a referential point in the philosophy of state intervention on private forest: the project design, its submission to approval by the Ministry of Agriculture and its implementation, became a responsibility of landowners (IF, 1994). Another innovation was the fact that the responsibility of program management was under the control only one organism, the "Direcção Geral de Florestas" (Devy-Vareta, 1993).

In 1991, based on EEC regulations, other programmes were implemented which had as objectives the improvement of agricultural structures (Reg. CEE nº 797/85). To enhance and complement the results of this programme another one was implemented with the specific objective of developing the forestry sector (Reg. CEE nº 1609/89). This latter programme had the objective, in accordance with the new guidelines of European forest policy, of converting agricultural areas into forested areas.

At the present time the instruments to support forest development are based on European Union rules and programmes. From here, within the programme for regional development approved by the European Union (EU) for Portugal (Programa de Desenvolvimento Regional - PDR), arose the Programme for Forest Development (Programa de Desenvolvimento Florestal - PDF), and a National Forest Information

System (Sistema Nacional de Informação Florestal) was created, as well as other measures to support the processing and commercialisation of forest products.
The primary objective of PDR is to enhance the competitive capacity of the agricultural sector under both schemes, intensive or extensive. To reach this objective (Ferreira, 1993) is emphasised the importance of the forest holdings, as well as the forest component of agricultural holdings. The importance that the forest represents in the Portuguese agricultural economy, including the view that the forest is a good alternative for agriculture in marginal lands, forms the basic assumption underlying the choice of topic in the present research.

2.5 NPFLs and private forest issues

In this section we will analyse several economic and sociological problems, which have originated from or have direct influence on the development of activities related to the use of forest resources.
The conditions, both favourable and unfavourable, that affect Portuguese forest development have both internal and external implications. Soares (1996a) summarises the external conditions as problems of the market, of economic depression in developed countries, of the world's over-capacity in producing paper and cellulosic paste, of the increasing capacity from the Eastern European countries under lower prices, and of the increasing production capacity of the Nordic countries. In setting the objectives of our study, we are more interested in describing and discussing the internal problems.
Thus, we will analyse the internal conditions which have a sociological, economic or political nature, and will not be so concerned with the technical aspects of forestry. Another guideline for this analysis is related to the fact that our study seeks to address forest problems directly linked to the NPFLs, particularly in the Pinhal Sul region (PS), which as we will see has specific characteristics. However, it is important to remember that the problems of NPFLs from the PS are always related to the problems that affect the forestry sector either at a national scale or at an european or world level. Because of

this, we will analyse in this section some specific problems of NPFLs and, at same time, some generic problems of private Portuguese forest which could be linked to the former.

2.5.1 Positive conditioning factors

Private Portuguese forest development has as principal positive conditions the big productive potential of several forest species planted in the country and the large areas available to be afforested. If it were possible to ensure correct technical management of the forest resources, and fire protection, it would also be possible to increase production and productivity of forest products.

Concerning financial support for forest development, Portuguese forestry has financial help from the European Union, by its effective specific rules (DGF, 1992b; IF, 1994; IF, 1995). If Portugal were able to use this support effectively, it could achieve both the national and european objectives, since, as Oliveira (1993: p50) states,

> "in the reinforcement of the forest support, the European Community has the clear purpose to enlarge the European forest patrimony."

Besides the factors already referred to, one evidence of the present attitude which shows very well how the scientific and technical community relate to agrarian matters, and look to the future of the country, is the change of reference from "Portugal an Agricultural Country" to "Portugal a Forestry Country". Such a change support the new perspective, which is based on the fact that the area of soil with potential for use as forest-land is more than half of the total area of Portugal (Devy-Vareta, 1993).

However, favourable circumstances, by themselves, are not sufficient to give a guarantee of success in forestry activity. On the contrary, they demand careful analysis and selection of the actions which should be implemented in order to get maximum profit from the application of all this potential (Gomes, 1984).

2.5.2 Negative conditioning factors

In spite of favourable conditions in the Portuguese forest sector, there are constraints which make it difficult to get as good a performance as we might expect on first sight. From the information annually provided by the Forest Institute of the Ministry of Agriculture, it is possible to identify some factors which could be seen as constraints to forest development, among which we distinguish the following (DGF, 1992b; IF, 1994; IF, 1995):

- deficient structure of the forest property, which is mainly of small dimensions and widely dispersed;
- catastrophic dimension of forest fires;
- forest landowners' lack of motivation for forest development, which is caused by high risk in investment because of the effect of forest fires;
- lack of enterprise mentality of NPFLs;
- lack of NPFLs organisations;
- low level of technical management;
- lack of forestry planning in most forest areas;
- difficulty in the implementation of adequate spatial forestry management, which might allow the minimisation of conflicts about land use, and maximise the production potential and promote a harmony of interests;
- difficulty in leading a large scale process, where there would be several different interests, some of them powerful;
- lack of business services in the forestry sector, of the expected and necessary quality;
- doubts about the evolution of forest development in the European Union, particularly the concerns expressed about this evolution after the Nordic countries become members.

Besides these factors which are usually referred to by the government services or by their technicians, there are still other constraints on forest development, which, because of their nature, are not often accepted or referred to by the agents with professional responsibilities in the matter. Among these constraints we can include the problems related to the definition of a National Forest Policy (NFP) in which the government decisions and actions are discussed as well as the instruments utilised in its implementation. These problems are mainly organisational or institutional and can be summarised as follows:

- increase of the NPFLs distrust of forestry legislation and the weak implementation of forest development in the past, and
- total lack of any national forest strategy (Soares, 1996a).

Based on studies undertaken by Portuguese and foreign authors, we will discuss some of these negative aspects, with particular focus on those which are more directly related to our study.

2.5.2.1 Deficient structure of forest property

The property structure is a typical constraint raised by almost all authors who generally discuss the development problems of Portuguese forest. Hence, it deserves our particular attention during the development of the theoretical framework of our study. As we have stated before, the forest property sector is predominantly minifundia, and very fragmented. It includes about 500 000 to 600 000 landowners.

As our study region is mostly covered by pine, it seems important and necessary to make some reference to this. Vasco *et al.* (1991) refer to property structures of the areas occupied with pine and the relations that landowners have with the production of this species, as the principal obstacle to the forest development. However, it is very important to be aware of the fact that the property structure is a social factor, which depends on a set of norms related to land use and land tenure, and with the inheritance laws of Portuguese society. According to the same authors, these two elements are the origin of a phenomenon which, although it has been systematically ignored, has a relevance to the evolution of forest development. In reality, owing to the fact that landowners do not highly depend on forest resources, and because it does not, in their view, justify the investment required for its correct management and maintenance, they look to the forest as a financial reserve more than as a subsistence means, even though the forest constitutes, for most landowners, until today, in the more dependent cases, a complement to other sources of income.

In Pinhal Sul, however, the situation is likely to be the opposite: in our opinion, the norm in this particular region seems to be that landowners have strong interests in their forest lands. Some landowners may have the forest as their principal source of income, if not the only one. In general they supply their households with products from the agricultural lands and have the forest products, which they can commercialise, as their only source of income.

2.5.2.2 Private forest management

Developing from the former situation generally the principal management rule relating to the pine forest is to give priority to natural laws, and wait for nature to develop its role. Forestry, when spread among several small and dispersed areas, gives a very low revenue, and thus has a low economic significance. Such a fact, associated with commercialisation difficulties, leads to the lack of an active and effective forest management. So, passive and abstentionist management allows forest development to occur in a manner unfavourable to the real interests of the landowners and the national community in general (Morais, 1995). Silva *et al.* (1994) characterise the tasks undertaken on woodlands as interventions of a sporadic character and without any concern for the use of the correct techniques of tree management. However they attribute the responsibilities, not only to the landowners' absenteeism, but also, or mainly, to the reluctance of most landowners to adhere to associative actions.

Although the property structure may be a major conditional factor in private forest management, it is not unique: other factors, related to economic and social matters, have a strong influence on the type of forest management that the forest landowners follow on their properties. We could refer particularly to the emigration phenomenon, which has caused a "desertification" process in rural areas. Associated to this is directly linked the agricultural crisis, which has been stimulating the abandonment of agricultural activity, and obliging the farmers to try to find other ways of living. All these factors, by the transformations they cause in the Man/Forest relationship, have raised big problems in traditional forest management (Louro, 1988).

In his study of the evaluation of the economic importance of pine, as well as the recognition of pine as a species with a high economic value, Louro (ibid.) also recognised that its potential has been under-used. Such under-use is mainly related to the deficient technical management of the trees, which is usually conducted by small landowners, with a fragile economic potential and without technical knowledge (DGF, 1983). In conclusion, we could refer to questions more problematic to NPFLs, such as their mentality and their progressive separation in the rural world. Thus, the forestry scenario is

> "a result of continuous process of inheritance, which leads more and more to the division of the property, a result of a lack of a market as a centre for all forest activity, and the use of abstention as a rule of management." (CFC, 1993: p20).

Consequently the question arises which the landowners of the North and Central regions have to face as a challenge: how to manage and protect landowners' forests?

2.5.2.3 Forest fires

The problem of forest fires is historically associated with the ecosystem dynamics in Mediterranean areas, so far as they are considered as a natural phenomena, as long as they do not reach large proportions. However, in recent years, forest fires in Portugal have been seen as reaching a catastrophic scale (Appendix 2.2) (DGF, 1992; Martins *et al.*, 1994). Although such problems are general to the Mediterranean area, we will be concerned only with the analysis of this problem in Portugal and particularly in Pinhal Sul. Pais *et al.* (1991) pointed out that forest fires present a problem without solution, so that we have to live with it forever. On the other hand, he considers that some measures should be taken, in order to bring the occurrence of forest fires to acceptable levels likely to be levels which are usually accepted as natural phenomena.

Those aspects generally discussed as problematic are mainly the origin and causes of fires; their effects on the forest and communities; and the potential ways to prevent and attack them. As regards the causes and origin of fires, at least two important indicators should be addressed during the discussion of such problems, which easily show us the size of the problem we face:

- the number of fires with unknown origin is generally over 80 per cent;

- 95 per cent of forest fires are related to human action (DGF, 1992; Martins *et al.*, 1994).

The latter indicator shows that part of the actions necessary to decrease the tragedy of forest fires must concern the human component which is related to the forest, whether the objectives are economic exploration or non-economic. So that, parallel to the technical measures, generally pointed out, to prevent fires (roads, fire-breaks, water reservoirs, forest cleaning and so on), there is a need for adopt measures to create awareness among the population and promote education in schools.

At least one aspect is common to almost all authors: they agree that by merely increasing the effort in order to improve preventive actions, the problem of fires could be decreased (Pais *et al.*, 1991; DGF, 1992; Martins *et al.*, 1994).

> "To fight we should use not only the sword but also the shield - prevention." (Pais *et al.*, 1991: p194).

The creation of an effective Forest Extension Service is referred to as the starting point for the implementation of any decisions, in order to make possible the success of such decisions.

> "So long as the Ministry of Agriculture would have technicians exclusive to this area, making them aware, giving education and information to the populations in general, as well as the forest landowners and the local authorities, it will be always problematic to carry out the wished improvement for fire prevention actions." (Pais *et al.*, 1991: p195).

In agreeing with this, we also should note that an extension service will be as efficient as the level of organisation of the landowners (Garforth, 1994). Thus, the promotion of organisation initiative should be one of the objectives of such a service. The same author added two more measures, which he thinks are very important: which are to try to achieve an effective co-operation between all institutions that are related to this problem; and to empower the local government authorities.

As we also conclude from the first part of our study, Pais *et al.* (1991) also stress the fact that it could be the people from local government who find it easier to transmit the message to the forest landowners, and with whom they could better and together protect and look after the patrimony that belongs to them.

The forest fire problem is not a simple one, so whenever we try to discuss the prevention of fires it is important to be aware that nowadays the forest fires is a national problem, that affects the forest landowners and brings with it economic, social and ecological problems. Thus,

"the forest fire is a political problem." (Martins *et al.*, 1994: p159).

As best proof of this statement we have the strong interest of political parties in using this topic in the discussions for the elections in 1995, enhanced by the fact that this year registered an abnormal (catastrophic) number of forest fires.

During the period of the fires, generally all radio and television channels started their news programmes with the problem of forest fires around the country. Never before had the mass media covered so intensively and precisely such a matter as in 1995. Presently the principal question raised is about the existence of individuals who have or do not have interests in the occurrence of forest fires. Formerly, in 1988 a key question was raised "if it will not be very dangerous the increasing of the number of individuals who profit from the occurrence of forest fires?" (Pais *et al.*, 1991). In 1995 and 1996 the mass media, and entities with responsibility in the agrarian sector, used to talk about the "industry of forest fire".

2.5.2.4 Forest's global management system

The specific conditions involved in forestry production, when conducted under economic objective, brings some complexity to the decision-making process of producers, dealers and industry. Hence, their need to plan and manage forest production in scales with a larger time dimension. Presently, in Portugal as in other European countries, there are no doubts about the important role that could be developed by private forest producers and their organisations for production as well as for commercialisation. On the other hand, with knowledge of the natural suitability of the Portuguese soils, and with the support given by the European Union as a result of its last agrarian policy reform, a high increase of afforested surface area in Portugal is predicted. Thus, some pertinent questions about the forest's global management system are raised, based on the idea of a new rural reality, which is characterised by the abandonment or "desertification" of the agricultural areas, which in their turn are now available for afforestation (MacConnell and Archey, 1986; Morais, 1995).

Citing the Minister of Planning and Administration of the Territory (in the "Jornadas de reflexão sobre o PDR e o Mundo Rural 1993"), Magalhães (1993) states that:

> "The one who has forestry activity as a profession, in order to achieve the possible and desirable scale, has to separate the concepts of property and exploration, or to promote land consolidation, to introduce the idea of a new service which, taking care of the forest of other landowners ensures the correct use of the resources and promotes the natural equilibrium, that only a well planned forest could establish."

The basic idea of this speech is to separate the concept of property from the concept of management of forest resources. According to this concept, forest management must be seen in a global perspective or on a large scale instead of under an individualistic perspective of the majority of the forest owners. Thus, a global forest management system is concerned with the harmonisation of all forest values, the productive, environmental and social.

Whenever we refer to the non-industrial private forest, there is a unanimity in assuming the lack of forest management, and in pointing as the main reasons for such a problem the governmental forest services decisions of the past, and the landowners options regarding the land tenure rights. An approach to a global forest management system in mountainous area, (SPCF and UTAD, 1988) gives some guidelines, which, in our opinion, summarise the essence of what should be the orientation of the Portuguese forest management actions:

- a global forest management system requires integrated and interdisciplinary plans, which embody all different entities involved in the process;
- it is urgent to create adequate juridical and institutional infrastructure;
- it is fundamental that the forests planning of the mountainous areas becomes supported by adequate forestry extension.

Following the same opinion, Digby and Edwardson (1976) state that measures or management plans would be possible to implement only if there is opportunity and capacity for intervention on the private rights domain, that only political decision could determine, but that the present legislation is not adequate for such interventions.

2.5.2.5 National Forest Policy (NFP)

Whenever we think of answers to questions, like the above-mentioned, such as how to manage and protect the forest? what to do with the forest property? what would be the objectives of developing Portuguese forest activity?, or still the question, what instruments might the forest landowners expect to support their activity?, we ask about National Forest Policy (NFP). One major question raised in discussion is whether Portugal has or has not a real NFP. Several authors hold the opinion that it has never existed in reality, but only as a passive policy. Hughes *et al.* (1994) accuse the state of having been intervening on private property under public intervention models, more adapted to environmental and social forest functions. They put the responsibility on the government for disturbance in the sector, and state that the principal reason for this is a complete lack of a NFP consistent with the real needs of the forest sector.

Soares (1993a) considers the forest policy followed so far to have been a disastrous policy, which only embodies several unconnected legislative instruments. His criticism is related to the creation and implementation of a NPF, but different from the simple application of EU rules, or afforestation plans, and appeals for the participation of landowners.

Following on the idea mentioned above, Soares (1993) states that, presently, the principal problem of Portuguese forestry is the lack of a national forest plan, for the medium as well as for long term. Forest policy has been expressed as a single concern, the application of community rules and funds. According to the author,

> "such passivity will continue or will be increased with the adherence of the Nordic countries as community members. These will certainly apply pressure in order to limit southern Europe's forest to its environmental dimension." p40

Soares (1996a) criticises the lack of a well defined NFP, which also could and should be used as a guidance in European meetings where forest problems are discussed and where the decision-making takes place. From this the Portuguese capacity to discuss and defend its interests would be enhanced, as well as its participative capacity in European policy, since there are some countries (Northern countries) interested in decreasing timber production in Portugal, in order to allow them to sell their surplus. The author considers that, given Portuguese forestry dimension, and without a defined policy, our participation in the definition of European forest policy is not legitimate.

In the conclusion of his study of evaluation of FAP, Baptista (1994) states that the implementation of these projects, as in the past, has followed the same wrong logic. This is because they were only concerned with the practical or technical implementation of the projects, trying to enlarge the forested area, but always without any participation of landowners and the communities. This enhances the idea presented by the authors previously referred to that the Portuguese forest policy has been limited to the practical implementation or application (insufficient) of EU rules.

The principal reasons that explain the lack of a NFP are more linked with organisational and administrative aspects in the government itself, rather than with technical aspects. In accordance with Hughes *et al.* (1994), the responsibility of designing and implementing a forest policy cannot be shared among eight ministers and local authorities, as it was until nowadays. Therefore the author considers indispensable the creation of a single organism which has the capacity and the power to develop and implement a forest plan, and to assume all responsibility of the forest sector.

Given the forest ecological, environmental and social values and the fact of the incapability of the almost of the small forest landowners, it is generally accepted that the state should intervene in private forestry. As Coulomb (1993) points out, whatever forest policy for private non-industrial property, it might go through by the government intervention through its legislative power and economic support. He, therefore, considers that without government intervention we will not have forest development, because "trees have different logic from other agricultural products". On the other hand, Melo (1993) emphasises the fact that until now, there has not been participation of landowners in the definition process for policy design, and in forest development. So it is necessary to correct such a deficiency, in order not only to achieve a better fulfilment of landowners' interests, but also, and mainly, to involve and make them responsible for the forest development.

Soares (1993) refers to the urgent need for a national forest strategy grounded on political commitment. Such a strategy should include objectives, instruments and methodologies, which would enable the forest landowners to leave the blind alley in which they have been so far over past years, which has led them to become absentee or to abandon their properties. The same author presents also the paradox of Portugal's claim for an European forest policy, instead of designing its own national policy earlier.

Soares, Like Baptista (1994) and Portela (1993), also highlights the importance of Portugal designing its national strategy, to use as guidance on European discussions, and in this way, to give a better contribution for European policy design, through a participative action, instead of accepting impositions from other countries, and consequently not limiting Portuguese action to EU rules and funds application.
Trying to draw conclusions from an evaluation of FAP, Devy-Vareta, (1993: p67) gives the opinion that:

> "except for the quantitative objective of increasing the afforested area, the other results were lower than expected. Therefore, the execution of afforestation projects leads to overcoming the structural constraints, and the landowners' disinterest."

Negative criticism of the afforestation programme (FAP) is centred on the absence of a single institution which would be responsible for programme implementation, and where all interveners in the forest development process (expansion and maintenance) should be represented. As a negative example of such fault, the author points out that the interventions of several different government institutions, the absence of political desire, and problems related to the public sector, contributed to postponing the creation of an extension service, which had been promised about ten years ago, endangering most of the actions that were planned. However, this is not a new experience, since the same had happened in the previous programmes MAPA (1994). In his final conclusion about PFP, besides other criticism, the author finishes with the statement

> "but the extension service was not created!..."p14.

So, this under-estimation of the potentialities of the extension service affected the PFP, it affected the FAP and it continues with the present programmes. Moreover, and paradoxically, this is occurring despite the expressed view of several authors and researchers, some of them with responsibilities in the sector, who advise of the necessity of developing political will, desire, and engagement for the creation of an extension service that should be efficient and adapted to the problems which the forestry sector has to face.

At first sight, it seems there is no doubt about the future of the Portuguese forest; Hughes *et al.* (1994) present the idea that the future of Portuguese forest is very simple: it is related to "forest development on a sustainable dimension, which reaches an

equilibrium between the most important economic, social and ecological needs". Furthermore they add that, independent of all technical and practical aspects of forest activity, the direct or indirect decisions of landowners are determinants of the potential competitiveness of forest clusters, and of its social and ecological impact as well. For Magalhães (1993) the big challenge of Portuguese forestry is to try to get a harmonisation between the social, ecological and economic dimensions, through their paradoxical characteristics relative to the type of property and to the market types. The former problem (property structure) should begin to be solved by research into efficient management models for private forest property.
As measures for support of the design (or definition) and implementation of a national forest policy, Alves (1993) appeals to the improvement of scientific research, and makes special reference to the fact that scientific research should include something more than technical aspects, such as the capacity for transferring new techniques to the practice. On this matter, he considers indispensable the empowerment of institutions in dealing with private forestry activity, following both national and individual interests. Hence, the author points out the

> "necessity of developing the organisational process of forest landowners, since the success of any forest policy, in the future, will be dependent on landowners' organisations and on a governmental forest service more active in terms of practical actions, more competent and encouraged." (Alves, 1993: p46).

2.5.2.6 Forest landowners' organisation

According to the issues discussed in the previous sections, we have already seen that whatever the NFP comes to define for the private forest, it has to be concerned also with the associative and organisational factors of the NPFLs. This idea is not a new one, however, as with other ideas in the issues of private forest which we have been discussing, it should not be abandoned because of this. On the contrary, we think that if association is a factor insistently focused on through the years, it should be faced with clarity and with openness, in order to contribute to resolving the situation.

Portugal has some experience of the associative process. However in rural areas, and relative to agricultural associations, in spite of some good examples, the overall situation has not been so successful. CFC (1993) refers to some successful experiences of associations of socio-economic interests; however, in the production sector the experiences have not succeeded so well over all agrarian activities. The principal contributions resulting from the application of associative forms in the agrarian sector, especially the co-operative, are the developments in commercialisation and transformation of products, and the supplying of production factors.

Socio-professional organisations usually give power, enforce claims and confer negotiation power, but are also necessary to solve the problems of forest management. Mexia (1993) presented the example of joining small areas in areas large enough to allow an effective forest management. This author has developed some studies in forest landowners' associations, but in a cork tree region. Despite the specific characteristics both of such forest, and of the property structure as well, cork producers have already achieved a high level of association and of organisation, which has enabled them to discuss and to solve some problems raised with integration into the EU.

After Portuguese integration into the EU, the huge financial instruments destined for forest activity initiated with FAP, and followed by the present rules of the new CAP (for example Reg 2080), require from landowners, more and more, the responsibility of becoming organised (CFC, 1993). Just as stated (DGF, 1991), the priority task of DGF, among others, would be to develop efforts in order to promote the associative and co-operative structures and the training of forestry workers in different skills needed by present forest activities. But, there has been no result from such a campaign, concerning the promotion of association. Thus, presently, we have only, as a starting point, the low level of association of the almost 400 000 / 600 000 forest landowners (Hughes *et al.*, 1994). For example, in PS there are no associations of forest landowners. However, based on our personal experience and knowledge, we have indications which lead us to believe that something might need to be done, since we met a significant number of landowners believing in and interested in trying to form associations. According to Baptista (1994), there is no forestry culture in Portugal. This concept of forestry culture has been approached by the Spanish sociologist Vilariño (see (Vilariño, 1989; Vilariño, 1992; Vilariño, 1993; Vilariño, 1993a). However, based on study findings, and based on Vilariño (1992a: p6) who considers that culture

> "is the shared symbolic, which integrates and gives cohesion to the social groups or to a society,"

we can admit that, given Pinhal Sul's specific characteristics, there is a forestry culture in the region, in spite of the lack of association or organisations related to forest activity. Through our observation and field work findings, we know that in the PS region non-co-ordinated action has happened with the intention of promoting associations or any forms of organisation. The unique association action in the region occurred during the FAP implementation, when several groups of landowners submitted common projects. However, it did not mean that they got associated; they had only the intention of getting a higher subsidy offered by the EEC and Portuguese government. Thus, the image of a Forest Landowners Group was raised, but in reality, the landowners involved were members of nothing, and in some cases, they had never met or remained unknown to each other. One can therefore say that the intention of association was never present in such a process. According to Baptista (1994) these groups were never supported, because their existence was compromised from the beginning. Grouping generally assures a large (extensive) area which is difficult for management and exploration and which in turn must be efficiently managed relative to financial supports and to technical knowledge. Extension was absent in the promotion of an association among the landowners, before and after becoming grouped, and in order to enable them to be motivated and interested in the project. The failure of associative capacity is generally attributed to the lack of extension teams, as these teams, contrary to the promise or plan in FAP, have never been created.
Such lack of extension activities was verified in the World Bank projects; the same has happened in FAP. We believe, with Silva *et al.* (1994), that it is important and necessary to research into the forms or ways of inducing association among NPFLs. One main reason is the assumption that given the limits of the plots' dimension, the pattern of planned forest management should be according to the achievable level of landowners organisation. We hope that our present study might present a modest contribution for the promotion of forest-landowners' associations or organisations in general and for PS in particular.

Technical and structural forest problems are not new. Regarding the EU regulation Reg. 2080/92 and its purposes (as well as in other regulations), Morais (1994) notes the

indispensability of adequate execution of social and productive forest's functions, and imperative promotion of association among the possible producers of forest products, with the meaning that they progressively would become real forest entrepreneurs.
In Hughes' *et al.* (1994) opinion, the central mechanism for forest management improvement is association of landowners. He discusses the objectives of such associations and presents a methodology to approach the landowners with the objective of leading them to become associated. This methodology is based on an approach to an important problem, common to all forest landowners, and after that to spread the discussion to other problems and issues which, in order to allow a correct forest management, would lead to the creation of an association. The same opinion is presented by Silva and Ferreira (1991), who warn that the landowner groups created with the purpose of getting higher subsides from FAP, could however be used as a starting point for real association. However, just in 1991, this author stated that such evolution would not be possible, except with a planned intervention by the public administration, and with incentives for the landowners to become organised. The creation of an extension service was implicit in this idea.

Seeking the optimum use of pine, DGF (1983) proposed, among other technical measures, the implementation of promotion and education actions in forestry association, forestry planning and ordering. Besides that, it emphasises the importance of developing an adequate structure (forest extension service) for technical support of producers and an adequate specific credit policy for the forest sector. The lack of an extension service hinders the possibility of promotion of the association or organisational process. So, without both these important factors, funds from EEC and from the government have low possibility of being used in an efficient manner, and consequently of promoting the expected forest development. Hence, it looks like a dependent law: we will not have forest landowners' associations if we do not have an efficient extension service. Baptista (1994) also accepts this idea, and he foresees the important role that an extension service could represent for Portuguese forest development, believing that the diffusion of innovations, technical support and the promotion of association and organisation, could make a large contribution to rural development.

2.5.2.7 Forest Extension Service - FES

The systematic reference, by several authors, to the need of the creation of a real forest extension service in Portugal, and the promises of several governments, each time that an afforestation programme is prepared to be implemented, by themselves, would be more than enough to justify the pertinence of this issue (DGF, 1983; Silva and Ferreira, 1991; Baptista, 1994; Hughes *et al.*, 1994). However, we think that it is important to introduce further considerations, which could reinforce the idea of the indispensable creation of a FES, with the sense of giving confidence for further forest development interventions, desired for the national forest, namely for NPFLs.
Presently in Portugal the creation of a forest extension service is more a political than a technical matter. As a principal reason of national afforestation programme failure, besides the structural problems and the budget limitations, Silva and Ferreira (1991) attribute a large responsibility to political disinterest, more precisely to the lack of creation of a FES. Hughes *et al.* (1994: p70), who is also an apologist of FES creation, discusses some basic lines which should be followed by such a service on the commitment of its functions related to the forest. In this sense, he states that

> "the most important role of public FES is the promotion of the adequate use of Portuguese primary natural resources."

To accomplish this, it is essential to have a correct soil use and preparation, to prevent fires, to choose adequate species, to give the know how to use them, give technical training in order to improve forest landowners' management skills. So, the FES should become a reality, and should be decentralised. They should give specific technical advice, in order to help landowners in decisions as to how and what to do with their lands. They should make society aware about general forestry problems, trying to develop a public opinion favourable to such problems, which would have the double benefit of firstly more balanced public opinion and secondly, the increased importance of the forest problems management (Silva and Ferreira, 1991).

Financial limitations are reasons usually presented as a justification for not creating a FES; in seeing this, we are led to agree with Baptista (1994) who refers to a wrong distribution of funds to the different programmes components of FAP. On the other hand, and in addition of this, we think as referred author who states that,

> "excepting some pilot experience, there will be no tradition of forest extension in Portugal." (Baptista, 1994: p29).

The training of extension agents should be the first step in the implementation process of an effective forestry extension service in Portugal. Regarding human resources, Portugal has already a sufficient number of technicians specialised in forestry production, who, after receiving specific training forestry extension, could completely fulfil the demands of a national FES as it is recognised. Developing such services remains a question of political will.

2.5.2.8 Intermediaries in forestry activity - Timber dealers and loggers

The logger appears as an intermediary agent because of the NPFLs' lack of technical and economic capacity for exploring forest resources (timber and resin) in an individual way. In addition to these reasons, also the lack of landowners' organisational capacity for doing such activities under a collective approach, and the need to solve the commercialisation problem, contributed to the emergence of such agents. However, the loggers' activity has developed in such a way that the NPFLs are almost obligated to negotiate the extraction of their products and trading with them. This situation has proved disadvantageous to the landowners, since their dependency was raised, and given the landowners' lack of capacity in exploring their forest resources, they have had to accept the logger's conditions. This means that landowners have only a low possibility of discussing prices as with other rules of such negotiation. Given this, they operate under the logger's rules that are oriented by the purpose of achieving the maximum profit. As a consequence, landowners get a low revenue from the forest, which leads them to be less motivated and to tend to abandon their forest (Castro, 1991; Martins, 1993; Forestis, 1994). Despite this negative effect usually attributed to the loggers' activity, their intervention can be viewed as having a positive role in forestry activity (Vasco *et al.*, 1991). According to Vasco the loggers' intervention has been justified and accepted up to the present time because of the government's lack of capacity to promote associations, and in supporting the landowners to become organised, who, through this organisation or association, could become independent of intermediaries. However, it is quite frequent to attribute to loggers the responsibilities of all forest management problems, and they are generally connected, by common opinion, to polemic issues.

It is possible to summarise the positive and negative aspects of the logger's role as follows: the positive aspects are mainly associated with the fact that, individually, landowners have no chance to manage their forest resources themselves; the negative aspects are their expectations of maximum profit, which leaves the minimum revenue for the forest landowner, which, consequently, leads to the forest being abandoned (Vasco *et al.*, 1991; Sá, 1994).

Although recognising some responsibility of loggers, Vasco *et al.* (1991) excuses them from the major negative functions that usually are associated with their activity, and often are pointed to as constraints to forest development. The author rather emphasises the government's negative role in forest development. In his opinion, the government should be the principal protagonist, intervening through an efficient technical involvement in all questions or problems usually judged as causes of loggers' activity, since loggers can only do what the government allows them to do. The loggers may or may not, as they are often criticised for, be contributing to the decreasing motivation of forest landowners and for the decreasing forest quality, given that they generally pay low prices for the products, and that they usually buy, and cut, the best specimen trees, because they can get more profit dealing with such material. However, their interest in the best trees is merely economic and it causes a huge decline of genetic patrimony.

2.6 Conclusion

According to the characteristics presented above of forestry's specific problems in Portugal, it seems legitimate to conclude with two likely outcomes which are linked. The first is related to the definition of a National Forest Policy (NFP), which could be grounded and supported by the second, an effective and efficient Forest Extension Service, that should be able to give technical support, to give information and promote situations of an associative and organisational nature. We believe that, these are the two principal issues to be considered in order to promote forest development. Otherwise, and in agreeing with Soares (1996a) it would be lamentable and unpardonable that Portuguese forestry authorities do not want and do not know how to get profit from the excellent conditions created with the integration of Portugal in the EU.

3 BACKGROUND OF THE STUDY

Studies of social groups are usually based in theories of collective action. Therefore our research has developed its theoretical framework based upon the discussion of collective action in agriculture and particularly in forestry. Moreover, given our area of interest, the emergence of farmers' organisations has been examined. We have presented some general aspects regarding these organisations, paying attention to the diversity of situations involved. Consequently we have been interested in constraints affecting their implementation and their work, which will affect the organisations' efficiency either directly or indirectly.

To provide a clear picture of the issues involved in this research and to understand its specific aims and implications, forestry organisation in other European countries are examined. In doing so we have focused on countries with forestry and forestry policies closely related with the Portuguese forestry, by either competing or facing the same problems. Given the need for a deeper understanding of Portuguese forestry organisation we have addressed it in a separate section. Finally we have described and discussed some useful concepts and definitions in order to complement the theoretical framework of the study used throughout the thesis and in the fieldwork.

3.1 Conceptual framework of the study

Grouping is a common strategy and a social characteristic of all civilisations. In general by establishing groups as action units individuals open up opportunities to mobilise resources that would not be harnessed otherwise, to adopt some technological innovations through which some needs may more easily be solved. Groups can also be powerful psychological incentives for the consensual action of their individual members (Cernea, 1992). The very frequent utilisation of groups in any field of human activities, has led sociologists to study the grouping process in order to learn how it works, and to distinguish between lumping individuals together in an artificial entity labelled as "group" and an effectively established and functioning group. According to Cernea (1991: p13) the establishment of a group, usually implies

> "a process of selection or self-selection of the members, the willingness to associate, the members' perception of both self-reliant advantage and co-responsibility, and the establishment of an enduring intra-group structure with well-defined functions."

Given the huge and diversified content involved in such a reference regarding the grouping process, it would be better first to discuss the fundamentals or the reasons for leading individuals towards collective action and later to discuss the issues related to the group itself.

3.1.1 Basis for collective action

As the form of our study has to do with farmers' organisation, we will strictly approach this issue in terms of what concerns farmers' behaviour regarding collective action. Farmers are usually individuals that by force of circumstances have solitary habits. Their involvement in their activities and the spatial dispersion of their residences are some of the reasons that contribute to this. Such a way of life is in contradiction with the prerequisites for the occurrence of collective actions.

> "Collective actions have the highest chance to occur and be effective when people belong to organised groups, when they are informed and consciously perceive that it is in their best interests to act purposely in a co-ordinated manner, and when the group has developed leadership structures and internal norms and procedures suitable to organise and manage its members and to overcome conflicts and deviant behaviour." (Cernea, 1991a: p344).

In order to understand the phenomenon of collective mobilisation, it is therefore crucial to examine the values of the individuals who commit themselves to it. These individuals' values have three components: the value of his/her own actions; the values of the actions of the members of other organisations; the values of the actions of the organisation as a whole (FAO, 1972; Birnbaum, 1988)

Conditions for farmers' group action - In agreeing with Olson (1971) we assume that individual use of a common good, or individual benefits derived from its existence, provide the motivation to engage in group action. On this basis we could accept that group action can only be developed if a number of conditions are met regarding the nature of the benefits, and the circumstances of their provision. These conditions are: collective good; organisational good; individual and compensatory profit; functional identity about the members role; appropriate group size; structural guarantees (Doherty and Jodha, 1977). Two more preconditions to the individuals' collective actions, were suggested by Arnaiz (1995): the willingness to share risks and responsibilities and the willingness to manage one's own investment communally.

Giving and taking is another basic principle common to all associations: to get personal benefit from association we must expect others to give as well as receive (Curtis, 1991).

In a more focused approach, the interests of the individuals become dominant as Mueller (1994) states, that the main reason urging farmers to co-operation is self-interest, and specifically individual benefit. Without it very few farmers would seek co-operation aiming at a common interest. On the other hand some authors have emphasised the context and the opportunity for the collective action. Then, according to Bebbington *et al.* (1994) citing Garforth (1993: p9),

> "Organisations emerge and people join them, often in response to particular local problems and particular opportunities."

Arnaiz (1995) also highlights the importance of the past experience of those engaged in such a process, agreeing that:

> "aside from the need for the catalysing effect of a problem or opportunity, organisations are more likely to emerge and be sustainable in enabling environments, where there is local commitment to the idea of collective action, and where historic factors are conducive." (Bebbington *et al.*, 1994: p9).

In addition, the author also refers to the relationship among the members of the community as conditioning the organisation process: conflicts among and within local villages affect the emergence and the work of the organisation.

Looking to the associations as organisations, and assuming that organisations are, basically, devices to enable people to achieve things which they would otherwise not be able to achieve, Pratkanis and Turner (1994: p1) also point out that:

> "usually people take part in an organisation in order to get benefits which they could not achieve by acting on their own, and their participation implies that inputs as well as outputs are shared."

In the opinion of ISNAR (1994), the presence of facilitating contextual factors plays a substantial role in the emergence of farmers' organisations, shaping the political, economic and social environment within which organisations consolidate and operate. To the farmers' organisations, five sets of factors appear to be the most important ones: political situation (promotion of rural life), donor and government policies (decentralisation and participation of the farmers in decision-making), institutional environment (extension services), agricultural economy (the importance of the sector and of the products to the farmers), and rural context (tradition and experience in collective action). Moreover, the same author adds that the types of contextual factors that seem important for the emergence of a particular organisation depend on the scale or the structure of the organisation, its origins, and the roles and functions that it performs. Regarding the contextual factors, the farmers' educational level and skills are frequently referred to as conditions or prerequisites for the implementation and consolidation of the organisations. Referring to the farmers' participation in co-operatives, Mariadis (1972) states that the ignorance of farmers makes them reluctant and feel that they would possibly not like to become members of a co-operative. Schiller (1971) holds the opinion that every group, however casual, meets to do something through its members' co-operation; and their co-operation calls upon their knowledge, experience and skill. In the same way, Hopkins (1992), discussing the influence of education on organisation, stresses that mobilisation is a matter of education. Those who parse the issues have clearly explain it to others, who are then mobilised to solve the problem. However, the author advises that things are seldom that simple, since the perception of the risk involved in carrying out a decision could play a determinant role in such process. Hence, we can conclude that the aspect of risk could overtake the educational aspects. According to Hopkins (1992), the organisational process depends on people's perception of their problem, not just on listening about it, and adds that

> "Such perception would be linked to the traditional views or to modern media and it could be a matter of direct perception, or the outcome of particular painful experiences." (Hopkins, 1992: p48).

Given that, it seems fair to conclude agreeing with the idea that to the implementation of any kind of organisation and before the organisation itself it is indispensable to educate the potential members about their role as members, in order effectively to participate in the organisation (Barros, 1979). However, it is also indispensable to be aware that:

> "Rural people's knowledge is not static, it is constructed through the socio-economic and cultural histories of the regions within which people live". (Bebbington *et al.*, 1993: p9)

3.1.2 Farmers' organisations

In all parts of the world there have been a diversity of farmers' arrangements made in order to assist one another in such intensive agricultural activities as planting, weeding or harvesting. Most of these arrangements are based upon mutual help between families or neighbours, but some are undertaken on a formal basis constituting farmers' organisations. In theory, any formal farmers' organisation, independently of its form, should be grounded upon the general principles of organisations, which can be inferred from the definition of organisation itself. In this case, the definition presented by Robbins (1987) provides a general overview of the factors involved in the creation and functioning of any organisation:

> "An organisation is a consciously co-ordinated social entity, with a relatively identifiable boundary, that functions on a relatively continuous basis to achieve a common goal or a set of goals." (Robbins, 1987:p 5).

The constitution and functioning of such an entity is dependent on its structure - the way its components are articulated in order to pursue the organisation's goals. The structure has three components: complexity (considers the differentiation within the organisation), formalisation (the degree to which an organisation relies on rules and procedures) and centralisation (considers where the locus of the decision-making authority lies). Therefore, to design an organisation means to be concerned with constructing and changing an organisation's structure to achieve the organisation's goals. Thus, structures have to reflect the interests of the different elements involved, which in general are likely to be different and complex. Such diversity of interests, in its turn, brings inherent difficulties in assessing responsibilities (Robbins, 1987; Curtis, 1991). Obinne (1994) points out that the basic attribute of a formal organisation is its functional foundation, and its structure reflects the conception of the planner about how the organisation's objectives may best be achieved.

Not following all the above mentioned principles strictly, Chinchankar (1986), cited by Arnaiz (1995), presented a model of a farmers' organisation, the self-managed group, suggesting that the act of getting together in an organisation is based upon the following elements: getting together to pursue common interests; pooling resources for communal use and communal benefits; sharing risks and responsibilities; and control and management of the groups' economic activities through participatory decision-making.

Farmers' associations are another organisational form, derived from a different approach to the act of gathering individuals around a common objective. The frequent use of this concept leads to different interpretations. It can be viewed as

> "a form of organisation which entails the most straight-forward form of sanctions. From the point of view of individual initiative the simplest action is to combine with others who face similar problems or opportunities." (Pratkanis, 1994: p19).

This definition allows us to understand the individuals' freedom towards membership, where each one is aware of the possibility of withdrawal of membership, and behaves according to their power of exclusion. This exclusion can be performed in different ways: by preventing some categories of people from joining or by a constitutional device that enables a member to be dismissed. Because of the diversity of ways for individuals to conduct their organisation, the author states that

> "the easiest way of getting people together to solve common problems and produce benefits can be called an association, although the term needs to be interpreted to include a number of arrangements which may go under another name." (Curtis, 1991: p31).

Attempting to clarify the distinction between the different kinds of farmers' organisations as to their purpose, their structure and their social dimension, Carpenter *et al.* (1982) divided them into three broad organisational types: local grassroots organisations, federations or networks, and national farmers' organisations. Local grassroots organisations are formally constituted groups where members are drawn from a community or a group of communities. Interactions are mainly face-to-face and the organisational structure is more horizontal than vertical. Federations or networks are multi-tiered organisations composed of an apex body and base units. Finally, national farmers' organisations are vertically integrated organisations with a single governing board, usually with specialised committees and sub-units (ISNAR, 1994). Attributing more importance to agricultural insight, namely concerning small farmers, than the above definition, ISNAR (1994: p4) describes formal farmers' organisations as

> "legally constituted entities representing small-scale farmers producing a range of commodities, having the following traits: an identifiable membership, an identifiable mission or purpose focusing on agricultural development, a governing body and rules of decision making."

Following a restrictive assumption of farmers' behaviour, the organisational process can be developed through a reductionist point of view, in which it is assumed that minimal organisation is the best organisation: that is, if people can manage without having to co-operate with others they will do so. If they do have to co-operate with others they will prefer the most simple form of organisation possible to achieve the goals (Curtis, 1991). According to this, the increase in the goals, and the shape of the farmers' goals as well, would determine the evolution of the organisational process, which should be accomplished through a bottom-up approach.

Co-operatives, as one kind of farmers' association, are the best known form of farmers' organisations throughout the world. However, because of the different interpretations of the meaning of the concept of co-operatives and because of the use of the name "co-operative" by different kinds of associations, it will be useful to make some comments regarding co-operatives. Studying the co-operative movement in Europe, Dooren (1974) presents the evolution of the definition of co-operative'. After analysis and discussion of more than fourteen definitions, it appears that despite the lack of a generally accepted definition of co-operative, there are some common principles which have been followed by the European co-operatives in general,

> "the common principle is that a co-operative union is an association of members, either personal or corporate, that have voluntarily come together in pursuit of an economic objective." (Dooren, 1974: p18).

Such a principle is supposed to be followed through the establishment of democratically-controlled business organisations, through a fair contribution of the members to the joint capital and through a division of both risks and returns. Another principle common to co-operatives is the social principle of solidarity. However, such a principle is somewhat idealistic, since from the point of view of those who shape the co-operative destiny they operate based upon the market economy's principles: competition and profit achievement. Because of this, strict business and commercial interests predominate over idealistic principles (Dooren, 1974). Such an economic way of guiding co-operatives constitutes the main reason for the appearance of new forms of co-operation. One example of this evolution in co-operation between farmers comes from the French CUMA "Cooperatives de Utilisation de Material Agricole" and the Machinery Circles from Germany - in which the primary goals were quite obviously economic, just as a farmer's motives for joining such organisations are mainly of a business and financial nature (Kobke, 1972). This point contrasts with the particular farmers' co-operatives' characteristic, recognised by Souplet and Mckone (1983), according to which they are not concerned with return on capital, as such, but with overall results that can be used by the farmers involved with it. These authors also propose a global definition for agricultural co-operatives:

> "is an organisation of private law, established by farmers, in which the freedom of members to join and leave are essential elements. By the concentrated efforts of its member co-operators, it seeks to fortify their individual farm holdings and to provide them with an extension at the economic and commercial level." (Souplet and Mckone, 1983: p39).

An organisation's goals can be understood as a desired state of affairs which the organisation attempts to implement and they tend to aim at three purposes: to serve as sources for legitimising the organisation; to provide ideal situations that are sought as ends in themselves; and to offer a yardstick for performance measurement. Within farmers' co-operatives, the goals of efficiency (the ability to obtain the greatest possible return) and satisfaction (of its employees or members) were seen to be the most important and were the most desired (Warren *et al.*, 1975).

Verhagen (1984), assuming that members' participation plays a crucial role in co-operative consolidation as well as in its evolution, discusses the farmers' approaches to co-operation under the perspective of member participation in the co-operatives, and concludes with reference to two different approaches: the conventional and the participatory. The following scheme introduces some of the features of those approaches, presenting a general idea of the range that a co-operative movement could eventually assume and pointing to examples ranging from the more conventional to the more participatory approach.

Figure 3.1 Conventional and participatory approaches of the co-operative movement

Conventional approach	**Participatory approach**
Co-operation as an instrument for reaching national objectives	Co-operation as an instrument for strengthening the economy of the small farmers
Simultaneous nation-wide intervention	Concentration on micro-regions by agricultural - social projects
Expansion of the co-operative sector according to a structural plan	Natural expansion made easier by small farmers boards
Uniformity. Blue-print models of co-operative organisation	Variety. Different forms of co-operative organisation
Emphasis on external supervision by co-operative inspectors	Emphasis on internal control by co-operative members
Larger co-operative units emerge by forced amalgamation or unionisation	Larger co-operative units emerge by voluntary association
Work plans are imposed from the top	Fieldworkers are assisted in their own workplans
Occasional ex-pos evaluation by detached outsiders	Monitoring and ongoing self-evaluation

Adapted from Verhagen (1984: p31)

The main points presented by the participatory approach - strengthening the economy of small farmers, voluntary association and evolution, internal control and self-evaluation - can be found together within a definition of co-operatives that basically represents such an approach.

> "A co-operative is an association of persons, usually of limited means, who voluntary get together to achieve a common economic end through a democratically controlled business organisation, making equitable contributions to the required capital and accepting a fair share of the risks and benefits it undertakes." (Digby, 1977: p11).

Based on the assumption that associations constitute an environment for interaction where the roles and the functions of participation determine the specific powers of the system, Chenu (1982) prefers to approach the organisation as a system instead of seeing them as structures. Agreeing with this, associations exist as systems, and this subsequently implies that we are assuming that an association

> "is constituted by elements which are interdependent; the sum of its elements is not equal to the whole of these elements; and the relations of interdependency between the elements and sum of its elements, is oriented by rules which could be presented as logic." (Chenu, 1982: p8).

According to such an approach to organisations, more important than the study of its elements, is the study of the members' participation within it, considering that the process of communication and the individuals should be the central aim of the study. Therefore, this constitutes a key issue for the organisation's survival, which is even highlighted by the French law when describing the association as a group based on voluntary membership. Also enhancing the importance of voluntary membership in the organisations, Westoby (1989) states that the control and economic viability of the organisations it is very weak and difficult to be undertaken if those organisations were created by compulsion. This points to the need for the organisation to appear as a result of the members' purposive and voluntary action.

3.1.3 Collective Action, towards forestry

Taking into account the increasing interest in the new forest's values, the social, ecological and biological aspects, mentioned in the previous chapters, involves a fundamental change in forestry philosophy: the ultimate aim of growing trees is no longer to provide the maximum return through harvesting them but to provide benefits for the community as a whole. Therefore, besides economic forestry management other values such as sustainability and the local forest landowners' participation in the decision making process will be in danger unless they become organised. Hence to put in to practice such a forest landowners' organisation at a local level becomes an obligation. In the same way, this was also suggested at the United Nations Conference on Environment and Development, held in June 1992, in a document about forest principles setting some international guidelines for the sustainable management of forests. Besides those guidelines, this document states that the involvement of local and indigenous people was a prerequisite for any sustainable management (Innes, 1993). Farmers' organisation is not a new issue, on the contrary, we can easily find farmers working together in every country, even if it usually is in the form of neighbour's help rather than formal co-operation. However, we can only call it a regular organisation when the product is commercialised, and the interest in expansioning the commercialisation or mechanisation has led to the development of co-operation (Smith, 1961).

As Digby and Edwardson (1976) stated in their study of co-operation in forestry, in which organisations in northern Asia, Africa, UK, France and Japan were studied,

> "Forestry is, with water control, one of the oldest forms of co-operation in its traditional form." Digby and Edwardson (1976: p223).

Even if co-operation in forestry is much less well-known and less widespread than co-operation in agriculture, it still accounts for a considerable volume of business, and makes a substantial impact on forest management in a number of countries. Scandinavia and Japan constitute an exception to this rule, where there are mainly two types of co-operatives: "co-operatives of individual forest owners" and "co-operatives of joint forest owners" (Cernea, 1992). In these co-operatives, the members (who in Northern European Countries are often small farmers) organise themselves for joint acquisition of machinery, marketing of timber and replanting cleared land. There is a third type of co-operatives, but not of a significant number, called "co-operatives of forestry workers" (Digby, 1977; Cernea, 1992). The type and goals of forestry co-operatives differ from country to country according to the different characteristics of the forest in each one. Thus, in a general way the aims and operations of the forest owners' co-operatives could be: fire prevention, control of disease, protection against animals' grazing, selective, felling trimming and transportation of felled trees, processing timber, re-afforestation, supply of goods and services. Among the diverse services that a forestry co-operative can provide to its members we should underline the joint management. The importance of such a service is based in the fact that it can be supplied by the co-operative without changes to the land ownership rights. This feature is emphasised by Vilariño (1993) who stated that an efficient form of associated forest management would be preferable to a strategy for joining plots, since land consolidation has never been successful in all attempts undertaken in the agricultural lands. Joint management, often used among small forest owners of the northern European countries, is usually undertaken under some form of holdings contract among a landowners' group. Using this strategy, forestry co-operatives tried to solve the problems caused by the incompatibility between the different forms of land ownership, even if their form had to be adapted to the ownership pattern (Digby and Edwardson, 1976).

Interest in forestry organisation can be understood under two perspectives: first, for the forest owners, those who have much to win from a co-operation action are those landowners who due to different factors are not able, interested or available to manage their forest properly. Second, co-operative action also is favourable to long-term forestry planning, which is not possible for small owners at an individual level, and it may help in overcoming the problem of lack of immediate returns and even of returns within the life-time of the owners. The creation of farmers' associations may be beneficial for specific activities such as the management of adjacent tree lots or the marketing of tree products (Digby and Edwardson, 1976; Cernea, 1992).

Forestry organisations should not only be justified by the individual interest of the forest owners, as stated by Vilariño (1993) when referring to the Spanish private forestry. Given the general interest of forestry issues to the global population, "world's interest regarding forestry issues", there should be a long-term plan for forestry in Spain as in any country where negotiations participated in by all the interested entities takes place. Thus, in order to take these negotiations,

> "a corporate strategy of the co-operation should be developed. And this seems to be the way to give life to such a sector where a diversity of institutions play their interests." (Vilariño, 1993: p489).

As a conclusion to their study of forest landowners' organisations in Connecticut-USA, Broderick *et al.* (1985) pointed out that a forestry association can provide a vehicle through which community leaders who are interested in forestry development can effectively channel their efforts, and through which local forest landowners can influence the local and national institutions towards the issues that concern them. Such associations can also increase private forest management.

Studying farmers' organisations in Africa, Asia and Latin America, Arnaiz (1995) classified them in three broad categories according to their structure: national-level farmers' organisations operating through constituent or membership units; federated farmers' organisations, consisting of a apex umbrella organisations which operate through and with constituent units; and local-level farmers' organisations, consisting of autonomous decision-making units, where members are drawn from a particular community or set of communities.

The evolution of the farmers' organisational process until now has tried to adapt to the new farmers' activities, and the same should be done in the future. The need to develop alternative association configurations is a typical feature of development where new forms of rural co-operation have to be found. According to (Schiller, 1971: p87) at the present stage,

> "the organisation of co-operation in forms other than in production co-operatives, such as co-operative promotion of agricultural production,

seems to be more adequate to the requirements and the mentality of the rural population."

Associations of small groups of farmers with a particular legal form registered as associations under the civil code of the country concerned, could be an alternative.

3.1.4 Factors affecting the organisations' efficiency

To better understand organisational efficiency, and before beginning to analyse the organisations themselves, it is useful to look at the framework within which they are developed. In other words, we should pay attention to the conditions involved in the organisational process. Regarding this, and according to Ribeiro (1987), the main constraints to the organisational process are of two kinds: ideological and political factors, and physical constraints. Given the difficulty in solving or handling the latter, the author suggests a strong intervention on the first one. The ideological and political factors involve such issues as: the education and training of farmers and technicians, the farmers' previous experience regarding association process or collective action in agriculture. Thus, the author points to the need to identify such variables in order to understand how they work and then to try and find strategies adequate to undertake the organisational process in a successful way.

The efficiency of the organisation can be affected by factors that can lead to situations ranging from the complete achievement of the organisations' goals to complete failure regarding goal achievement as well as the life of the organisation. In this section we will examine organisations from two perspectives: first as organisations in general, and second as the particular case of farmers' organisations.

Arnaiz (1995) points as key organisational conditions to an appropriate in-house level of administration; management and accounting skills; an appropriate professionalisation of the staff; a participatory management style; and organisational communication channels between members, staff and management. In their turn, Esman *et al.* (1984) discovered that, effective organisations tend to establish multiple horizontal and vertical links to other organisations, resulting from local initiative and following participatory decision-

making procedures. Emphasising the importance of the organisation' response to their members' interests, Curtis (1991) states that the principal requirement of a successful organisation is to be perceived as valuable by its members. Regarding this, members must have a clear idea of advantage of participation over non-participation. This means that a viable organisation requires the involved individuals to see personal benefit from committing themselves to it. Such a fact is dependent on the evaluation individuals give when they have to choose between two options; when they make some kind of cost and benefit assessment from their own point of view and act accordingly. It is assumed that they will only participate if the benefits outweigh the costs. The image that farmers have of the organisation could be a decisive point to persuade them to become members. Due to this, it will be indispensable that the association has credibility. This feature means that members are more likely to see the information provided by the associations as impartial and oriented to the landowners' needs (Broderick *et al.*, 1985; Curtis, 1991).
Referring to the conclusions of the World Conference about Agrarian Reform and Rural Development FAO (1979), Newiger (1983) stresses the relevant role attributed to peoples' organisations, which were considered as the most effective means to secure peoples' participation in rural development at the local level. Furthermore, he suggests that organisations' efficiency becomes dependent on the support provided to them. This support should be oriented to strengthen members' participation, and in order to achieve this is indispensable to develop members' skills and providing them with a degree of self-determination, preferential access to resources, information, technology, and influence over relevant institutions.
From an agricultural perspective, we can say that the above mentioned factors could be pointed out as circumstances affecting the farmers' organisation. Adding to these, the issues related to farmers' motivation in joining them, Bebbington *et al.* (1994) refer to others to do with the local social and economic context as the main reasons for the organisations' failure. Discussing the insistence in attributing the lack of efficiency of the farmers' organisation to the farmers' individualist mentality, Ribeiro (1987) does not accept that the explanation for the failure in the association process, should be based in the so called "farmers' individualism" and the "farmers' mentality". She goes on to suggest that such a farmers' mentality should become the object of a research study by itself. Recognising that co-operation has many advantages and significant weaknesses,

she stated that there are two preconditions for co-operation to survive: first, members must have high levels of co-operative ethics, and they must be ready to give up short-run gains for the long-run benefits of co-operation; second, in the final analysis, members must be responsible for their actions, individually or collectively.

In their study of farmers' co-operation in Taiwan, Hong (1981) pointed out the essential factors to the successful implementation of a joint farming operation. These were based in: land reform, farmers' education, local leader involvement and participation, efficient extension services, with particular attention to the social and cultural factors, and institutional relations.

In an attempt to assess the organisational effectiveness of Taiwan's farmers associations, Lasson 1976, cited in (Arnaiz, 1995) identified three levels of farmers associations (provincial, county and township) differing in terms of management style and administration. Their effectiveness was influenced by the natural endowment of the area and by the levels of development of the marketing and transportation infrastructure, and of the other economic sectors, and by the coherence between government policies and the organisations' goals. In a very different situation, Schneider and Hartmut 1988, cited by (Arnaiz, 1995), studying farmers' organisations in Africa, pointed to three main conditions favouring the foundation and the continued viability of farmers' organisations: the members' perception that group action will lead to the fulfilment of personal objectives, an homogeneous membership and a political environment tolerant of or favourable to associations.

The social dimension of the farmers' groups also assumes a relevant role in relation to their effectiveness, because of the importance of the farmers' preference to be associated with trusted persons. This usually occurs among small groups or at a local level organisation. In so far as they develop attitudes and beliefs about each other and about the group that transcend the purpose for which they have met, they are making assumptions about themselves as individuals and about the group as a group. These assumptions, together with their attitudes towards their purpose, provide the emotional climate in which they meet (Miller and Rice, 1976).

As the principal explanation of the failure to form management and marketing associations for private forest landowners, Broderick *et al.* (1985) point out that it was largely due to poor understanding of the potential resources available to the organisation, and the priorities and decision criteria employed by potential members. Discussing the difficulties in the implementation of forestry groups in France, Buttoud (1981) concludes that the land tenure rights and the property structure have had a decisive influence. The repugnance that many forest owners feel toward giving up real property, which has often been part of the family estate for generations, in return for a piece of paper, are thus a root of the comparative failure of the structured forest ownership groups. This failure led the state to promote new and less restrictive forms of association only involving management and not affecting ownership. From this resulted the new forest owners groups called "forest management groups", with state aid being provided to help set them up. The activities carried out by forest management groups can vary considerably, depending on whether the views of the members or of the technicians prevail. These groups can be undertaken under forms that range from the groups where members have full participation in the groups' decisions, activities and control to a form where members employ technical staff to run the association (Buttoud, 1981). In Portugal, similar problems with the land tenure rights are likely to appear, since, as Ribeiro (1987: p31) has noted, all associative life requires from the members an effort to overcome a set of difficulties, and

> "such difficulties will be increased if the case of issues related to the land tenure rights are also involved."

Referring to the failure of the productivist approach of forestry development in France, Buttoud and Normandin (1994) conclude that a policy concerning the control of private forest management should pay more attention to the reality of the owners' behaviour, which needs to be considered in their various contexts. The same could be said concerning the forest landowners' organisations process in Portugal.

3.2 Forestry organisation in Europe

Like agriculture, forestry in the European Community is characterised by a great diversity among member states. This diversity in terms of physical resources available, as well as ownership or even as in management, has led to different applications of the forestry programmes. The support for any programme dealing with large scale afforestation to be partially financed by EC tends to depend on the degree of benefit which each state member expects to get from it (Zeeuw, 1993). However, as suggested in the resolution of the 4th Commission Forestry of "Confederation Europeene de l'Agriculture" (CEA), the implementation of specific forestry policies in each member state could lead to divergence and raise problems in the control of forestry production. Therefore, it is urgent for some European countries to follow initiatives leading to the development and promotion of forestry federations and of other self-help agencies dealing with forest owners, in order to represent and defend the interests of the member states in the definition of the forestry policy (Neville-Rolfe and Caspari, 1987; Zeeuw, 1993).

In several European countries (EU) there is a tradition regarding governmental support, forestry extension services, and forestry co-operative organisations that allows the forest landowners to undertake rational management of their forest. The Nordic countries and Germany are good examples of such governmental intervention, but in general almost all these countries support forestry through organisations. In recent years, the European countries have been trying to get organised at the level of large European regions. The basis for the creation of such organisations are mainly the countries' physical characteristics and climatic conditions for forestry which consequently determine the type of forest and forest products. The Union of the Northern European Silvicultors (USNE) and the Union of Southern European Silvicultors (USSE) are the main organisations participating in the definition of European forestry policy. The latter is an organisation representing the interests of the private forestry producers of Portugal, Spain, France and Italy, which means more than one third of the European forestry area. USSE developed an inter-associations programme - Compostela Florestal - involving French, Spanish and Portuguese organisations in order to promote forestry research and actions towards forestry protection which are now being implemented (AFVF, 1994; Pinheiro *et al.*, 1994; Ruano, 1995; Fishler, 1996).

3.2.1 Forestry co-operation in France

Mutual assistance among farmers can be observed in France for some years in a variety of forms, but until the end of second world war it was only concerned with a limited number of activities. The GAEC (translated as "the integration of agricultural enterprises for common utilisation") and the CUMA "Co-operatives de Utilisation de Material Agricole" are the main examples of co-operation among French farmers, although today the farmers' association, as such it is previewed in the "Code Civil", is one of the most popular farmers' groups in France (Chambre D'Agriculture, 1990).

The GAEC model emerged in France during the 1960s, under the legislation of "Groupment Agricole d'Exploitation Commun", and had its maximum growth during the 1970s. The GAEC are non-trading partnerships under the French "Code Civil", whose aim is to make co-operation possible and in which the partners have equal rights while actively undertaking managerial and regular work at the enterprises (for a partial GAEC, usually limited to a single branch of production, working in the organisation is less compulsory). These groups of common farming show several advantages: increase of the exploration area, specialisation of labour and a better organisation of the farms' activities. Two-thirds of the GAEC were set up through the association of members of the same family and this characteristic makes them a very particular case of group farming differing in many ways from groups formed among strangers. However, such a familiar dimension became a negative aspect as most of them only involved family members therefore only covering small areas (OCDE, 1971; Kobke, 1972; Lourenço, 1981; Roman and AFIP, 1990).

This kind of organisation was also implemented in Spain and in Portugal, where some farming groups were established without involving collective ownership of the land. In most of these cases, each member of the group retained the ownership of his own land. Therefore, the land is merely made available to the group for cultivation under an overall production programme. Nevertheless, as OCDE (1971) points out, even if individual ownership is maintained the situation raises a number of practical problems, such as those posed by improvements done only in some plots, and distribution of benefits.

Besides the co-operatives of services, co-operatives for common agricultural material utilisation (CUMA) are one of the most frequent farmers' organisations in France. Implemented in the 1960s and 1970s, and intended for the purchase of common machinery, in order to lend it to its members, the CUMA were very well accepted because they deal with a time-bound and specific commitment between its members. Such kind of contracts make the financial operations in co-operative easier, and facilitate the management of enterprises with less than one labour unit. This characteristic seems to be an advantage when compared to the syndicate and union models. On the other hand, the proliferation of the CUMA was also partly due to the fact that they had access to some of the advantages given by the credit institutions as well as to other kinds of support. They were small societies, roughly covering a small parish, and serving farmers with estates under 50 acres with basic machinery (Smith, 1961; Fort, 1983; Phillipe and Cairol, 1996).

Over the last thirteen years, French forestry has been showing a strong dynamism, with the introduction of new techniques and forms of forestry management. Forestry organisations have been the main promoters for such dynamism. These organisations are of different types, according to the different legal forms available in order to form groups or associations. These groups are sometimes not only formed by individual members, but also by co-operatives and other agricultural associations with collective interests (Bonnaire, 1994).

The organisations are regulated by the "Code Civil", in order to cover the diversity of situations and interests of the French private forest landowners. The law regulating the right of association dates from 1901 and defines it as

> "the convention through which two or more persons permanently join their knowledge or their activities, with the objective of sharing the benefits". This rule is valid and applicable as a tenet regarding all obligation contracts." (Chambres D'Agriculture, 1990: p40).

Once organised at a lower level, in local and regional organisations, these groups or associations can themselves be members of higher level organisations, as for instance the federations - an organisation representing all the associations at a national level. The local organisations can also participate in the definition of national policies through their representation at the "Chambre d'Agriculture". The members of such an organisation are representatives elected respectively by farm managers, agricultural employees, farmers and landowners' organisations, and all agents with links to agricultural activity (Chambres d'Agriculture, 1990; Bonnaire, 1994).

Private forest in France, as in other countries of the European Common Market, is in a sorry state, partly because of land fragmentation. It is probably parcelled among more than 3 million owners, and the average holding size is three hectares (Buttoud, 1994). The author attributes to the French government the responsibility for not making any effort to affect the structure of private forest for many years. The complex system of assistance and restrictions gradually established had initially the maintenance and creation of forest as its sole objectives, forgetting the need to solve the problems raised by the property structure (Buttoud, 1981). Adding to the structural problem, in France as in Portugal, forestry is often only a residual activity for its owners. According to Buttoud and Normandin (1994), in France one owner out of a thousand lives from his forest's income, and they often make their decisions according to criteria extraneous to the forest. It is rather a matter of answering a financial need of the household by selling stumpage or a part of the forest, of satisfying domestic needs, such as firewood, etc.
Only in 1963 with the compulsory use of simple management plans for single block holdings over 25 hectares, were the Centres Regionaux de la Propriéte Forestiére established with the main objective of analysing and approving this plan. At the same time, forest ownership groups appeared. These are voluntary and generally unanimous associations of neighbouring landowners, who join their lands in order to better manage them, each of them getting a share that is proportional to the amount of land which they contribute. The Fond Forestiére Nationel provided financial support for setting up forest ownership groups that should restrict their activities to forestry operations (reforestation, management, harvesting and even sawing) and refrain from any other activity whether industrial or commercial (Buttoud, 1981; Buttoud, and Normandin 1994).

Today there is, in each region, a Regional Centre of Forest Property (created in 1960) that is designed to support the forest landowners in becoming organised, supplying them with technical advice, planning and helping to implement the regional forest policy in the area. These organisations involve the participation of the forest landowners, the local authorities, other entities with interests in forestry and a representative of the government's forestry institution (Bonnaire, 1994).

Another form of organisation is the Professional Association of Forestry Management, in which the landowners keep their property rights and the property also keeps its structure; only the management is undertaken within pre-defined patterns according to the plan approved by the association. The association can also provide services helping its members to undertake forestry tasks in their plots or improving the forestry structures in general (Bonnaire, 1994).

3.2.2 Forestry co-operation in Germany (Ex *Federal Republic* of Germany)

German private forestry is managed by the national institutions and by the many forestry associations, especially regarding commercialisation. Main (1994) estimates that in 1992, about 46 per cent of the timber sold in Germany was dealt with through forestry associations and national institutions. This presupposes a wide and well functioning organisation of the forestry sector, that is in part related to the organisation of the agricultural sector. On average, more than 90 per cent of the farmers are organised in associations. The larger and economically stronger the farms, the higher the degree of association, and their influence on the policy of the association. The level of organisation of full-time farmers amounts to 99 per cent. And the German farmers' organisation is becoming stronger given the cohesion reached. The main motive for this cohesion seems to be the fears of eventual loss of rights which could be caused by fast structural changes (Heinze and Voelzkow, 1993).

Similar to the French machinery organisations, Machinery Rings, have developed in Germany. These organisations are farmers' associations whose purpose is to organise and formalise the exchange of machinery among neighbours without it affecting the machinery's private ownership. Another kind of association is the Machine Communities, which have smaller membership (2 to 6 persons) than the machinery rings (10 to 600 partners) (Kobke, 1972; Tavares, 1994).

3.2.3 Forestry co-operation in Spain

Forestry organisation in Spain seems to be far from optimal, but some positive experiences have been undertaken to support the forest landowners who, as in other Southern Europe countries, are very weak (Turrado, 1991). Turrado, the president of the forest landowners' association of southern Europe, refers to the Consorici Florestal de Catalunya, as the first to have appeared ten years ago, and also states that it was then followed by a few more cases such as the Galicia Association. Besides these organisations, there were several associations, whose members are not forest landowners, but individuals with different interests, and that has given a fairly bad image to the association process in Spain (Turrado, 1991). Thus, he claims, an urgent intervention is necessary at the legislative level in order to avoid such a situation, and proposes that associations should be created regarding the forest landowners' tenure, and pursuing three main objectives: the education of their members, and workers and technicians; information about the sector; and the management of members' forests according to forest management plans.

A forestry organisation programme included in the Plan Florestal de Galicia has been recently implemented. This plan constitutes an attempt to set up a forestry policy in which the aspects related to the resolution of the problems raised by forest fires assume a major importance (Valle, 1990; Anonymous, 1993). A direct relation is established between the problems of forest fires and the indispensability of a promotion by the government of an associative strategy, since this is viewed as a potential solution for tackling this problem, even without any change in the property rights. However, in Vilariño's (1992a) opinion the model of association to implement should be taken into account because any blind voluntarism in undertaking an organisational process without it being based on the forest landowners' interests will not only fail but also entail the failure of other initiatives linked to it. Emphasising the environmental importance of the forest and the need to keep people living in forestry regions, the same author also supports the indispensable development of an organisational strategy seeking forestry in private areas, which would allow the common use of the forest plots (Vilariño, 1989; Vilariño, 1993a).

3.2.4 Forestry co-operation in Sweden

The Swedish forest owners' association movement started with a few local co-operatives during and after the first World War, but was greatly expanded in the thirties, culminating with the foundation of the Swedish Forest Owners' Association in 1938. Since then efforts have been made to organise the hundreds of thousands of small forest owners. During the 1960s and the first half of the 1970s, the regional organisations engaged heavily in forest industries, and due to this, co-operatives owned large-scale pulpmills (Hultkrantz, 1986).

The small private forest owners are organised in a large number of associations meant to face the powerful Swedish forest industry. Together these associations account for about 87 000 members (Lindevall, 1994). However, the Swedish non-industrial private forest landowners are facing some difficulties because, as other European partners, they have been having similar problems with the property structure. This constitutes an obstacle to their organisational process. The sacrifices imposed by their membership can be higher than the revenues they can get by selling timber without the associations' intervention. Furthermore, a considerable amount of effort is required to organise the large number of geographically dispersed forest owners.

Recently there have been some problems within the organisations, due to the lack of members' participation. Divergence of interests among the members, and specially in regard to their links to forestry industry, has led to situations where only some members participate in the decision making, and this has created membership problems. Despite this divergence, Hultkrantz (1986: p16) comments:

> "although not easy to establish, co-operation among forest owners through a Forest Owners Association, may have an influence on timber prices and harvesting volumes."

Furthermore, discussing the institutional influence of the Forest Owners Association in the forestry products prices policy, the author concludes that the association has worked, to some extent, as a solution to the problem brought to the forestry organisation in the country by the contracts between small forest owners and the product manufacturing industries.

3.2.5 Forestry co-operation in Belgium

Forest owners' organisations are not a new concept in Belgium. Several initiatives taken by the owners themselves have sought to form co-operative societies or limited companies, particularly in the case of medium to large ownership, but most of these organisations have interests different from forest planning itself. The small forest landowners, to whom about half of the forest area belongs, are not organised and they do not follow any management plan (Rondeux, 1991; Terlinden, 1994). The lack of organised working plans can be also attributed to the burden of taxation, the forests' structural characteristics, and socio-economic conditions such as the difficulty in getting assistance and financial support. Despite the difficulties caused by the property structure, some attempts to develop co-operation through forestry associations were undertaken with the regional authorities' support and encouragement. In the opinion of Rondeux (1991: p40)

> "the ownership structure should be a stimulus for co-operation between neighbouring forest owners, but in practice this is very difficult to achieve owing to their different outlook and lack of agreement on objectives."

Given the fact that some of the small forest landowners are still not organised, some help has already been provided in terms of financial assistance outside the scope of the forestry associations. This covers limited activities such as the encouragement to undertake some operations under correct forestry management techniques (Rondeux, 1991). According to this author

> "the future development of legally-constituted forestry associations could lead to positive structural change in medium-sized private woods and thereby increase their social and economic importance." (Rondeux, 1991: p42).

The author also suggests new taxation systems designed to encourage good management, which is dependent on the landowners' organisation process.

3.2.6 Forestry co-operation in Finland

Two thirds of Finland's area is covered by forest, and 63 per cent of the forest area consist of non-industrial private ownership. The share of Finland's forest industries export earnings is more than 50 per cent. The basis of Finnish forestry management is provided as forest research knowledge generated by forestry organisations, that has been used to prepare the guidelines and recommendations for new forest management practices (Centre, 1992).

The Finnish forest management associations (total of 375) whose members are forest landowners, have as their main objective to give advice and assistance in all matters concerning forestry, and they also undertake the majority of silvicultural works (Centre, 1989).

According to Castro (1991), citing Alves (1978), the forestry organisations in Finland are of two main types:

- organisations seeking to accomplish forestry policy at three levels: at a local level, - the association for forestry planning and management, involving several villages or councils; at a second level - the Unions which congregate the local organisations of one region. They are meant to support the local organisations and to represent and defend their interests by participating in the definition of the forestry policy. Finally, the Central Union - representing all forestry producers through its Forestry Council.
- organisations pursuing general commercial and industrial common interests, whose main objectives are the commercialisation and the processing of wood and the defence of the members' interest regarding the control of the wood and wood products' prices.

Therefore, the management and utilisation of private forest is guided by a multilevel organisation, whose most important branches are forest management associations and forestry boards.

A forest management association usually covers the private forests within a municipality. Membership is exclusive to forest owners within the municipality and they will elect a committee from among them to lead the activities of the association. The association's activities are financed by the owners' participation by paying statutory forest management fees towards the services, and also by means of an annual fee that is discussed and fixed by the members every year (Centre, 1989).

At a regional level, a board is constituted (17 in total) which includes 4 forest owners representatives, 2 governmental representatives, 1 forest industry representative, and 1 elected forest worker. The organisation is concerned with the overall development of private forestry, and their main objective is to increase the production of timber and to promote the utilisation of the forest in harmony with the forest's nature and other forms of forest utilisation. These regional boards are supervised by central forestry boards. (Centre, 1989).

3.2.7 Forestry co-operation in Denmark

Denmark's agriculture occupies about 65 per cent of the country's area, and only 11 per cent is covered by forest. Because of such a distribution, agricultural aspects have been preponderant in the farmers' organisation in Denmark, where the co-operative movement is particularly active, especially in the processing and marketing of agricultural products. Some co-operatives already have sections dealing with forestry aspects.

Farmers' organisations in Denmark are of two main types: producer organisations, and co-operative societies. More than the philosophical differences, the size of the agricultural enterprises and the orientation of the production mark the differences between such organisations. Co-operatives are run on a commercial basis but are owned and managed by producers. There is no separate legislation covering co-operatives; they are free to make their own choice regarding the form of association, their rights and obligations towards its members, their methods of selecting and controlling membership, and distributing profits and losses. However, they follow some common principles such as: membership is opened to anyone with common interests, and the rule of one person one vote (Brown, 1990).

As in other countries, the unions pursue a policy and play a social role. Apart from this, a notable feature of the Danish producer organisations is their strong advisory and extension sections regarding technical matters. Local associations are responsible for the organisation's advisory work, the hiring of advisors and the planning of activities.

Also in the ambit of the local associations research actions are undertaken, eliciting a close link between research activities and on-farm production (Brown, 1990).

3.2.8 Forestry co-operation in other countries

Forestry in the Netherlands - Forestry in the Netherlands is subsidised to an extent not common in any other EC country. Co-operation between forest owners is stimulated by subsidising the costs of co-operation by 80 per cent, 60 per cent, 40 per cent and 20 per cent in the first, second, third and fourth years, respectively. This co-operation among at least 3 forest owners with 50 hectares each can be aimed at purchase of the seeds, the sale of wood, or the implementation of forest work. The government is attempting to stimulate accessibility to forests as well, by offering a grant of 80 per cent of putting roads cost (Filius *et al.,* 1987; Noort, 1987).

Private forestry in Greece - If private forest owners are not able to get enough money for the improvements in their forests, the state will provide help in form of loans (McNeill, 1989). However, together with such governmental support to the forestry activity, it also imposes some restrictions. The two main restrictions to private forestry are the following: prohibition to alter the forest's shape or dimension, and supervision of management. The state held the right of preference regarding the forest use; compulsory formation of an association of forest owners protection; transactions in forestry destroyed by fire and the opening of forest roads.

Under some conditions, private forest owners are obliged to create protective associations: when within the area a specific kind of vegetation has been designated as endangered, or because of specified climatic conditions or of other reasons (Papastravou, 1984; Mohamed *et al.*, 1995).

Forestry in Ireland - There is a long tradition of co-operative farming in Ireland, but these co-operatives do not deal with forestry issues. As the average size of farmers' planted forestry plots is just three hectares, Bulfin and Weber (1993) suggest the need for a suitable agency to organise farmers into planting groups in order to plant their adjoining land. Such work has been undertaken by the Western Forest Co-operative which in the last years has been approaching the agrarian co-operatives in order to help them in developing their forestry activity. The organiser's efforts have been based on the concept of "planter groups", where neighbouring farmers will plant adjoining land thus making more sizeable and viable forest plots. After some positive experiences, the co-operative structure is seen as a useful vehicle to promote farm forestry among some farmers (Bulfin and Weber, 1993).

Forestry in England - In England the forestry sector presents features quite different from that of most other EU countries, and forest owners are mainly organised under agricultural organisations. Since the post-war years, the co-operative function has been overtaken by private foresters' dependence on contracting firms, and consequently forestry co-operation has been very weaked. Also the emergence of some problems contributes to the weak level of organisation. According to Grayson (1993) there is little point in developing a policy in this field if there is no ground to believe that one or other form of co-operative is likely to be supported. As Innes (1993) points out, the relations among the different interest groups, the forestry industry and co-operatives has involved confrontations which have weakened the co-operative sector:

> "generally, it has often been special interests groups that have identified a problem and the forest industry has then had to defend its practice." (Innes, 1993: p 397).

Such a divergence of opinions between social interest groups and foresters has not helped the development of a co-operative attitude to the solution of forestry problems.

In Italy, given the government's recognition of the need for the organisation of forest landowners and for joint management, laws were introduced to allow formal associations and land-consolidation. However, almost nothing has been done in these areas, and the legislation is not being implemented. Merlo (1994) held that the first step for a forestry development policy in Italy is the creation of organised structures for the private forest landowners, in order for them to participate in forestry development.

Regarding **Austria's private forestry**, Hillgarter (1994) shows the lack of tradition regarding forestry association, and points to the need for the forest landowners to become more co-operative and organised.

3.3 Forestry organisation in Portugal

Portuguese forestry organisation, until April 1974, was only represented by three socio-economic organisations (co-operatives). One of them was located at the Pinhal region. They were formed at the beginning of the 1970s, with the support of the forestry services' technicians. After 1974 other organisations were created without the participation of the forest service's technicians. Most of these organisations were polyvalent, presenting different interests according to their members activities (Barros, 1979). According to this author, there were five forestry co-operatives and sixteen agricultural co-operatives with a separate section for forestry issues. The French models - the GAEC and the CUMA (section 3.2.1 above), which appeared as new forms of farmers' organisations, had also been successfully implemented in Portugal since 1968. (Barros, 1979; Lourenço, 1981).

At the beginning of the 1980s, the implementation of the Portuguese Forestry Project, supported by the World Bank, raised expectations about the organisation of private forestry. One of the measures pointed to by this project was the promotion of private forest landowners' organisations through the implementation of associations under the state's initiative and its financial, legislative, technical and administrative support. The main objective of such involvement of the landowners was to keep them interested and participative towards forestry. However, because of problems raise by administrative complexity and the time consuming nature of such a process, this idea of involving the landowners has never been implemented. The same failure occurred with the implementation of the forestry extension services which was planned in order to help the landowners' organisation process (Castro, 1991).

Created in 1980 the Co-operative Code has been successively modified up to the last alteration in 1996 (INSCOOP, 1996; Campos 1997). This code introduced a new "collective person" in the Portuguese Juridical System - the co-operative, to add to the already existent :associations, societies and foundations. It also originated a third sector - the co-operative sector of activity, to add to these private and public sectors. Besides the co-operative principles and functioning rules, the code determines forms of association among co-operatives: those can be unions - local and regional associations of co-operatives of the same class; and federations - national associations of co-operatives and unions of the same class. Despite the difficulty raised by creating a typology, it is difficult to classify different forms of co-operatives. However, they can be classified in four major groups: co-operatives for the provision of services, production co-operatives, co-operatives for the transformation of products and polyvalent co-operatives (Estrada, 1993).

In one of the most complete studies about farmers' organisations in Portugal, Campos (1992), based on the specific legislation, identified twelve different types of farmers' organisations in Portugal (see Campos, 1992: p21). Among these organisations, co-operatives are the only organisation dealing with forestry. The author includes the forestry co-operatives in the group of agricultural co-operatives for the transformation of products. Of the seven forestry co-operatives identified only two were in the Portuguese Central region.

The majority of the forestry organisations dealing with the production system in Portugal were formed during the 1980s and 1990s. The older ones have taken the form of co-operatives, but the most recent ones are becoming socio-professional organisations, designed to provide services to their members (Ruano, 1995).

The forestry organisations in Portugal are in a developing stage, both in quantitative and qualitative terms. Their evolution has been conditioned by the strong technical and socio-economic links of most of the forest landowners with agricultural activity (Castro, 1994; Luis, 1994). Recently, we have witnessed an opportunity to develop landowners' positive attitude towards forestry organisation. Forestry services have got the opportunity to develop forest owners' groups, constituted during the implementation of the Programme of Forestry Action, which could become groups of forest management. However, the lack of or the inefficiency of the extension services seems to have led only to the technical and practical implementation of the projects forgetting all sociological components. Therefore, nothing has been done to involve the landowners and the population in the process, or to get them interested and organised around forestry development issues (Silva and Ferreira, 1991; Devy-Vareta, 1993; Baptista, 1994).

The Portuguese co-operatives can associate themselves within one of two national organisations available to represent them: the Confederation of the Portuguese Farmers (CPF), which as a confederation can accept both individuals or their organisations - associations and co-operatives - as members; and the CONFAGRI (Confederation of the Portuguese Co-operatives) whose members are co-operatives federations (Estrada, 1988).

At the national level the organisation of the forestry sector is still at a very young stage. The CPF have promoted the creation of a National Forestry Council (NFC), which was as a confederation's consultant. After four years NFC divided its functions and activities between two different organisms: the Consultative Forestry Council, and the Federation of Portuguese Forestry Producers. The latter is still in a developing stage, including few local or regional organisations. Only ten have a specific designation of forestry organisation (CAP, 1994). However, the representation of forest landowners' organisation by the CPF, through its consultative section NFC, has been suffering some disagreements, and because of divergence about the representativness of such an organisation, some forest landowners' organisations are trying to develop a parallel organisation to represent their interests close to the Ministry of Agriculture, and therefore participating in the definition of the national forestry policy (Castro, 1991).

The Interprofissional Forestry Council is the main organism participating in the definition of forestry policy, and in the defence of those with interests in the sector. It gathers representatives of all sectors of activity of the forestry cluster: forestry producers are represented by the Federation of the Portuguese Forestry Producers; farmers by the CPF, industry by the Confederation of the Portuguese Industry; industry of forestry products, by its associations; trade, by the Traders organisations, and the forestry projects contractors, by their national association (CINF, 1996).

In terms of international representation, the Portuguese forest landowners are represented in the Union of the Silvicultivators of Southern Europe (USSE) by the Confederation of the Portuguese Farmers (CPF). The USSE represents owners from

Portugal, Spain, Italy, and the south of France, and it is represented in Portugal by the NFC (National Forestry Council). The NFC involves about twenty organisations representing a high diversity of interests regarding the forestry sector (Ruano, 1995).
The Forestry Association of the North and Centre of Portugal (FANCP) is participating in a global forestry project in a partnership with the USSE and the Spanish and French forestry associations - the Compostela Forestry Project. This project has as its main objective the promotion of any actions that lead to the development of the private forestry organisation through stimulating the associative movement (Castro, 1994).

Within the programmes supported by the EEC, some initiatives with farmers' organisations have been taken in order to address structural problems. Manuela Ribeiro has developed a research studying the sociological component of one of these initiatives: the implementation of the associative process in the Northwest of Portugal, among the wine-growing farmers. We can take this study as an example of strategic suggestion to undertake common agricultural actions through agricultural programmes. As happened in the programme for Forestry Action - it had financial incentives for the landowners willing to adopt joining attitude, also the attempt to implant a common management in the vineyards in the Northwest of Portugal was accompanied by similar incentives, and its implementation occurred under the best possible for such process to occur. But, even so, the project for the farmers' association has never become a reality (Ribeiro, 1987). The author discusses and presents some of the reasons that might be responsible for the failure in the organisation process:

- the project was implemented without a gradual approach to the shift from single to common activity;

- there was a disregard of the temporal dimension involved in the implantation and exploration of a vineyard (about 35 years);

- aspects related to the farmers' motivation towards organisations and their knowledge and capacity in becoming organised were ignored. Hence the lack of information and education of farmers regarding the advantages of such a process and how they might to participate in it (Ribeiro, 1987; Ribeiro, 1988).

The Machinery Rings constitute another example of an organisation that could be considered within the forestry organisational context. It can be seen as a potential solution for the problems raised by property structure - scattered and disperse. First started in the Federal Republic of Germany, this organisation collects machinery with the purpose of making a profitable use of it by providing members with services, and it is presently being successfully implemented in some Portuguese agricultural regions (Tavares, 1994).

As in other European countries, a series of major environmental issues regarding forestry has emerged in Portugal in recent years. These include problems with forest fires, the eucalyptus plantations, and disease of the cork tree. Despite this, the perspectives for forestry organisation would not be affected by such problems. On the contrary, the process of forestry organisation could benefit by this situation, since these new forestry issues could force the entities interested in the solution of such problems to look more closely to find potential solutions. This would increase the need to push for landowners' intervention, and enhance their willingness to become organised. Therefore, the main direct implication would be their participation in decision making about the future of their forests (Innes, 1993). Other reasons which could encourage the landowners to get organised could be their recognition of the fact that this could be a way to overcome the structural problems of forests, and also that an associative solution does not necessarily involve any change in the land tenure system (Martins, 1993). Also enhancing the perspectives for the forest landowners' organisation, Casqueiro (1995) refers to the government's intention of handing down to civil entities the responsibility of monitoring forestry and its technical support, and he adds that:

> "the only form is to confer to the owners' organisations an active role in the design, planing and implementation of the forestry policy, and by its turn to require from those associations, responsibility, credibility and technical guaranties to undertake this commitment." (Casqueiro, 1995: p9).

However, to complement the efforts in enforcement of the present forestry organisation, much should be done to create a new forestry organisation in order to give an opportunity to all forest landowners to become organised.

3.4 Foundations of the organisation model

According to Vilariño (1989), in the definition of a model of an association, it is necessary to pay particular attention to three main factors which could influence the adherence rate of its potential members: one, the fact that the definition of the model and its operationalisation can raise conflicts; second, related to the model itself, it should be easily applicable to the members' reality and has to be legitimised by them as a whole; third, it should be a flexible model involving minimum commitments from its members. To the French technician, L. Coureau (1987), cited by Vilariño (1989), whose idea about the importance of starting the organisation process by the creation associations with a low level of complexity has been reinforced,

> "those associations constitute a necessary stage before reaching an organisational structure more complex enabling it to deal with all forestry activities and services, including the commercialisation and processing of the forestry products." (Vilariño, 1989: p19).

Describing the organisational process implemented in Galicia - Spain (Forestry Association of Galicia, created in 1985), Valle (1990) refers to the importance of conducting thorough sociological studies about the viability of a forestry association regarding a specific administrative region of Galicia, that should occur before the creation of any such association. In this case, the studies were undertaken by a research team according to action-research methodologies, in order

> "to design a model of association capable of mitigating the problems raised by a fragmented property structure, and to develop a new association in such a way to guarantee a proper forest management as well as achieve a high level of social acceptance." (Valle, 1990: p3).

Therefore, according to this determined methodology, a previous study underlines the model by studying the forest owners motivations' towards the implantation of alternative ways in order to join neighbouring forestry plots. The alternatives would have to respect property rights, and be flexible enough to adapt to the diversity of the region. It has therefore been proposed that, given the nature of the actual forestry issues, any forestry organisation to be created or developed should aim:

- to make forestry assistance closer to forest owners and to the community. As important as the transmission of knowledge and technology is also the assessment of the owners' needs and motivations, and the effort in adapting them to new strategies. Therefore, the role of the social researchers is very important for the process.

- to represent forest owners within the institutions, in order to enable them to intervene in all decision-making involving national forestry (Valle, 1990).

The Forestry Association of North and Centre of Portugal (FANCP), whose proposals for intervention were used as guidelines in this research, was created in 1992 according to assumptions that could be applied to Pinhal Sul forestry. They were obviously related to forestry development, establishing that in order to profit from and to protect the forest it is necessary to manage it in a rational way according to the market and industry rules and respecting the ecological and environmental values. Hence, the private forest should be managed according these rules. Such management may be undertaken by the landowner himself or by an intermediary such as a representative association. However, the forest will only be profitable if the revenues from the sale of forestry products surpass the expenses incurred with forestry's management activities, and this may only be possible if forest units reach a dimension that enables them to be profitable. Usually the property structure is presented as the main reason for the lack of forest units large enough to be managed in a proper and profitable way. But, from a different perspective, the FANCP holds the opinion that the problem lies in the people, particularly in the forest landowners themselves, who should understand that good management and the protection of forest will only be possible by dealing with large forest areas. Moreover, the forest landowners will have to understand that working large areas does not necessarily involve any change in the property rights. Even regarding the physical property structure, it only involves some rules set to avoid absenteeism and unlimited decision-making (Forestis, 1994; Domingez, 1996).

FANCP members are all entities interested in forestry, and its global aims are the organisation of the forest landowners towards the forests' management and protection by:

- contributing to the improvement of the forest's productivity;
- contributing to the definition of a forestry policy;
- representing its members at a local, regional, national and international level in all national and international forestry institutions;

- providing its members with services, technical and economical information and juridical advice;

- supporting forestry research;

- promoting and supporting measures for forestry's protection and development

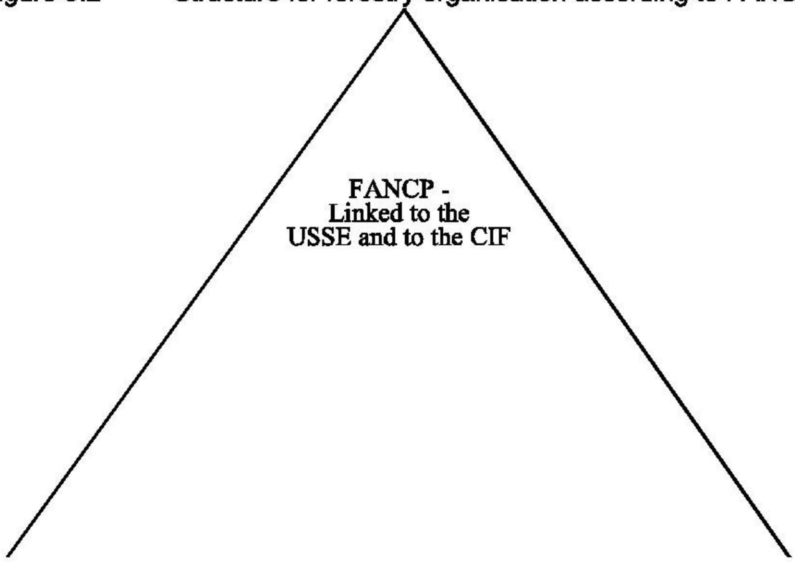
- promoting the forestry associations at a local level (LFA).

In order to consolidate the organisational process, as well as to help the younger and newer associations to be created, FANCP can apply for financial support from the Second Community Support Framework (CSF) and from the European Community (Reg. EEC 2080/92, Reg. 2078/92 and Reg. EEC 2158/92) (Forestis, 1994).

Seeing the need to join plots and achieve large forestry areas as essential for the future of private forestry in Portugal, FANCP makes every effort to mobilise all forest landowners (absentees or not) and encourage all entities interested in forestry to turn to collective forest management. Aware of the difficulties faced by similar processes in agriculture, FANCP believes that the problem raised by forest fires, should contribute to collect the landowners around one common interest such as the forest's protection. Therefore, protection should be linked with correct forest management, and both issues are dependent upon the emergence of a landowners' organisation ready to cover the forestry region with associations capable of dealing with these two issues.

To the Northern region, FANCP suggests the creation of Local Forestry Associations (LFA) able to provide services to the landowners presenting a total of about 30 000 or 40 000 hectares of forest. Such LFA should involve several municipalities, should accept anyone as members; including not only the forest landowners but also the local authorities, farmers organisations, technicians and all those interested in forestry. Therefore, the FANCP proposed a pyramidal structure for the forestry organisation in the North and Centre of the country (Figure 3.2):

Figure 3.2 Structure for forestry organisation according to FANCP



Local Forestry Associations (LFA)
- providing services

Forestry groups
- collectively managing and protection the forest

Forest Landowners

FANCP has made a proposal to divide the country into regions corresponding to groups of municipalities involving about 35 000 hectares of forest all together. This should help to promote the creation of the LFA which may provide the necessary services to the creation of forestry groups in their social area.
The methodology followed by the FANCP for the promotion of a Local Forestry Association took about one year to be formally registered. For example, the "Forest Landowners' Association of Sousa Valley" was developed in two stages: first, organising meetings among the representatives of the municipalities, the representatives of the regional commission for agricultural development and representatives of farmers' organisations, subsequently, organising meetings involving the forest landowners as well as representatives of the farmers' organisation, and the local authorities. Therefore, the forest landowners only start to participate after this first stage, attending to the statutory elaboration. Moreover, by following such an approach the organisation depended upon the local official authorities from the beginning.
The "Forest Landowners' Association of the Sousa Valley" was created in March 1994, and as a local organisation, seeks the following aims

- to elaborate the plan for the management and protection of the present and future forest in its social area;

- to design forestry projects, as well projects regarding infrastructure - the provision of services;

- to promote the creation of forestry sections in the already existent co-operatives in order to organise the forestry landowners;

- to inform and teach forest landowners in general - not only its members;

- to dynamise the creation of groups of forest landowners - Forestry Groups;

- to represent its members to the public administration and other forestry organisations and to participate in negotiations with other partners in the forestry cluster.

Up until now, the activities of the association were basically the project's design and the creation of Forestry Groups (AFVF, 1994). The present European financing programmes for forestry development, as the previous ones, stimulate the creation of such Forestry Groups. However, what will happen after the creation of these groups is unknown.

3.5 Review of concepts

Different concepts can be approached in different dimensions, contexts, and from different perspectives. The purpose of this thesis would be difficult to understand if some of the concepts used throughout the fieldwork and written thesis are not clearly set out. Therefore, in this section we include a discussion of some of the concepts that we thought indispensable to support the theoretical framework of the research.

The forests' economic and social roles have brought them to the forefront of the discussion about sustainable rural development. From such a discussion, new principles about forestry have emerged: forests are seen as ecosystems and all management practices seek to ensure that the integrity of the ecosystems is maintained. In addition, a stronger involvement of all the interested parties is sought, for the forest planning process as well as for further management (DGF, 1992b). This author, revising some of the many definitions and approaches to sustainabilty, shows different ways in which the dimensions and objects of sustainabilty can be discussed, and he advises of the need to pay attention to the term "sustainable". On forestry matters he looks to sustainable forestry management as one aims and thinks regarding the definition of sustainable development, that it should be understood "as a way to ensure that the development meets the needs of the present without compromising the ability of future generations to meet their needs." (Innes, 1993: p404).

Throughout this study we see the use, by authors and bodies interviewed and consulted, of the terms **forest organisation** and **forest association** referring to the same idea. In fact, both terms mean the organised constitution of:

"groups of farmers formally constituted, having an identifiable membership and a identifiable mission or purpose regarding the private forestry's development, with a governing body and rules of decision-making." (Arnaiz, 1995: p3).

An important reason for using such a definition is its independence of any scale, allowing it to be understood at any level of the organisational process, both in its geographical and social dimensions. The components of this definition have been used as guidelines in the field work, in order to express to the interviewed forest landowners the meaning of the term "association" used in the interview. In the same way these two terms are used throughout this thesis meaning the same thing, except where we refer to some specific situations in which the term association is used to compare associations, co-operatives, societies, and foundations, the four categories typified in the Portuguese civil code. Bebbington *et al.* (1994), discussing farmers' local organisations called **non-traditional organisations** said they are created in some measure by external forces and interventions. In general, these organisations have been created with a specific purpose in mind; but, if this purpose is not attained, the organisations probably may outlive the initial stimulus for its initial creation. With such an idea Bebbington *et al.* (1994) suggest one way for organisational evolution and development: from serving one purpose to serving several purposes; from starting at a primary stage and growing into upper organisations and levels of representativeness.

Formal organisations were defined by Beardshaw and Palferman (1992) as those in which, in order to achieve their stated purpose, clearly defined rules, structures and well developed channels of communication are established. These organisations present some common characteristics such as: name, objective, rules, structure, hierarchy and positions, chain of authority, power, and records.

Private forestry is economically oriented and it is managed by the forest owners. Such management depends on the owners' individual decisions which are conditioned by their particular interest and sometimes by rules imposed by the country's forestry policy. In opposition to this individualistic view of forestry resources, we have the terms **Public Forestry** and **Social forestry.** These concepts can be seen as synonymous with "forestry community development" - a new people-oriented concept, whose aim is to make the community's surrounding areas productive and to raise the rural living standard in economic, social and environmental terms (Mohamed *et al.*, 1995). In the Pinhal Sul region the forestry areas are almost one hundred per cent private, covered by a single species - maritime pine. Only in the North of the country does social forestry (Baldios) assume some significance. Usually people intervention in this type of forestry is a merely extractive task, but never as a **social forestry** oriented by people's interest and participation, as Garforth (1991) suggests in his study on social forestry in India.

In discussion of the issues regarding forestry activity we have often used the terms forest management and forestry planning, hence the interest in the definition of these two concepts. In a very extended definition (Messerschmidt *et al.,* 1993: p11) states that

> "**Forest management** includes all three aspects: a set of institutional, technical and/or non-technical, indigenous arrangements based on elements of scientific and/or folk knowledge, referring to the organisation, control, access, utilisation and distribution of the forest's ecosystem."

In its turn, the forest's ecosystem includes trees, woodlots, plantations, natural forests associated floral and faunal species, and other resources and productive enterprises, such as agroforestry, pasture and wildlife.

Given the new forestry principles mentioned above, forestry policy should answer to the requirements of protection, production and leisure, without disregarding its future evolution. While doing so, it needs to be supported with adequate actions of forest management techniques and **forestry planning**. The latter constitutes an indispensable instrument for the

> "valuation of the needs of conservation, and for calculating of the needs of production, which once calculated, and faced with the future requirements: the amounts involved in the programmes and the financial instruments, allows to make decisions in terms of areas and schedules for the forestry activity." (Solana, 1991: p23).

The Portuguese government's and the EU's financial support to private forestry is mainly grounded in its protection and on environmental principles, which could to some extent be opposed to the economic ones. Such an antagonism may constitute the major difficulty for planning. New formulae for financing of environmental aspects related to forestry have to be found, as in fact it is not easy to see who benefits from these aspects. Many objectives are not monetary ones, and so some benefits and some of the costs cannot be quantified. On the other hand, these benefits do not revert to anyone in particular, but more generally to the whole region or to the country (Buttoud, and Normandin 1994).

Regarding the nature of planning Cloke (1988), sets out the elements that integrate almost all definitions of planning. We have selected the two that illustrate the forestry organisational process in the studied region: an activity involving guidance or regulation of some particular events and objects - the forest's use; and an activity undertaken by people who consider themselves to be planners or involved in the way of planning.

> "The subjective planning is what a planner does, and the objective planning is what people recognise as what planners do." (Cloke, 1988: p7)

The concept of **forestry culture** has been discussed by the Spanish sociologist Peres Vilariño. In his opinion, the concept is grounded in values that include the intention to find a new perspective for forestry, the character of its collective patrimony as a source of natural renewable resources, and the outcome of all science and research works dealing with it (Vilariño, 1992). The forestry culture requires the spreading among the communities of the elementary forestry issues linking forestry producers and consumers of forestry products (Vilariño, 1993). According to him, the objective of the professional forestry culture is

> "to achieve a natural resources management level for the forestry industries similar to that achieved by agriculture regarding the agro-industries." (Vilariño 1992: p93).

However, the new forest values, which are becoming more and more important, have to be added to those relations between the producers and consumers, since the forestry industries are not the only entities in the process. As well as the benefits that the adoption of such culture would bring to both producers and consumers, the author points out that as this forestry culture is adopted by the small local forest landowners they might get increased products and therefore income from their forests (Vilariño, 1992).

Most of the research undertaken regarding farmers' organisations concerns the participation of their members and their efficiency. According to Gasson's (1977) study of farmers' participation in co-operatives, **participation**, a form of behaviour, is usually treated as a dependent variable in studies of this kind, and should be explained in terms of the members' characteristics. In general, these characteristics are divided according to the background factors (economic and social characteristics), and subjective attitudinal variables (also beliefs, values and perceptions relating to co-operation). Due to the diversity of factors involved, participation has been defined and measured in a variety of ways in different studies of agricultural co-operation, ranging from simple accounts of membership to measured levels of patronage, financial support and its involvement in the tuning of the organisation. However, some objections have been raised to considering participation as a single variable when it combines such different behaviours. For instance, Le Vay (1976) refers to a study by Gasson measuring four kinds of participation: patronage or use of the organisation's services; support for the co-operative as an organisation; membership and informal participation. Such a study revealed participation as strongly related to members' attitudes towards associations, perceptions and beliefs about co-operation. In any case, members with a better understanding of the aims of the organisation and with more favourable attitudes towards it, presented a higher level of participation. After analysing several research studies (Bealer 1957; Copp 1964; Haddad 1970; Le Vay 1975) dealing with farmers' participation in co-operatives, Gasson (1977) pointed out that all these studies suggested that participation will more likely be influenced by their members' approach to co-operation, and their beliefs about co-operation in general or a particular co-operative organisation, rather than by the background characteristics.

For an organisation to be effectively guided it should take into account two main sets of conditions: the external world (other organisations, government institutions or whatever) and the internal problems of the organisation itself. **Leadership** is defined as

> "guidance and direction provided to a team by someone functioning in a role constituting formal authority to influence the team." (Stewart and Manz, 1995: p750).

According to the author, this definition is objective in nature, and differs greatly from the interpretative definitions that see leadership as a socially constructed phenomenon. In having this, leadership is seen as a boundary function controlling transactions between inside and outside the group. It occurs in order to establish links between what is inside the group and its environment, whether a group is large or small (Miller and Rice, 1976; Curtis, 1991). In general, two types of leadership are used as a reference in order to classify its nature: autocratic leadership, and democratic leadership. The first is displayed by leaders who seek sole possession of authority, power, and control; democratic leadership, on the other hand is displayed by leaders who share authority, power and control with their followers (Stewart and Manz, 1995).

Manuela Ribeiro, in her study of farmers' association in the Northwest of Portugal, introduced the concept of **"deforming ideologies"** which includes

> "a sort of different collective representations-images, beliefs, ideas, etc. basically deformed in order to serve justifiable reasons used to explain real aspects of attitudes and behaviours." (Ribeiro, 1988: p42).

The author found that as excuse for the failure of such an organisational process was very often suggested the "farmers mentality: as being individualist, distrust and traditional persons". Moreover, she points out that such characteristics are assumed either by agricultural technicians and some others, as being natural components of the specific farmers' nature. Given this, and given the fact that the easy diffusion of such idea

> "popularity and vitality of such ideology which is widely diffused constitutes a justification for the institutional and personal standstill - inertia, regarding the association process". (Ribeiro, 1988: p44).

To enhance the adoption of these "deforming ideologies", the author identified several aspects used to ensure the lack of any feelings of guilt among the farmers and institutional people. These aspects constitute a base from where they took the idea that they are not obliged to undertake any action in order to promote the association. However, worse than this, is the ability of such a process to persuade the farmers themselves that they are not competent, that association among them is impossible, and that they will never succeed within an association. Thus with the farmers assuming such deformed ideologies we have a vicious circle that will be very difficult to break, and that will endanger any attempt to create an association (Ribeiro, 1988).

3.6 Summary

Through this chapter we have discussed the importance of the farmers' organisational process and its critical issues. The review of forestry organisations in European Countries leads to the conclusion that forestry organisations play a very important role in the Northern Countries. They are working in a way to solve problems emerging from the structure of properties and from the huge number of small land owners. The apparent success in the organisational process in Galicia, gives reason to believe that something similar could be tried in Portugal. Such an attempt is already being carried out by the FANCP, but only in the Northern region which has certain characteristics quite different from the central region, the Pinhal Sul region. Given this, it becomes significant to study the particular conditions of the region and of their NPFLs in order to discover the factors which could be determinants in the implementation of an organisational process in the region. Thus, according to the methodology presented in the next chapter, we have attempted to describe the farmers' mentality about forestry as well as the local agents' opinions towards the forestry organisation process.

4 METHODOLOGY

Before undertaking any research project, it is important to have in mind a definite methodology as well as a well-planned research design. Even prior to this stage one must understand certain basic rules of analysis. In this chapter we will review some of the methodological issues which were fundamental for conducting our research, and we will describe the methodological procedures used in each part of the study. The literature review was focused on the nature of the research and on correspondent methods for collecting and analysing data. We were also concerned with issues such as reliability, validity and representativeness. Moreover we tried to identify studies showing similarities with our research, in order to use them as examples supporting our own procedures.

4.1 Methodological framework

This section presents the choice of the main research design and research instruments, discusses their relative advantages and disadvantages, and alternatives. Three fundamental principles - reliability, validity and representativeness - are approached, regarding our need to develop a research project using attitude measurement instruments following these principles as far as possible. The instruments for collecting information and issues related to their construction and implementation are outlined.

4.1.1 Type of research

Occasionally, given the nature of the research involved, it is difficult to make the study correspond to the usual research headings used in social sciences. Some studies appear under more than one heading, suggesting that merging of research styles could produce positive results within a single investigation. Bryman (1990) states that there are a number of ways in which qualitative research can act as a precursor for the formulation of problems and the development of instruments for quantitative research;

> "qualitative research may act as a source of hunches or hypotheses to be tested by quantitative research." (Bryman, 1990: p134).

As occurred in our study, qualitative research may also facilitate the construction of scales and indices for quantitative research. Moreover, the presence of qualitative data may greatly assist in the analysis of quantitative data. Another indicator of the multimethod approach is the frequency of research designs involving more than one technique for data collection. The advantages of combining the two types of research were pointed out by Bryman (1990). He points out that combining quantitative and qualitative research is a regular practice of many researchers in order to tailor their research strategy to the problem in hand, and such practice can frequently be found together in particular substantive areas in the social sciences.

> "By and large, the two research traditions can be viewed as contributing to the understanding of different aspects of the phenomenon in question." (Bryman, 1990: p170).

In addition to the complementarity between methods, Brewer and Hunter (1989) emphasised that the use of a multimethod approach

> "is a strategy for overcoming each method's weaknesses and limitations by deliberately combining different types of methods within the same investigations." Brewer and Hunter (1989: p 17).

The multimethod approach does not involve the use of a new research method. Its main role is played in the definition of the research strategy, since the methods used in the multimethod approach are the standard methods in contemporary social research. What is new, however, is the planned and systematic synthesis of these different research styles, purposefully aimed at improving knowledge of the social science.

A number of synonymous terms have emerged as alternative labels for the qualitative approach; but, fundamentally they all refer to the same thing:

> "an approach to the study of the social world which seeks to describe and analyse the culture and behaviour of humans and their groups from the point of view of those being studied." (Bryman, 1990: p46).

From Hakim's (1992) point of view, qualitative research can be seen as non-quantitative research, meaning research that is concerned with the individuals' own accounts of their attitudes, motivations and the behaviour emerging from the interviews, offering substantively different and complementary information on the way attitudes and experiences converge into meaningful patterns and perspectives. Bryman (1990) discuss the dependence of qualitative research on two main issues: the contextualism, which emerges from the research's commitment to understand events and behaviour in their context; and the holism, which entails examining social entities as a whole in order to explain and understand them in their entirety.
The need for detailed information explains why qualitative studies normally involve a small number of respondents. For this reason, the qualitative approach is sometimes accused of lack of representativeness (Hakim, 1992).

In harmony with their research format, social studies can be classified according to one of these general research approaches characteristic of sociological work: formulative or exploratory studies, descriptive studies or experimental studies (Selltiz *et al.*, 1976; Strauss, 1991; Miller 1991). According to the kinds of research design discussed by these authors, our study can be understood as involving a descriptive survey or a combination of a survey and a case study, which, despite presenting some explanatory features, was mainly based on a descriptive questionnaire seeking to estimate as accurately and comprehensively as possible the region's problems in relation to the private small forestry sector.

As Forcese and Richer (1973) note, when sociologists are explicitly concerned with an explanation they may use an experiment or a survey. The survey can be used in both kinds of research (descriptive and explanatory). Our study was based in such an approach, since we were interested in describing the situation of the NPFLs' involvement in forestry but, at same time, we also wanted to provide explanations for some phenomena related with this issue. A strategy had to be adopted for collecting data. However, as Brewer and Hunter (1989) state, a survey requires considerable co-operation to generate data, and the researchers should be socially involved with their subjects either by interviewing or by administering questionnaires.

Distinctions between different methods are as hard to draw as distinctions between types of data. The research dimensions have been slightly changed due to the recent interest in "multi-case" fieldwork methods, eroding the force of the case study/survey distinction (Ian, 1993). It has become normal to use a survey as a data collection instrument within the context of a case study. Such a practice is grounded in the assumption that the in-depth study of a particular social setting yields a different and sometimes more useful perspective than a large-scale study of individuals from a whole population (Blumer, 1979). Therefore, as the author argues, it is preferable to study localities or social groups as a whole rather than as atomised individuals. The importance of the in-depth study is justified by the wish to provide an explanation, since causal explanations as well as an interpretative understanding of social action are the main concerns of sociology.

4.1.2 The choice of an adequate method

While no fully satisfactory criteria exist to choose the research design, there are factors that will necessarily affect the choice. Financial resources and time, the nature and size of the units to be studied, and the degree to which we wish to generalise from the findings will all affect a decision. In our particular case, and given the fact that the focus of study is a social group, the doubt raised was: should we undertake a case study or a survey? At first sight, the choice could be based on the merits of each method. However, the choice between a case study or a survey should not only depend on any sense about the absolute merit of each of the methods, but on the purpose of the study (Forcese and Richer, 1973). In some situations there is no reason why both of these orientations cannot appear in the same study, and consequently the research could be undertaken in a format involving both methods. Forcese and Richer (1973) point out that, in fact, such a combination can provide a richness of data not available from a single approach. One of the criteria usually followed to choose between both methods is the need for generalisation, which is directly related to the sampling procedures.

> "Normally the prior decision for a case study will have precluded any sampling procedure, although it is conceivable that a researcher might select his case for intensive study on the basis of some probabilistic sampling procedure." (Forcese and Richer, 1973: p121).

Based in the literature reviewed, we used as main criteria the kind of research questions involved in the study, the access to potential informants and the type and number of study units used (Babbie, 1973; Yin, 1989; Nisbet and Watt, 1987; Platt, 1988; Hamel *et al.*, 1991). The logic of case-studies is defined in theoretical rather than statistical terms, where the researcher selects the case only because he believes it shows some general theoretical principle. Hence, validity depends entirely on his ability to demonstrate that the features portrayed in the case are representative not of the population but of this general principle (Silverman, 1986). Given this, the researcher must be aware of the risks of generalising the results of a case. This happens because cases are not "sampling units" and should not be chosen for this reason (Yin, 1989). In a survey research we can generalise the results to a larger set of groups, as long as proper sampling has been employed (Forcese and Richer, 1973).

4.1.2.1 Surveys

A variety of basic designs may be included within the term survey. The objectives of a survey are to obtain large amounts of data, usually statistical data, in a relatively short time. It can be seen as a systematic method for obtaining information, such as attitudes, opinions and reports, to describe or to explain selected characteristics of some group of persons, institutions or objects (Babbie, 1973; Miller, 1983; McNeill, 1989). These objectives are reached through the collection and analysis of carefully structured data from a relatively small group. The small group is meant to represent the larger group or population that constitutes the object of the research: in our study, the object of the research are the NPFLs of the Pinhal Sul region. In general, the purpose of a survey is to provide information. With regard to their purposes, two broad types of social survey may be distinguished: the descriptive or enumerative and the analytical or relational. There are also other types of surveys such as the predictive and the evaluative, which are not so frequently used in studying farmers and their relations within an agricultural activity (Oppenheim, 1966; Gardner, 1976; Blumer, 1979; Jaeger, 1984; McNeill, 1989). Casley and Lury (1991) comment that the distinction between the two types of surveys is not clear-cut and that many surveys serve both purposes.

Depending on the subjects to which the survey research is applied, social surveys can be also classified as demographic, economic, activities, opinion and attitudes. Therefore, the survey's format could be applied to both individuals or groups. In a survey of individuals the sociologist is interested in the characteristics of a particular population. These may be attitudes, behaviours or simply, social characteristics. The purpose, then, is to describe using several specific dimensions (Forcese and Richer, 1973; Gardner, 1976).

For Smith (1981) the survey method, like any other method, presents strengths and weaknesses. Among the latter we can point to the fact that surveys are open to memory and viewpoint bias; the biases are caused by the interviewers' influence or by the incorrect use of the questionnaire; and furthermore surveys depend heavily on the subject's motivation and his or her ability to respond. On the other hand, surveys are the sole way of retrieving information about the respondent's past history; they provide one of the few techniques available for the study of attitudes, values, beliefs, and motives; they are better adapted to collect generalisable information from almost any known population; they allow easy standardisation of data, which are particularly amenable to statistical analyses; and, moreover, they usually involve low costs.

The researcher, in planning survey research, must be concerned with three key issues, reliability, validity and generalisation (Selltiz *et al.,* 1976). Given the importance of these three factors, potentially affecting the quality of the survey research, we will analyse them in the following section. However, despite those issues we must concentrate our efforts in attempting to suppress all the errors that we can, but the effort should be proportional in order to get the greatest possible use from available data. Among the thirteen factors affecting the ultimate usefulness of a survey, identified by Deming (1970), we paid major attention to the factors that are of particular interest for our study: variability in response; differences between different kinds and degrees of canvass; interpretations in the design of the questionnaire; bias from an unrepresentative selection of respondents; and, consequently we tried to minimise the effects of these sources of error.

As suggested by Jaeger, (1984), Brenner *et al.* (1985) and by Groves *et al.* (1992) the practical issues related to the administration of a survey were also considered as important factors to the chosen collection technique. In our study particular attention was paid to the optionally and confidentiality of the interviews, and to the specific characteristics of the sample's individuals. We also tried not to influence the answer at any time, giving the interviewee all conditions to respond according to their thoughts.

4.1.3 Reliability, Validity and Representativeness

The measurement of any phenomenon always contains a certain risk of error. As we have mentioned above, controlling for error depends on handling three key issues that must be considered while undertaking any social research: reliability, validity and representativeness.

Reliability has to do with the stability of the measurement. A measurement is reliable when it does not vary over time and when the same basic measurement procedure employed in different contexts at the same time yields the same results. Thus, to call a method of collecting evidence reliable means that anyone else using this method, or the same person using it at another time would come up with the same results. The research could be repeated by the same or different researchers, and the same results would be obtained (Denzin, 1970; Forcese and Richer, 1973; McNeill, 1989).

Reliability varies according to the research methods. In Sociology some methods are regarded as being more reliable than others. Any method that involves a lone researcher in a situation that cannot be repeated, such as participant observation research, is always in danger of being seen as unreliable (McNeill, 1989).

Generically, there are four ways to measure reliability. The most frequently used in the past was the split-half reliability method. However, today this method has been substituted by one using the correlation between each item in a scale against every other item to obtain an average inter correlation for the entire set of correlations. This procedure provides the most stable index of reliability, the *coefficient alpha,* developed by Cronbach (1951) cited by Smith (1981:p33). The use of the alpha coefficient to estimate reliability is supported by Mckennell (1970), Edward and Richard (1988) and Bryman and Cramer (1990). According to the latter authors to accept a scale as internally consistent, the Cronbach's alpha coefficient should be 0.8 or above. The Likert scale that we used in our study presents Alpha coefficient values of 0.9329 and 0.7809 when used to measure the attitudes of the NPFLs non residents and residents respectively (Appendix 4).

Validity is defined as the extent to which any measuring instrument measures what we intend to measure. According to Edward and Richard, citing Cronbach (1971), strictly speaking

> "one validates, not a test, but an interpretation of the data arising from a specified procedure." Edward and Richard (1988: p17).

Validity concerns learning whether the data collected is a true image of what is being studied, i.e. if we are really measuring what we intend to measure. The problem particularly arises when the data collected seem to be a product of the research method used rather than a product of what is being studied (Forcese and Richer, 1973; Vergara and MacDicken, 1990).
The validity aspects are particularly relevant in attitude surveys, where it is important not to assume that people's expressed attitudes are consistent with their actual behaviour.

> "This is a nagging doubt about any survey-style research. It must be accepted that what we are collecting is people's answers to questions, which is not necessarily a true picture of their activities." (McNeill, 1989: p14).

To judge the validity and usefulness of the data, Wiseman (1986) suggests that the researcher needs to assume that, at least at first, no one is lying; that there is nothing that happens or that people tell us about that "does not make any sense"; that people do the very best they can; that there is usually nothing that people tell us that could be dismissed as truly irrelevant to our study, and finally that there is no such thing as an absolute truth. The validity of the research is affected by the "milieu" conditions (Phillips, 1976). It could also be affected by the inappropriateness of the questions is affected by the insufficient knowledge on the part of the researcher regarding the respondents, and by the meaning and connections of the respondents' concepts which often differ from those of the scientist (Polak, 1986). Hence, the importance of having good knowledge of the region and the population where the research takes place. If the researcher knows the village (from a previous study) he will be able to avoid superfluous questions, and can focus only on locally relevant problems. Furthermore, the scientist will then be much better equipped for weeding out questions which should not be asked because they lead to invalid answers, because of the respondents' emotional involvement. The validity of the collected data will also be improved because after a period of research the researcher will be better acquainted with local concepts. It is important to learn about real life (Polak, 1986). As a conclusion, researchers cannot judge the validity of a single measurement by finding how far it differs from the true value, which is unknown.

> "It is the entire apparatus used - the sampling procedure, the data collection, and the manner in which estimates are made - which will have to be judged as satisfactory or not." (Raj, 1992: p9).

Therefore, a researcher who develops a new measure should at least establish that it has face validity - that is, that the measure apparently reflects the content of the concept in question (Bryman and Cramer, 1990).

As mentioned in the beginning of this section, the **representativeness** of the research's results constitutes a crucial issue that must be considered in designing research, in order to adapt it to the purpose of the research. The central discussion about representativeness should regard the question of whether the group of people or the situation that we are studying are typical. If they are, then we can safely conclude that what is true for this group is also true for other groups, then we can generalise from the case that we have studied. If we do not know whether they are representative, then we cannot claim that our conclusions have any relevance to anyone else (Polak, 1986; McNeill, 1989).

Usually a social research project cannot be undertaken involving the whole population. Therefore a decision has to be made about which units will be studied. In our study, for instance, we focused our analysis on two units. First, the community of Pinhal Sul, and, second, the community of NPFLs. We concentrate on the NPFLs, because in the end it is the landowner who decides the kind of intervention in his own forest. However, NPFLs are part of the community to which they belong. They differ according to their place in the social structure of the community. Differences, such as family labour, power, etc., are relevant to the farmers' organisational arrangements and might have different consequences for alternative forestry activities (Polak, 1986). The formal procedures to ensure the representativeness of the research are of a statistical nature, and specifically related to the sampling methods.

4.1.4 Attitude measurement

Before approaching the attitude measurement and the construction of attitude scales this section presents a brief review of attitude theory. Most social research is focused on attitudes, and because of this, the concept of attitude has been used under several meanings. The most superficial approach to attitudes is to see them as a person's opinion toward any thing. However, many scientists have abandoned this concept and are now looking at attitudes as regarding a set of opinions, reasonably consistent in their meanings and intentions, as well as reasonably consistent over a period of time, therefore, rather more stable than fluctuating opinions (Gardner, 1976). In a more behaviourist approach, attitudes are seen as states of readiness, as tendencies to act or react in a certain way whenever confronted with certain stimuli (Oppenheim, 1966). The concept of attitude was also used by Thurstone (1976) to describe a potential action toward an object regarding only the question of whether the potential action will be favourable or unfavourable towards the object. Therefore attitude can be understood as the affect for or against a psychological object (Bruvold, 1973; Canary and Seibold, 1984). Looking at attitudes as individuals' common features, Guilford (1954) remarks that an attitude is a personal disposition common to individuals, but possessed to different degrees, which impels them to react to objects, situations, or propositions, in ways that can be seen as favourable or unfavourable. According to this latter definition, we can suppose that attitudes can be measured. However, attitudes measurement has raised some criticism which lies in the argument that attitudes are abstractions. But the same happens with many other components of behaviour which are also abstractions, though according to Oppenheim,

> "attitudes are real enough to the individual who holds them." (Oppenheim, 1966: p106)

Agreeing with this, Reynolds (1984) noted that attitudes are not simply a matter of pro or con. Instead, people hold them with varying degrees of conviction. Thus, an attitude might really be considered a continuum running from Favourable through Neutral to Favourable. Difficulties in measuring attitudes should not obscure the potential richness of this information.

Attitudes have been decomposed by many theorists into separate components: affect - the emotional component, and belief - the cognitive component. Both can be operationalised. Different theories or models (Expectant Value theories; Theory of Reasoned Action - TRA; Theory of Planned Behaviour - TPB) have been developed based on these assumptions in order to use attitudes to predict individuals' behaviour. These theories have been widely used by several researchers in different fields (Fishbein, 1976; Regan and Fazio, 1977; Fazio, 1978; Snyder and Kendzierski, 1980; Budd and Spencer, 1984; Jaccard, 1984; Ajzen and Madden, 1985; Miller, 1986; Shavitt, 1990; Carr and Tait, 1991; Tourangeau, 1991; Axelrod and Lehman, 1993). In addition to its contribution to behaviour prediction, the Fishbein and Ajzen TRA model is very useful in making a clear distinction between beliefs, attitude, subjective norms, behavioural intention, and behaviour (Ajzen and Fishbein, 1970; Bright *et al.*, 1993).

Measurement consists of identifying the value which may be assumed by a variable, and representing these values by a numerical notation (Torgerson, 1962; Forcese and Richer, 1973). Measuring an attitude means placing someone's attitude on a straight line or linear continuum, in such a way that he can be described as mildly positive, strongly negative and so on - preferably in terms of numerical scores or by ranking (Oppenheim, 1966). This model of linear continuum or dimension is not always easy nor appropriate. For instance, a positive and a negative part may not be the linear extension of one another.

The measurement of any object or entity describes only one attribute of the measured object/entity. This is a universal characteristic of all measurements. In an attitude measurement only one of the attitude's characteristics is described. Moreover, only those characteristics of an object that can be measured are the ones susceptible to be described in terms of "more" or "less". Only those characteristics that can be thought of as linear magnitudes - length, weight, amount of education etc., and strength of feeling favourable to an object - can be described (Thurstone, 1976).

Given the above discussion on attitudes measurement, to pursue the objective of this present study in order to assess the NPFLs' existing attitudes towards forestry organisation, to describe objectively the difference between individual and group attitudes, we need to focus our interest on the attitude measuring process. Hence, a literature review of the scaling process has been conducted, paying particular attention to the construction and use of Likert type scales (section 4.1.6, below).

4.1.5 Sampling procedures

A sample is a small representation of a larger whole. Sampling allows researchers to save time and money, thus making possible investigations that could otherwise not be carried out (Miller, 1991). If the research is aiming to draw conclusions only about the sample itself, any kind of sample will serve the purpose, but if the researcher aims to generalise the results he needs to choose an adequate sampling method, one of the three sampling methods commonly used: random sampling, stratified sampling and judgement or purposive sampling.

Few samples will be perfectly representative, but the more representative they are the greater is the confidence in the conclusions drawn about the larger population. However, in some studies conclusions can be drawn about a sample without attempting to generalise to a larger population (Gardner, 1976). According Gardner (1976) and Ian (1993) the social scientist clearly has preference for random samples, but non-random samples do have a place when wider generalisations are not required or when the extra time and effort required for random selection is not justified.

When there are difficulties in designing or selecting a random sample, (had a low budget or no list of individuals available) and we have a good knowledge of the region, it is advisable to use a purposive sample, the more usual procedure to ensure representation without excessive size is stratification. This often leads social researchers to draw a sample frame of villages, and then take a second stage sample of the households in the selected villages (Shipman, 1981; Casley and Lury, 1991). As Miller (1991) and Silverman (1994) noted, the judgement or purposive sampling should be used when practical considerations preclude the use of probability or random sampling, and researchers may seek a representative sample by other means. They may look for a subgroup that is typical of the population as a whole. Observations are then restricted to this subgroup, and conclusions from data obtained are generalised to the total population. Barnett (1974) advanced another pragmatic or ad hoc method, which has been widely used: the accessibility sample. In this method the prime stimulus is administrative convenience, and a sample is chosen with the sole concern for easy access. The inevitable shortcomings of such samples are obvious if we want to make generalisations for the whole population. However, in some situations they could be less serious. Therefore its use depends on the research objectives and the availability of means to use a different sampling method. Quota sample is a method that combines both accessibility and judgmental methods (Barnett, 1974). In using these methods sampling errors and biases cannot be accounted for in such samples. For this reason purposive sampling or accessibility should be restricted to situations where the possible errors are not serious and probability sampling is nearly impossible for practical reasons. However, in using this sampling method the researcher must be aware that

> "data from judgmental sampling will at its best suggest or indicate conclusions, but in general they cannot be used as the basis for statistical testing procedures." (Miller, 1991: p61).

Given that, and agreeing with Jaeger (1984), a sampling process must pay attention to time budget limitations and specific research objectives. Therefore, we support the suggestion of Deming (1970) which points that;

> "the investment of the researcher in improving the reliability and the validity of the research attained at a lesser cost, will compensate other sources of errors - e.g. the sampling procedure." Deming (1970: p321).

Taking this tenet into account, we have tried to reduce the errors in order to compensate for the lack of representativeness of the sample. In the same way, Shipman (1981) notes that the care with which a sample has been designed will be wasted if those chosen cannot be found or refuse to co-operate. Therefore, and given the nature of the issues we have been discussing, we can conclude that at a final stage of his/her work the social researcher should feel as Barnett (1974: p12) pointing out the researchers' aims;

> "the general aim must be to draw a sample which is an "honest representation" of the population, and which leads us to estimate a population's characteristics with as great a "precision" or "accuracy" as we can reasonably expect for the cost or effort we have expended."

4.1.6 Attitude scaling methods

Collecting information on attitude measurement requires the use of an attitude scale. Following Stevens (1974), attitude measurement constitutes a particular aspect of the concept of measurement. This implies to see measurement through a broad definition, as determining any kind of relation between the properties of objects or events, thus restricting its meaning to these relations for which the real number system might serve as a useful model. This restriction is implicit when we say that measurement is to assign numerals to aspects of the objects or events according to established rules.

Measuring attitudes according to a scaling method depends on some general assumptions: first, subjective attitudes can be measured by a quantitative technique, so that each person's opinion can be presented by a numerical score; second, a particular test item, or other behaviour indicating an attitude, has the same meaning for all respondents, so that a given response is scored identically for everyone answering to it; third, truth only means relative consistency of several indices, and it is never directly known. Therefore, we shall assume that an attitude scale is only used in those situations in which one may reasonably expect people to tell the truth about their convictions or opinions (Thurstone, 1976; Hogg and Vaughan, 1995).

Among the wide variety of measurement techniques which have been employed in studies on attitudes, five are most frequently used, namely: Likert, Thurstone, Guilford and Guttman methods and the semantic differential technique. Comparing these methods, Jaccard *et all.*, (1975) suggest that the Likert, Thurstone, Guilford, and semantic differential measures of attitude are probably satisfactory methods of attitude measurement. Independent of the method chosen, the construction of attitude scales must be treated as a special subject, because it presents some unique problems. These problems stem largely from the fact that attitude scales represent more obviously bipolar continua than do any other test scales. As Guilford (1954) states, it would appear that the choice of the method to use for the development of an attitude scale lies between the Thurstone and Likert procedures.

The Likert scale is a summated scale consisting of a series of items which scores from one respondent can be summed up in order to use the total as an index of personal attitudes. A Likert scale is clearly not an interval scale: this method usually produces, by principle, an ordinal scale which generally requires nonparametric statistics. As an ordinal scale, it orders or ranks objects or events without providing any information about the exact distance between scale categories, and no conclusions can be drawn about the meaning of distances between scale positions. This method assumes that each statement used in the scale is a linear function of the same attitude dimension (Stevens, 1974; Phillips, 1976; Kurtz, 1983; Kish, 1986; Walsh, 1990; Miller, 1991; Moser and Kalton, 1992; Hogg and Vaughan, 1995).

In the comparison between Likert and Thurstone techniques, the Likert seems more advantageous because it gets a higher reliability, it follows an appealing summate model; the scales are easy to construct, and they usually can be adapted to measure different kind of attitudes (Guilford, 1954; Seiler and Houg, 1977; Kiely-Brocato *et al.*, 1980; Oppenheim 1982; Miller, 1991). These advantages lead researchers to prefer the Likert scaling method, namely those wishing to develop a fairly reliable procedure for assessing attitudes with a reduced cost and effort. Given the above mentioned features of the Likert scaling method, and following the suggestion of Jaccard *et al.* (1975) that in the selection of the method to adopt for the research, if there are no specific indications, the time and the money needed for constructing the scale, as well as its simplicity, are determinants, we have adopted this method in our research. Thus, the following sections refer only to the construction and administration of this kind of data collection instrument.

Scale construction - An attitude scale should possess internal consistency. Taking this into account, we have to work out the correlation coefficients for each item with the total score and retain those with the highest correlation. In many cases researchers have used this internal-consistency method of item selection as an approach to the unidimensionality (Shaw and Wrigth, 1967; Oppenheim, 1992). Thus, the correlation coefficient acts as an excluding index for each item. That is, if the item is highly correlated with the total score, it is internally consistent and should therefore be retained. Usually the Pearson's Correlation Coefficient is used (Bliss and Martin, 1989; Oppenheim, 1992).

The number of items to be used in a Likert scale is one decision that the researcher has to take. Eysenck (1986) notes that Likert scales with as few as five statements may give reliability coefficients of from .69 to .84. According to the opinion of Oppenheim (1992) the number of items is arbitrary and variable according to the purposes of the study, the kind of respondents and the level of reliability. It can range from half a dozen to a dozen or more items (statements).

When designing and using scales we must pay attention to the objects of the attitude scales (the attitude statements are also referred as scale items). They must be written with care, having in consideration the objects of the scale, the NPFLs in our study (Oppenheim, 1966). The way of writing the statements will be decisive in avoiding response bias. In this case "response bias" means that:

> "a response to an item tends to be altered in such a way that it indicates something other than that which we intend it to measure" (Guilford, 1954: p451).

Bliss and Martin (1989) suggest a list of criteria to be specifically used for selecting attitude statements as suggested by Likert (1932). In our study the criteria used for attitude statements, in building attitude scales, were according the suggestions of Oppenheim (1966), Moser and Kalton (1992) and Silverman (1994).

4.1.7 Interviews and interviewing

The benefits derived from the techniques used in social inquiries are related to the data collected from respondents, not only in terms of their knowledge about specific levels and transformations, but also enabling the access to phenomena that may previously have been inaccessible. This is particularly useful while undertaking detailed measurements of phenomena that cannot be located through other means. To pursue the objectives of this study we planned to get information through both verbal and written sources. We then chose the method based on the ability of the informants to write, and their accessibility to being interviewed by the researcher. Different instruments are available for collecting data: unstructured interview, semi-structured interview, structured interview and questionnaire. Verbal contact with the subjects is achieved through conducting interviews, and the written contact by self-administered questionnaires (Berdie and Anderson, 1974; Gardner, 1976; Lemon *et al.*, 1994). In the present research, the instruments were chosen mainly by the imposition of the informants' characteristics (illiterate people cannot be given a questionnaire, though they may, of course, be interviewed), considering the research objectives, the availability of resources and time. In this brief review we will restrict ourselves to the aspects that affect the construction and the use of instruments chosen, interviews and mail questionnaire. These methods have some disadvantages which are discussed by Gardner (1976), Jaeger (1984) and Brenner *et al.* (1985) who conclude that possible sources of error are always present in any interview interviewer. However, these authors also suggest that it is possible to overcome some of these limitations through a careful research format and the correct use of the methodologies when conducting each interview. Despite disadvantages, interviews, like questionnaires, are the main choice for social research, since each one's advantages encourage the researcher to use them (Babbie, 1973; Zito, 1975; Gardner, 1976; Jaeger, 1984; Brenner *et al.* 1985; Walsh, 1990).

We have used a **structured interview** (also called a formal or schedule interview), to obtain a uniform set of data regarding a particular group within the study region - the NPFLs. According to Jaeger (1984), whether face-to-face or by telephone, the instrument with which information is collected from respondents is called a interview **protocol**; the instrument used to collect information in a mail survey is called a **questionnaire**. This kind of interview is useful for quickly and efficiently collecting a uniform set of data about people who are related with but not central to our investigation, and it allows the researcher to follow a more specific objective and a statistical analysis of the data (Gardner, 1976; Polak, 1986; Jorgensen, 1989; McNeill, 1989). On the other hand, in an **unstructured interview,** an interviewer asks questions based on either written (interview guide) or mental notes regarding the study's topics of interest. As opposed to an interview protocol, an interview guide does not contain any predetermined, carefully formulated questions, but only topics for discussion (Berdie and Anderson, 1974; Polak, 1986; McNeill, 1989; Lemon, R and J, 1994). The researcher can also follow a **semi-structured interview,** in which he is allowed to collect information according to the protocol. However, this permits the interviewer to modify the sequence of questions, depending on the respondent's earlier responses, and at the same time, as in an unstructured interview, follow the ideas regarding the information given by the respondents (Jaeger, 1984).

Whenever researchers have difficulty in contacting informants in order to conduct interviews (because they are not home during the normal hours, or are living abroad) they have to use mail questionnaires (Berdie and Anderson, 1974). The main difference between an interview and mail questionnaires emerges from the fact that, as Selltiz *et al.* (1976) pointed out, in an interview it is possible to take greater care in posing questions and in eliciting information. The interviewer has the opportunity to observe both the subject and the whole situation to which he or she is responding; on the other hand, in a questionnaire the information is limited to written answers to prearranged questions. Other limitations could be the low response rate and the loss of independence between questions, since the respondent cannot respect the questions' order (Berdie and Anderson, 1974). Despite this, questionnaires have also some advantages: the most obvious one being cost. The expense involved in printing questionnaires and distributing them to large numbers of people is considerably less than that involved in interviewing the same number of people. Moreover, due to their impersonal and standardised nature, questionnaires ensure an uniform presentation of the questions because everyone getting the questionnaire will receive the same questions in the same format with the same accompanying materials. On the other hand, respondents may have greater confidence in their anonymity, and they may place less pressure on the subject for immediate response (Berdie and Anderson, 1974; Selltiz *et al.* (1976). The practical issues involved in the construction and administration of the interview protocol and questionnaires (questions, vocabulary, question sequences and questionnaire layout were considered according the literature reviewed (Oppenheim,1966; Berdie and Anderson, 1974; Smith, 1981; Shipman, 1981; Moser and Kalton, 1986; and Sanchez, 1992).

4.1.8 Examples of methodology used to study the landowners' attitudes towards forestry issues

Before describing the methodology followed by our study, we will present some examples of research work conducted in the same field, focusing on the different types of methodology used. With this, we expect to contribute to the understanding of some of our methodological options as well as to justify them.

Studies of farmers' attitudes towards co-operation are mainly studies concerning the identification of the attitudes, and the farmers' participation in their organisations - co-operative. Mariadis (1972) used surveys to develop a study about farmers' attitudes towards co-operation at a national level. Vay and Lewis (1976), using a purposive sample, studied the co-operatives' members' attitudes towards participation. Doherty and Jodha (1977) also studied farmers' attitudes towards co-operation using surveys based in questionnaires. Martins (1993) studied the involvement of the forest landowners in collective action, such as associations, in the northern region of Portugal, administering structured interviews. The sampling method used was based on the accessibility to informants. In measuring attitudes towards co-operation, the researchers Foxall (1975) and Kelly and Kelly (1994) have used the Likert scale. Using Likert scales but to measure attitudes towards forestry, studying the relations between NPFLs' attitudes and variables regarding forestry management, preservation of natural resources and wildlife conservation, Selby and Petajisto (1995) studied the forest landowners' attitudes towards afforestation of agricultural land in Finland, by undertaking a survey including Likert type scales. The studies of Brooks and Birch (1986) and Haymond (1990) contributed to understanding the NPFLs' attitudes towards forestry regarding the conservation of wildlife. They used survey methodology by means of interviews, using Likert type scales. Carr and Tait (1991) also studied farmers' attitudes using Likert scales. These authors followed the Theory of Reasoned Action to study the relations between farmers' attitudes and their management decisions regarding wildlife considerations. Cho (1983) tried to find the relationships between forest owners' attitudes toward tree felling (or propensity to felling) and six selected independent variables. A Likert scale was developed in order to create a tree-felling score (attitudes toward tree felling). Carpenter, Hansen and John (1982) used survey and Likert scales in studies of NPFLs' attitudes towards forestry in Minnesota, but in this case the questionnaire was mailed to the owners. Some studies of forest landowners' attitudes were undertaken under a perspective other than measuring their attitudes: for instance Marty *et al.* (1988) have typified several class of landowners based on their common attitudes towards forest and forestry.

Sociological surveys about forestry are as frequent as the technical surveys: some studies aim to identify the landowners' attitudes towards forestry management, one such is the study of Thomas and Mclean (1984) using Likert scales. Similar studies regarding attitudes towards forestry management have been conducted by Straka and Doolittle (1988), Karppinen and Hanninen (1990), Jones and Finley (1993) and Wilson (1990). However, in these cases the researchers did not use Likert type scales. Other issues related to forestry have used the survey methodology: Cramer *et al.* (1993) studied the priorities followed by governmental forestry technicians regarding the multi-uses of forestry; and Bliss and Martin (1989), while studying the NPFLs' motivations, enhanced the usefulness of the survey and of unstructured interviews.

When the target population of a research is hundred per cent literate, researchers can use mail questionnaires. Broderick *et al.* (1985) and MacConnell and Archey (1986) were able to presuppose that all forest landowners would be able to write in order to fill in the questionnaire. Thus, Broderick *et al.* (1985) used several surveys developed upon mail questionnaires to study the relations between landowners' attitudes toward timber cutting and forestry management. MacConnell and Archey (1986) have used a similar methodology to measure how ownership characteristics and forest landowners' attitudes might influence timber availability and wood-land use. Mail and telephone questionnaires were also used by Jones and Thompson (1981) to develop a survey of NPFLs' attitudes towards forestry in the USA, aiming to identify and describe their characteristics, management activities, objectives, and attitudes. In Finland, Hanninen, (1993) has also administrated mail questionnaires in studies on forest landowners' attitudes towards forestry.

Other research approaches include that of Kingsley *et al.* (1988), who used the focus group approach to study farmers' motivations towards forestry; and Blatner and Greene

(1989) who used Thurstone scales to measure non-industrial woodland owners' attitudes towards forestry management.

4.2 The research design

This study was developed in three stages, which can be seen as a sequence: each one was planned in order to achieve the background, ideas, skills and knowledge that enabled us to undertake the next stage of the research. Thus, in this section we present a description of the sequence, including purposes, subjects and operational issues, as well as the construction of the data collecting instruments used at each stage. The procedures followed in the administration of these instruments and the sampling procedures used to select the informants are also described. Finally, we present the statistical methods used in data analysis and to test the attitude scale's reliability.

4.2.1 The sequence of the field work stages

The first stage of field work was the adaptation period that we spent in the study area. Simultaneously to the objectives of adaptation and contact with the farmers, we also developed documentary research about the issues presented in chapters Two and Five. Once we learned about the people and their problems regarding forestry, we were able to design the research work based on the NPFLs' involvement in forestry. Hence, we selected one village to be studied in depth in order to understand better such an involvement as well as the NPFLs' perceptions of forestry management issues (Chapter Six). This first research stage enhanced our initial concern about the forest landowners' organisation in the region. Therefore, we designed a second research approach in order to undertake a second field study involving all the entities directly related or potentially interested in the NPFLs' organisational process. This included three surveys: one about the NPFLs residents in the study area (Chapter Seven), a second about the NPFLs non-residents in the study area (Chapter Eight), and one addressed to the Parish Presidents

(Chapter Nine). We also included interviews with the technicians of the Ministry of Agriculture (related to forestry and agricultural services) and with the Council Mayors of the region.

In the following sections we present the purposes, the subjects and the operational questions which underlined the construction of the interview protocol and the questionnaires.

4.2.1.1 Fieldwork: Sertã and Estreito, and documentary research.

When we work with people it is important to know as much as possible about their living conditions, to learn about their activities, subsistence means, and relationships. The first objective is to provide a picture, as broad as possible, of the population's characteristics and their activities related to agriculture and forestry. Such a characterisation of the study area, which involves the social, economic and agricultural aspects, will enable us to understand and discuss further data which we intend to gather during the fieldwork. However, and before this stage, this information is very useful in preparing ourselves for the field work, since it allows us to understand the living conditions of the region where we plan to develop our study.

During this stage we established contacts with the technicians of the forestry and agricultural support services. For almost two months we followed the activity in the forestry services and we went on several field trips accompanied by the technician or alone. In such an adaptation process we tried to make personal contact with the farmers in general and particularly with their leaders, usually the President of the Parish. Basically, the intention was to know and to be known, to leave them with an idea of the aim of our study, and the knowledge that we were purely doing research work, and nothing else.

During this adaptation period, based on literature and documentary research, we developed a descriptive analysis of the forest sector in the study region. Some documents were unpublished but accessed through the Ministry of Agriculture. The main subjects approached were: a detailed analysis of the forestry sector; a description, at the regional level, of the social and economic aspects (demographic factors, education, organisations, health, structures, employment, commercial and industrial activities), and the agrarian activities (forestry and agriculture, main products, processing and commercialisation of the products). The operationalisation of the research was underlined in gathering information to answer the following questions: what is the pattern of demographic evolution in the region? What changes have taken place? Given the subjects of the study, we focused the collection of information on issues related to forestry, aiming to answer the questions: what are the activities related to the forest and what contributions do they make to the region? and what is the economic and social importance of the forestry sector in the region? (e.g. forestry products, forest area, employment, incomes etc.).

4.2.1.2 The study of NPFLs' mentality and their attitudes towards forestry problems - the example of Estreito village

With the experience acquired through the previous stage of fieldwork, we had the knowledge required to develop a field work research which in global terms constituted an exploratory study of one parish of the region. Through such a study, we aimed to achieve two main purposes: to answer our research questions, and to use it as an exploratory study which would underlie the next stage of our research. We hoped to test some hypotheses and, at the same time, to contribute to the understanding of the NPFLs' mentality, their problems and to identify the ways through which they could be supported. In order to achieve these purposes, the study tried to approach five partial subjects, which all together correspond to the case of the Estreito parish:

(I) To get as complete information as possible in order to understand the decision making process of the forest owners: type of forest owners; type of property, land tenure and land use (numbers of plots in forestry and in agriculture); and the balance between agriculture and forestry as sources of income.

(II) To try to find factors in the forestry culture or in NPFLs' feelings towards forestry that are conditioning the forest owners' attitudes; on the other hand, to try to identify the main changes that have occurred in recent years as well as their causes: to try to understand what/how people (owners and non-owners) feel about the forest, its importance for their lives and the meaning attached to the fact of being a forest owner.

(III) To analyse the owners' intention towards forestry management: to try to know whether owners are, or are not, sufficiently interested in the forest to invest in it;

and the factors that affect decision making whether or not to take care of the forest. Concerning investment, it is important to distinguish whether farmers do not invest because they do not want to, because they cannot, or they do not know how to, or they are afraid, or they think that it does not matter.

(IV) To try to evaluate the effects of forest fires on the forest owners' decision making (technical, economic/investment, land use and land/forest value), and on their attitudes towards facing the problem; to try to understand the public image of forest fires, and the importance of forest fires compared to other problems, and to understand how/why the population reacts to forest fires (before, during and after).

(V) To describe the "extension activities" developed by the state forestry services in the region: to identify the activities, their frequency, results/evaluation, and the factors involved, identifying the relationship between owners and technicians. To try to understand the role and the effects of technical support in the decision making process concerning forestry and investment in forestry; in the forestry mentality of the owners; and, in owners' involvement in facing the problem of fires: to discover the opinion held by the forest owners about the role of the government, and its activities in solving or minimising the problem.

Given the above, the study constitutes a descriptive and analytical account of data collected through field work research conducted in the parish of Estreito in 1995/96. It involves a wide range of subjects from the technical aspects related to forestry activity, to the personal values and feelings of non-industrial private forest landowners. Thus, we planned to develop research on subjects regarding the social, technical and economic characteristics of agrarian activities developed by the farmers in the study area. The technical characteristics studied were related to the type of land tenure (bought, rented, inherited); the property structure; the type of property access (how the owners have acquired the forest) and the different production systems including the agricultural systems, the animal production systems and the forestry systems. Regarding the latter we approached issues related to the type of forestry (natural forest, planted) and the NPFLs' technical knowledge in forestry. The social component included demographic characteristics, cultural aspects, social linkages with land tenure and land use and difference between types of forest owners. Regarding the economic characteristics we focused on the inputs/outputs of forest owners, the forest's value (land, trees), the intention to invest in forestry and also in the commercialisation schemes.

Within such a detailed description we tried to study the social aspects of the development of the *forestry culture*, in order to understand the relationship and the feelings of the owners towards their forest property. We were also interested in the identification of the *forest's image* as an economic, natural and environmental resource (in the past, present and future) for its owners. Through these aspects and the study of NPFLs' forest values, we wanted to develop an understanding of the landowners' mentality towards forestry. Hence, we focused our attention on how the NPFLs perceive and handle forest values, and tried to understand how such perceptions influence their attitudes towards forest management.

The forest management aspects were also studied by describing the main forest activities, and, at the same time, by explaining the NPFLs' reasons for acting in such ways as well as the main factors influencing their forest management decisions. We also aimed to study the main problems recognised by the NPFLs in forestry activity in general and particularly in their own properties. After this, we conducted an identification of the potential solutions proposed by the NPFLs in order to deal with such problems, as well as their attitudes and expectations regarding these potential solutions. Because of the expectations raised by recent programmes supporting forestry activity, we were interested in understanding the practical impact of such programmes on the NPFLs' forestry activity.

Over the last few years, forest fires have become a national problem, very well identified and widely discussed in Portugal. Hence, it was an imperative to analyse particularly those factors related to forest fires. We give a general picture about the amplitude of this particular forest problem and its effects upon the people and upon their forests. Depending on the availability of data, we will identify: burned areas, qualitative and quantitative effects of fire on NPFLs' forest and its management, NPFLs' involvement in fire prevention and fire fighting. Finally, our interest was focused on state intervention providing technical support, advice and training to the NPFLs in order to give them the capacity to develop an appropriate forest management system.

The information was collected by face to face interviews using a protocol (Appendix 4.1). In this section we present the procedures used for the construction and the administration of this instrument of data collection. We will present the main questions that underlined the operationalisation of the study. Data were collected regarding five main subjects: the NPFLs' socio-economic characteristics, land tenure and land use, NPFLs' mentality towards forest activity, forestry management, and relationship between the NPFLs and the governmental Forestry Services regarding technical and financial support.

I NPFLs' socio-economic characterisation: Personal data and socio-economic characteristics of the NPFLs' families

- What are the means of information, the communication means, and the transport means actually available and used by the population? How often and for what do they use these means?
- What has happened to the tradition of raising livestock? what animals are raised and with what objectives?
- What evaluation do the NPFLs make of the present living conditions compared to the past?
- What are the reasons for the NPFLs to keep living in the village?
- What are the main family resources?
- On what economic resources do the NPFLs base their every day lives?
- How dependent are NPFLs' families on agriculture and on forestry revenues?
- Which family members are contributing with labour?

II Land tenure and land use

- What made the NPFLs buy forest land?
- What are the structural characteristics of forest land?
- What are the main products in agriculture and forestry
- In which activity do landowners generally work more?
- In which activity do landowners use more employees?
- What are the reasons for working on these tasks?
- What kind of technology do the NPFLs generally use in forestry?
- Which criteria do the NPFLs use to select a forest plot to work on? Does land tenure have any influence in this selection?

III NPFLs' mentality towards forest activity

- Are NPFLs more self-identified with their forestry activity than with agricultural activity?
- What is the relative weight attributed to economic, ecological, social and aesthetic forest values?
- How do they perceive the forest's economic value in the past and presently?
- Have they tried new species and new forestry techniques?

IV Forest Management

- Do NPFLs take good care of forests or are they badly cared for?
- What are the reasons for each of these situations?
- Do they know examples of abandoned forest land in the region?
- What are the reasons for forest abandonment?
- Do they perceive any differences in forestry over the last 20 years?
- What are their expectations regarding the forest's future?
- How do people experience forest fires and how do they perceive the damages?
- How do NPFLs participate in forest fire fighting?
- What do the forest owners do in order to avoid and prevent forest fires?
- After the fires, what kind of activities do NPFLs usually undertake in burned areas and are they able to carry out reforestation or do they need support? What kind of support do they need?
- What is the level of investment in forest management?
- On what criteria do the forest owners base the management of their forest?
- What kind of inputs (credit, labour) are used in forestry?
- What do the NPFLs need in order to invest in forestry?
- What are the constraints of not investing in forestry?
- What are the main reasons for not organising their forest related activity?

V Relationship between the NPFLs and governmental Forestry Services regarding technical and financial support

- To what extent have the NPFLs acknowledged forest development programmes?
- What is the level of participation (application, implementation and maintenance) of the local population in projects such as Forestry Action Programme?
- What was the role of the forestry services in order to support and train the NPFLs regarding the prevention of forest fires, in order to inform (technique, action and prevention) the population and, in order to train farmers to promote NPFLs organisation?

4.2.1.3 NPFLs' forestry organisational process in the Pinhal Sul region

The study of the organisational process was undertaken according to four independent data collecting instruments, in order to provide information on the acceptance of the organisational model suggested by the FANCP, and specific information about the strategic issues related to the implementation of an organisational process in the region. Hence, in this case, the purpose of such different stages of the research is also presented separately; hence, the specification of the research's purpose regarding the resident NPFLs and the non-resident NPFL, the parish's presidents, the technicians and the council's Mayors. As well as having different purposes for each case, we had global common purposes closely linked to the central idea of the research. Such common purposes were: to find out how strong their acceptance of the referred model is, and to identify and quantify their opinion about the above mentioned strategic issues. Based on this information we developed a suggestion for a strategy of action which could be taken into account in an organisational process to create forest landowners organisations in the region.

One more purpose of interest, since the beginning of this research, and which influenced the type of methodology adopted, was the prospect of developing a strategy for action based upon the local actors' points of view, since we think that only by acting in a such way could NPFLs' expectations and desires be fulfilled. This idea justifies the use of several different sources of data, which generated different sorts of information and opinions. However, it is important to say that the first and main aim we wanted to achieve was to use it as key information, as as instrument for designing a global strategy, rather than to make any comparison regarding such opinions and information. On the other hand, it is of interest to discuss the different opinions regarding the same subject held by each agent. In other words, some comparisons were made every time we thought that they could contribute to clarify and reach the objectives sought by the study, which, according to the sources of information, can be summarised in two groups: the owners (including the resident and non resident NPFLs in the study area), and the other local entities including Parish Presidents, Council Mayors and technicians.

The study of the **resident and non-resident NPFLs in the study area,** was developed using face to face interviews in the former, and a mail questionnaire in the latter case. The purposes of this study were basically the following: to discover NPFLs' collective experience in working in any collective way, and to measure their attitude towards association and their acceptance of the model. Moreover, regarding the organisational process we were interested in understanding and discovering the willingness of the NPFLs to become organised, to determine and quantify their opinion about the strategic issues, and to understand the relations between the socio-economic factors, in so far they are related with the three previously stated purposes. Finally, we tried to find out the links between their attitude towards association and the same three objectives, as well as to understand the preferences of the non-residents concerning their representation by a person or agent in what regards their ownership of forests.

In order to complement the information provided by the forest landowners we also collected opinions of the Parish Presidents, the Council Mayors and of Governmental Services technicians. In doing this, we used a mail questionnaire and unstructured interviews respectively (Appendix 4.3). Such information was collected in order to understand how local authorities perceive the lack of organisation among the NPFL, how conscious they are about the problem, and how willing they are to participate in the process of creating an association. As secondary main purpose, we were also interested in learning their opinion about the model and about what the state's role should be in such a process.

The studied subjects regarding both the NPFLs residents in the region and the non-residents were quite similar. The different approaches for each case concerns methodological aspects and some differences related to the fact of non-residents being absent for most of the time, therefore not being as available or disposed to participate. Given this, the attitudes towards association and the opinions about the model are common to both groups. On the other hand, although some of the strategic subjects were common to both residents and non-residents, there were also some differences according to the place of residence.

As we have already mentioned for the NPFLs' case concerning the study undertaken with the Parish Presidents, there were also some common subjects regarding the model of organisation and strategic issues. Although we have measured their attitude towards association this was done using a different measurement instrument, which means that it could not be used in a comparison. Another difference has to do with the fact that the Presidents were asked as an entity representing the local authority and not as NPFLs themselves. Taken these observations into account, we will now present the subjects approached in each case:

(I) The information collected from the **NPFLs residents in the study area** dealt with the personal and socio economic description of the NPFL, their experience in forestry programmes and in using collective actions towards forestry, and the measurement of their attitude towards association. We also were interested in their opinions about a model of organisation previously tried in the Northern region, basically to see whether the model might be acceptable. Therefore, we sought the NPFLs' opinion about aspects of this model thought to be decisive for its acceptance. These aspects correspond to the variables used, and were suggested by the organisational model supported by the Forestry Association of Northern and Central Portugal (FANCP):

- formal aspects of the legalisation of the associations
- dimension of the activities developed by the association
- type of members
- social dimension for the association
- way of starting the association

- type of president of the association
- members' participation in the decision-making process
- the role of the local authorities
- members' financial support of the association
- duty of initiative
- non-residents' participation

A favourable opinion of the model does not guarantee its acceptance and its future implementation. There are several aspects that we need to know and have under control, in order to manage all actions involving the creation of an organisation. We have called them "strategic aspects". These variables, together with the organisational model's variables, would be involved in the design of an organisation strategy for the NPFLs in the region, and were as follows:

- disposition towards becoming associated;
- NPFLs' willingness to participate in the process of creating of an association;
- NPFLs' interests towards association;
- NPFLs' expectations with in what respect to the forests' development;
- the need to change the property structure;
- the state participation in the process of creating an association;
- availability of leaders; and
- the participation of the non-resident NPFL

(II) The data collected from the **non-residents NPFLs in the** region were justified by the fact that, as we found in the first study, in the Estreito parish, a number of the forest landowners do not live in the region where they own holdings, which is a common problem in several countries. This led us to try to understand how this aspect could be related to the other subjects in the study. Thus, in the socio-economic description of the non-resident NPFLs we were interested in learning about the frequency of their visits to their forests. The attitude towards association was studied using the same Likert scale used in the study of forest landowners living in the region. Study of their willingness to accept the model followed a similar format. The main difference seems to lie in the strategic aspects, since being absent when an association is created raises some concerns that may have to be taken in consideration. Such differences concern the willingness to participate in the creation of an association; the opinion about the state's participation in the process; and their disposition to leave the management of their own forests to a known individual, or to an association.

(III) The study of the **Parishes' Presidents** is very important to this kind of research, since they are the ones who know the people, for whom it is easier to handle events such as the creation of an organisation. Moreover, the first research in Estreito showed us the importance of such individuals. We also had to take into account the fact that the strategy followed in the northern region involved, in most cases, the parish's president. The status of the parish's presidents leads us to focus our in learning their opinion about strategic issues and about the model rather than their attitudes towards association. Although we inquired about their attitudes, we saw the strategic issues as most important. These issues concerned namely the local authorities' views about the process of the creation of an association: their disposition towards participating in the process and their opinion about intermunicipal co-operation. The reasons given to explain the lack of forest organisation in the region were also examined.

(IV) The **technicians' and Council Mayors** opinions were collected through unstructured interviews, which were basically conducted in order to complement the discussion of the above mentioned subjects. Therefore, the information collected was used as a support in the strategy design. Our interest regarding these entities had to do with the need to understand how the institutions they represent perceive all these issues and how willing they were to participate in the process. In the same way, they were asked about their position regarding the promotion of forest development in the region.

According to the purpose and subjects of these studies, a set of questions was organised as the base for the operationalisation of each questionnaire and interviews. In planning the questions, we were guided by the dimensions (features) considered as components of any organisational model. In a global sense, we tried to get answers about the central idea "what kind of organisation do the NPFLs have in mind?" According to the literature reviewed (Vay, 1976; Doherty and Jodha, 1977; Vay, 1977; Sargent, 1982; Bergmann and Ogura, 1985; Robbins, 1987; Ingles and Gilmour, 1989; Axelrod, 1990;

Cernea, 1991; Cernea, 1992; Cernea and Dick-Meinzen, 1994; Hogg and Vaughan, 1995; Pretty, 1995) we identified the following organisational features to be studied: composition of the organisation, the social dimension, its purposes, the leadership and the decision-making process. Moreover, regarding the functioning of the organisation, it appeared essential to learn about the members' and state's participation, as well as the necessary conditions to start working on an organisational basis.

Taking these organisational features into account, a set of questions was designed and used as a basis for the construction of the interviews' protocol and questionnaires. To avoid repetition, we will put the common questions together having in mind the entities to whom they were directed. Thus, all information collected from the **resident and non-resident NPFLs in the study area was based on the following questions:**

- What is the opinion about formal aspects of legalising an association?
- Which activities would they like to see being developed by the association?
- Who will they accept as members of the association?
- What would be the ideal administrative area to be covered by an association?
- What should be the strategy towards starting the association?
- Who would they see as president of the association?
- How do the members participate in the decision-making process?
- What roles do they ascribe to the local authorities?
- How available are they to financially support the association?
- Who, in their opinion, should take the initiative?
- How willing are they to become associated?
- How available are they to participate in the process of creating an association?
- What are their motives to become a member of an association?
- What do they think about the forest's future?
- How do they feel about changing the property structure in order to improve forest management?, How willing are they to try it?
- How do they perceive the state's participation in the process of creating an association?
- Do they agree with the non-residents participation? How can they participate?

To get information from the **Parish Presidents, the Council Mayors and the Governmental Services technicians we were guided by the following questions:**

- What is their explanation for the absence of forest landowners' organisation?
- What are their views about the process of creating an association?
- Are they available to participate in the process of creating an NPFLs' organisation?
- What is their opinion about an intermunicipal approach in order to reach an association at a regional level?

4.2.2 Sampling procedures

The major sampling procedure in the study held in Estreito has to do with the choice of the parish to be studied. We decided to study only one parish because of the need to do an in-depth study, and because it is easier to be known by the population (respondents) if working with only one village.
From the information given by the study of Gomes (1994), involving a Principal Component Analysis of the Beira Interior region, which includes the Pinhal Sul as a sub region, we realised that, according to the seven criteria selected in order to typify the agricultural systems of the region, Pinhal Sul appears as an homogenous region (Appendix 6.1). Hence, assuming such a characteristic, we were only concerned with selecting a village fulfilling the requisites of availability of respondents (NPFL) and willingness to talk. Other details about factors which influenced this choice are presented in Chapter 6.

To study the resident NPFLs' attitudes we used a purposive sample. The choice of this sampling method was due to the lack of an accurate list of the NPFLs living in the region (sampling frame), the accessibility of the respondents and material reasons: availability of time and resources. However, despite the use of a purposive sample, we were concerned with its essential requirement as a sample: to be as representative as possible of the population from which it was taken. Ribeiro (1988) suggests stratification as improving the representativeness of the sample, and ensuring that specific categories of households are included. In doing this, we decided to have five sample units representing the five councils of the Pinhal Sul region.

This was our purpose, and to achieve representativeness, as suggested by Miller (1991), we took into account aspects such as: telling the population about the research through their leaders and the priests, choosing the right days to visit them, choosing common places, and choosing villages on the basis of their location and population's characteristics: its number of households and their willingness to talk. Therefore, seeking to have a sample representative as possible of the population we planned to interview at least 20 individuals in each of the five councils. The selection criterion to choose the respondents was residence in the study area, the ownership of forest land in the region, and absence of any contractual links to the forest industries. This broad selection offered the possibility of having a sample that is representative of the population in general. In each council, the interviews were conducted in the main village and in a small one not close to the previous one.

To complement the information in this section, we have provided some other methodological elements in the beginning of each chapter dealing with the results of each fieldwork stage. There, we also describe the sampling procedures used in the studies of non-resident NPFLs and Parishe Presidents.

4.2.3 Instruments used for data collection

To prepare the interviews, two interview protocols were constructed (one used in the study about the Estreito parish, and the other used in the study about the NPFLs of the region in general - Appendix 4.1 and 4.2 respectively) and two questionnaires to be administrated by mail (one to the Parishe Presidents and the other to the non-resident NPFL) adapted to the different persons to be questioned and to the different objectives of the study (Appendix 4.3 and 4.4 respectively). In the elaboration of the interview protocols and the mail questionnaires we followed the guidance provided by the authors reviewed earlier in this chapter, taking particular care with the aspects affecting the validity of these instruments. All instruments were pre-tested, with the exception of the questionnaire to the non-resident NPFLs. In this case, the questionnaire was developed taking into account the previous use of the protocol in interviewing the resident NPFLs, a pre-test with a few landowners living in the region, and also the specific advice from the literature about the use of mail questionnaires, namely in what concerns the layout and wording (see Berdie and Anderson, 1974: p48) since they play an important role in communicating questions' objectives to the interviewees. To avoid fatigue and taking much time from the respondent, and also not to risk the accuracy of the information, particular attention was paid to the size of the interviews and questionnaires. To pre-test the questionnaires we have been assisted by two technicians, although all fieldwork was done by myself.

Given the fact that we wanted to use the same attitude scale in both protocol interviews and questionnaires, as well as to include a different scale to the Parishe Presidents questionnaire, the construction of the Likert type scale to measure their attitude towards organisation, was a sensitive part of the elaboration of the instrument. According to the literature reviewed about methodological issues (Foxall, 1975; Jaccard *et al.*, 1975; Hogg and Vaughan, 1995; Thomas and Mclean, 1984), we considered that the Likert technique was the most appropriate one. This technique is both fairly easy to construct and to use, when compared with other scaling methods and, moreover, is also fairly reliable. The technique requires the respondent to indicate his/her degree of agreement or disagreement with each of a series of statements about an attitude object in question. There will be an equal number of statements for and against the object. Each respondent then gets a final score which is the sum of his responses to each individual statement.

The statements included in the attitude questionnaire were thus carefully selected, in order to represent a different and independent view about the object and cover both favourable and unfavourable attitudes, so that the nature of the response to each item did not affect the response to another item.

The first step towards scale construction required the assembly of a pool of items from which attitude statements could be written. Two approaches were adopted: reading relevant literature concerned with farmers' attitudes towards organisations, and conducting informal interviews with farmers and technicians of the region. To generate the item pool we adopted Thomas and Mclean's (1984) procedure in using a conceptual definition of attitude as "a person's basic orientation for or against some psychological object". In this particular case we used a "general object", the feeling towards organisation.

As Dyer (1995) suggests, there is a need to generate at least twice as many statements as we expect to use in the finished scale. Therefore, according to this, we generated 40 items. These items were tested with 50 NPFLs (living in two villages of the study region) in 5-point agree-disagree scale. The item total correlations were computed for each item and the 20 items with the highest correlations were selected to produce the final Likert scale. We also tried to select items that had not raised problems and were easily understood by the farmers. The score procedures used in the scale construction were followed according to Likert (1977); Moser and Kalton (1992); Oppenheim (1992); Dyer (1995); Fernandes (1996) and Bliss and Martin (1989).

Regarding the validity of the scales, as well as their degree of unidimensionalty, Shaw and Wright (1967) noted that they largely depend on the technique used in its construction, and that the item analysis used in the Likert method of scale construction already represents an attempt to ensure unidimensionality. The reliability of the scale (i.e. the internal consistency) was measured by Cronbach's alpha coefficient calculated using the SPSS software (Norusis, 1993).

The experience acquired during our stay in the field, and while pre-testing the questionnaire, as well as the advice of the technicians of the region, were fundamental to the definition of the procedures to conduct the surveys and in the interviewing process. The interviews were held whenever we met the forest owners (the majority of the interviews were conducted on the street, fields, other working places, or at NPFLs' home, but always avoiding the presence of third persons). We always attempted to find a comfortable position for the interviewees, usually sitting in order to allow them to think about their response, where they could feel confident and anonymous. The responses were given in midst of conversation, and data were written down in the protocol forms during the interview.

Since the Likert type scale involves the respondent in evaluating statements by choosing one of the five numbers that indicates a degree of agreement with the statement, and since we were not sure if everyone was familiar with this method, we drew up two scales in large letters or numbers and in different colours in order to allow farmers to answer the scale more easily. Despite having asked for the help of the priest and of the parish's president in the diffusion of the objective of the study and its anonymity, we also tried to get the free co-operation of the farmers by spending some time before the interviews explaining the reasons of the study, the reasons why we chose their village and the importance of their co-operation.

The interviews were carried out during working hours, and sometimes after work in the months of March, April and May, this being the most suitable period in terms of the farmers' annual work schedule, providing opportunity and their accessibility.

4.2.4 Data analysis

In the data analysis, the software packages Excel version 4.0, Epi-info version 5.0, and the Statistical Package for Social Sciences (SPSS) were used. In order to describe the results in a meaningful and concise way, we therefore had recourse to descriptive statistics (Richland, 1983). Thus, simple frequency distributions and chi-square test for independence among variables were used.

The chi square test for independence provides a standard for deciding whether two variables are statistically independent. The test was used following the suggestions of Reynolds (1984; Bryman and Cramer (1990); Walsh (1990) and Kurtz (1983). According to these authors, chi square is a non-directional test which can generally be applied to nominal variables, once nominal scale categories are not ordered. However, in case of the 2x2 tables, directionality can be attached to the relationship by examining the frequencies in the diagonal cells. The major characteristics of the test that have influenced its common use in descriptive analysis are its appropriateness to test the relationship between two nominal measures, the test assumes that the two variables are independent measures and no distributional requirements must be met.

As Norusis (1993) suggests, in the presentation and data discussion, on the following chapters, we will only present the "*p*" value to refer to chi square representativeness, and consequently to the statistical signification of the relation between the variables. As Sporull (1988) notes, the level of significance commonly used in social sciences is $p<0.05$, which corresponds to a 95 per cent level of confidence. Thus, every time we have $p<0.05$ (the level of significance we have adopted) the null hypothesis is rejected and we assume that variables are not independent, meaning that they are related. When using the chi square test our attention was only focused in whether a relationship between two variables exist. Therefore, we were not interested in the magnitude or strength of these associations.

Once the levels of attitude were determined, and given the lack of representation of some levels, we had to dichotomise them in two or three categories. To proceed to this dichotomisation we have assumed, according to Reynolds (1984), that substantive conclusions have not been affected.

As a final remark, we should clearly state that from this point all information presented in this thesis without reference to the sources comes from our research, and some more data analysis details are presented whenever they are discussed.

5 AN OVERVIEW OF THE PHYSICAL, SOCIAL AND ECONOMIC CHARACTERISTICS OF PINHAL SUL REGION

The region Pinhal Sul, corresponds to the territorial unit defined by the NUTS level III (Nomenclature for Territorial Units for Statistical Use), which includes the councils of Mação, Oleiros, Sertã, Proença-a-Nova e Vila de Rei (Appendix 5.1, Maps 1 and 2). Because of its specific characteristics, this region has been the subject of several studies, although most of them without any relation to our study, but all of them with the same geographical basis and under the same designation, Pinhal Interior Sul. Given this and because such a region corresponds to a regional forest administration area, the same designation will be used through out this study.

In order to set out the framework of the study and describe the parish where we have collected data, we will present, in this section, some characteristics of the region that are important to know in order to understand the ideas discussed. As the study is based on data from the forest land-owners, in order to understand their attitudes towards their private forest problems, it is necessary to get information about local demography and its evolution, regional resources and the main economic and productive activities.

5.1 The territory

The name of this region comes from its vegetal cover: in its literal translation Zona do Pinhal means Region of Pine Forest, which provides a good indicator of the principal regional characteristic. However, we will present first some geographical aspects, and a summarised description of the land use and vegetation in the region.

5.1.1 Geographical aspects

Pinhal Sul is a mountainous region formed by successive mountains and valleys, some of them very steep, with slopes often above 15%. The mountains' average altitude increases from the North to South until the Tejo river valley, and varies between 1100 and 250 meters. The main mountains are Alvelos and Muradal, and the less important are: Casal, Mougueira, Caniçal, Cabeço Rainho, Carril, Covões, Melriça, Amêndoa e Bando (Gomes, 1994).

The rivers Tejo and Zêzere limit the region in the west and south, respectively. The numerous affluents of both rivers define the water lines and valleys where the populations are fixed and where they practice agricultural activity. Along the river courses, throughout the valleys, there are several enlargement areas of schist alluvium, that were preferentially chosen by populations for settlement and for their agricultural activities. Hence, as Gomes (1994) states,

> "in these areas the pine covering gave place to vegetable garden, to olive trees and other cultures".

5.1.2 Land use

The pine forest (*pinus pinaster* - Pinheiro Bravo) is the main culture, which occupied a great area of the region. Some authors have discussed the development of such vegetation. Mendonça (1981) states that pine started its expansion very recently, in the last century. It spread as a substitute for the chestnut tree, which fell victim to the chestnut tree disease, that has made this specie almost disappear.

Because of its aggressiveness, pine has covered almost all soil areas. Other authors have stated that the pine forest phenomenon is more recent, contemporary with the creation of the governmental Forest Services. To Ribeiro (1991), the covering of pine in this region results from a land-owners' plantation effort.

However, this region can be distinguished through its two principal characteristics: the higher percentage of area covered by forest (most of it, by pine), and the population's wilful work on its propagation, that is reflected in the number of agricultural farms with forest area. Table 5.1 presents these values according to the five councils included in the region Pinhal Interior Sul. From it we can observe that the percentage of farms with a forest area is always superior to 90 per cent in any council. In addition to this, the forest area by farm is between about 59 and 83 per cent.

Table 5.1 Percentage of farms with forest area and percentage of forest area by farm in Pinhal Sul

Councils	Farms with forested area	Forested area by farm
Mação	94.4	68.2
Oleiros	95.7	82.3
Proença-a-Nova	93.4	58.9
Sertã	91.6	65.8
Vila de Rei	96.8	70.9
Zona do Pinhal	**94.4**	**69.2**

Sources: PDAR (1990); DGF, (1980); RAC (1979)

The second most important characteristic, relative to territory occupation, is the percentage of used agricultural surface (UAS) occupied by olive tree orchards. On average, 45 per cent of the region UAS is occupied by this culture, which is also very significant in terms of its representation in agricultural farms, since it is present in 87 per cent of them (RAC, 1989). However, the olive tree, for diverse reasons, and mainly because of the plantation type, which makes this culture less profitable at the present time, is less representative. As Ribeiro (1991) describes it, the olive tree is generally planted close to man, on vegetable gardens around the farmers' house, on agricultural land edges and limitations, or on sloped areas where each tree has a little stone wall to support the soil. Furthermore, he highlights the decline that this culture has been registering, mainly in the hilly areas. Such decline is due to the lack of labour caused by the demographic alterations, and because of the discomfort and arduous task of working in these areas. Hence, olive trees are restricted to the flat and lower areas, where they are cultivated in association with other vegetable products (corn, pastures) getting benefit from the agricultural care given to these cultures.

Agricultural activity is limited to the larger valleys, which has soil of better fertility and water, provided by small rivers and their affluents, which allows the practice of irrigated cultures. Therefore, 71 per cent of farms have irrigated areas. However the average irrigated area by farm is less than half a hectare (20% UAS) (Gomes, 1994).

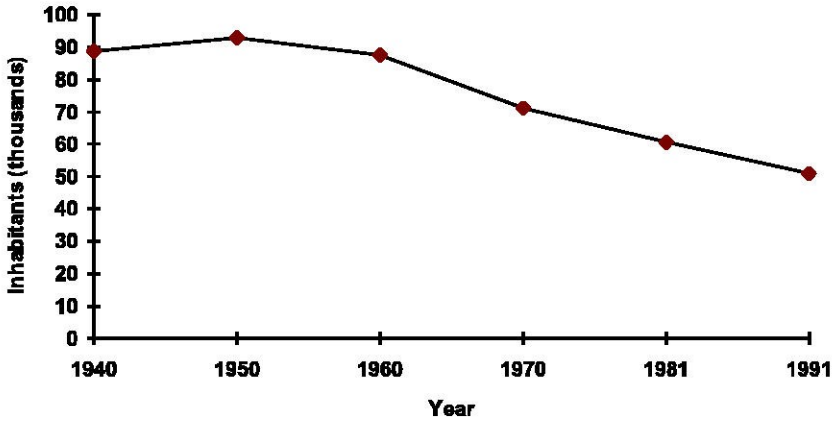
5.2 Population

The region Pinhal Interior Sul has 50 800 inhabitants, which for 1 907 km^2 of area corresponds to a population density of about 27 inhabitants per km^2 (Appendix 5.2, Table 1). This value is much lower than the value of the Central Region (33 hab./km^2), in which the study area is included. However, it is important to get an idea of the trends in these values over recent years, the way in which the age distribution structure has developed, the effects of these factors in terms of family composition and the relation that these factors have to family agricultural explorations.

5.2.1 Population trends

The population of Pinhal Sul region has been decreasing over recent decades. As can be seen in Figure 5.1, although there was an increase of +4,6% in the decade of the 1940s, from then the population has been decreasing (values by councils in Pinhal Sul region are included in Appendix 5.2, Table 1). Such a decrease was particularly accentuated in the decades of the 60s, 70s and 80s, respectively in -18.7%, -15.2% and -16.1%.

Figure 5.1 Population trend in Pinhal Sul (according Appendix 5.2, Table 1)



Globally, we can say that Pinhal Sul region has lost about 40 per cent of its population over the last thirty years. Such a decrease was more than 50 per cent in some municipalities, and, despite variation, the pattern is more or less the same as that verified in the region. However, there are some weak differences as Gomes (1994) has described. Consequent to the effect of population decrease, there is a variation of population density, that, globally, has decreased in all regions. However, such a decrease is higher in the peripheral regions around the municipality centres. The Pinhal Sul region has a population of 27 hab/Km^2, which means less than one third (30%) of the national value (mainland) which is 105,1 hab/Km^2 (Table 5.2). Although the evolution of population density in municipalities is similar to the one for Pinhal Sul region in global forms, there are some particular differences. It is clear that Oleiros is the council with the lowest population density 17 hab./Km2. In contrast, Sertã with 40 hab/Km^2 is the council with the highest population density, which is double the former value.

Table 5.2 Population density of Zona do Pinhal Sul in 1991

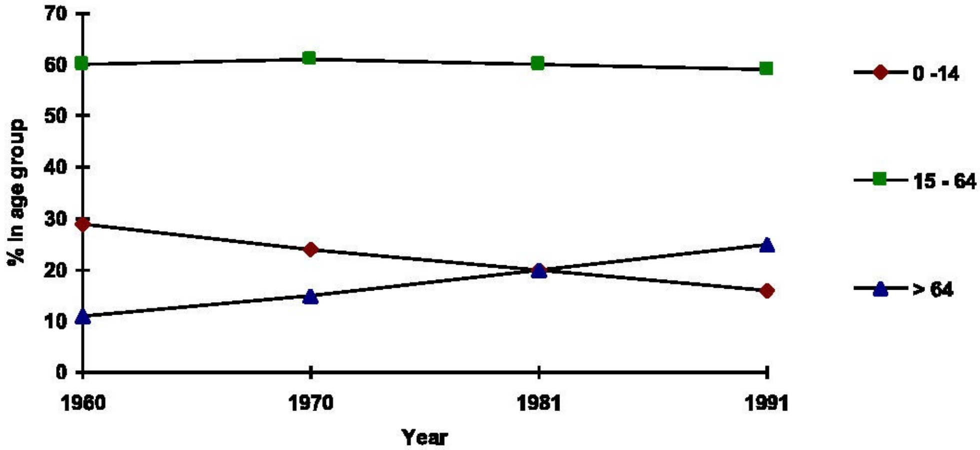
Councils	Area Km2	Total Inhabitants	Hab/Km2
Sertã	453.1	18 199	40
Proença	395.2	11 088	28
Mação	401.6	10 060	25
Vila de Rei	191.3	3 687	19
Oleiros	465.5	7 767	17
Pinhal Sul	**1 906.7**	**50 801**	**27**

Source: (PDAR, 1990); INE Recenseamentos Gerais da População (XII e XIII)

5.2.2 Age distribution

Giving particular importance to recent years, since it was during these years that the more significant population decrease in the region occurred, we will go through an analysis of the age structure as presented in Figure 5.2. In recent years there has been a clear reduction in the lower age group.

Figure 5.2 Age evolution by percentage in Zona do Pinhal population (according to Appendix 5.2, Table 2)



Between 1960 and 1991 there was a decrease of 68 per cent in the 0 - 14 years group, and a decrease of 43 per cent in the 15 - 64 years group. On the other hand, in the older inhabitants group (>64 years) for the same period of time, an increase of 33 per cent was registered (Appendix 5.2, Table 2). These values lead to the conclusion that the region is fighting with both problems simultaneously; the population is both decreasing and ageing, facts that are common to other rural areas in the country. The age pyramid inversion has significant and direct repercussions on the region's economy, since the age-group more affected is more important in terms of the globally active population. On the other hand, the younger individuals, are, by their nature and education, the ones that are more receptive to innovative opportunities. Given this, they could enable the

> "conversion and development of economic activities that are essential for the promotion of the region's development." (Azevedo, 1990: p12).

Looking critically at the trends of age structure, it is possible to see that the age population structure has been marked by an accelerated ageing process, very well expressed in the evolution of ageing indices through the last thirty years, (Table 5.3). The municipalities with higher ageing index are the same as those that have lost more population. If we think about emigration and lower fertility rate as characteristics of younger age group, the under 65 years, we can easily conclude that these phenomena are associated, and that the loss of population and ageing are faces of the same social problem (Gomes, 1994).

Table 5.3 Evolution of the population ageing index (0-14/>65*100) in Pinhal Sul

Councils	1960	1970	1981	1991
Mação	54.6	80.5	153.2	251.0
Vila de Rei	45.5	72.9	145.5	212.6
Oleiros	30.7	47.5	95.8	169.1
Proença-a-Nova	36.1	63.2	99.5	149.5
Sertã	34.6	54.7	76.8	122.3
Pinhal Sul	**38.9**	**61.3**	**101.4**	**161.6**

Source: INE, Recenseamento Geral da População X, XI, XII, e XIII

All demographic analyses already done in successive studies, under the principal orientation of rural development discussions, have been, systematically the same: an ageing population, losing its vitality and regeneration capacity, and a territory depopulated set on a desertification process (PDAR, 1990; PDM, 1991a; PDM 1991b; PDM 1991c; PDM 1993a; PDM 1993b; Pereira, 1986; and Azevedo, 1990).

5.2.3 The family groups

To present an image of the family's characteristics in the region, we conducted a cross tabulation analysis with two variables:

- farmers' age, (here, farmer should be understood as the one that is responsible for farm management, and that assumes a principal role in the family), and

- the farm family's dimension.

Results of this analysis are presented in Table 5.4, where farmers' ageing is evident: the average age is about 60 years, with only 14 per cent of land-owners younger than 45 years. As to family size, the average is a little less than 3 people, and it is 2 per family in 45 per cent of the cases. The most frequent (25% of total) family type is the one with two people where the farmers are more than 65 years old.

Table 5.4 Farmers' age by family size

Total % Column % Line	< 45 years	45 - 65 years	> 65 years	Totals by family dimension
One person	83 4.6 5.2	456 7.4 28.7	1048 19.0 66.0	**1587** **11.7** **100.0**
Two person	265 14.5 4.3	2543 41.3 41.5	3317 60.0 54.2	**6125** **45.3** **100.0**
Three person	336 18.4 14.1	1366 22.2 57.4	680 12.3 28.6	**2382** **17.6** **100.0**
Four person	675 37.0 36.4	963 15.7 51.9	219 3.0 11.8	**1857** **13.7** **100.0**
Five person	310 17.0 33.4	466 7.8 50.3	151 2.7 16.3	**927** **6.86** **100.0**
More than five person	157 8.6 24.7	365 5.9 57.5	113 2.0 17.8	**635** **4.7** **100.0**
Totals by farmers age	**1 826** **100.0** **13.51**	**6 159** **100.0** **45.58**	**5 528** **100.0** **40.9**	**13 513** **100.0** **100.0**

Source, Adapted from Gomes (1994); INE - Recenseamento Geral da Agricultura (1989).

5.3 Economic activity

According to our study topic, we are only concerned with those families involved in agrarian activity. Hence, the distribution of the active population is presented by sectors of activity, and with particular attention paid to agrarian activity and namely to forestry.

5.3.1 Activities by sectors

In 1991 the population of Pinhal Sul had an active rate of 34%, a value that was quite similar in all the concerned municipalities. Relative to employment, in 1991 we found that about 94 per cent of the active population had a job or professional activity, and the remaining 6 per cent were unemployed (Table 5.5).

Table 5.5 Active population by municipalities in 1991

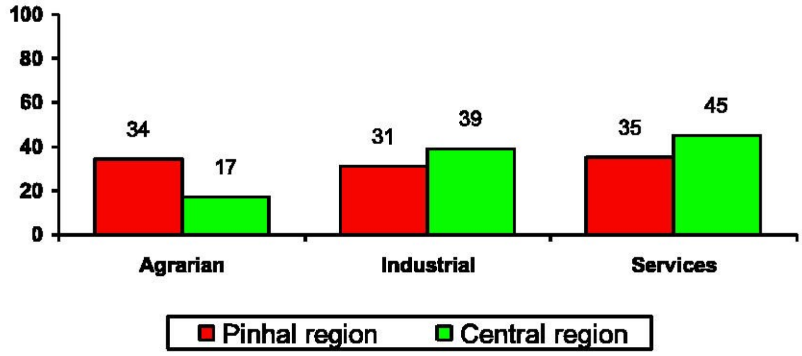
Councils	Total Population	Active Population	Activity rate (%)	Employment rate (%)	Unemployment rate (%)
Mação	10060	3638	36.2	20	7.1
Oleiros	7767	2337	30.1	13	1.8
Proença	11088	3577	32.3	21	2.3
Sertã	18199	6924	38.0	39	4.7
Vila de Rei	3687	1259	34.1	7	6.7
Pinhal Sul	**50801**	**17357**	**34.9**	**33**	**4.5**
Pinhal Sul in 1981	**60527**	**22534**	**37.2**	**94.0**	**6.0**

Source: INE - Recenseamento Geral da População XIII

Comparing the population's activity in 1980 and in 1991, we realise that the activity rate is decreasing and employment as well. The first fact is easily understood, since, as we have just seen, the population is ageing. On the second point we could not advance many hypotheses, as it is probably related to questions beyond the scope of the present study.

The principal characteristic of Portuguese rural areas is the high percentage of people working in agriculture. Zona do Pinhal is no exception, as it has more than one third (34%) of the active population involved in agricultural and forestry activities (Primary Sector). The other sectors (Industry and Services respectively) of activity have a similar percentage of population (Figure 5.3). However, if we look at the distribution in a wider area, the Central Region, which includes the study area, it is possible to observe that the value of population affected by agriculture is lower, about one half. Consequently, the other sectors have higher values. Relative to the distribution by councils Mação and Proença are the councils with fewer people working in agriculture, about 25 per cent, while in contrast, Vila de Rei and Oleiros have higher values, about 40%, (Appendix 5.2, Table 3).

Figure 5.3 Distribution of active population by sectors in Pinhal Sul and in Central Region (%) (according Appendix 5.2, Table 3)



5.3.2 Agrarian activity

Agricultural activity in this region is highly conditioned by the property structure. There is a predominance of small properties, which in their turn are divided into smaller and dispersed land areas. About one third of properties have less than one hectare, and are divided in several plots, five on average. Thus, the more frequent value (46% of the total) are the properties with areas between 1 and 4 hectares, but divided into 29 plots on average, (Table 5.6). Properties over ten hectares are very rare (7%), and they could be very divided as well. Pereira (1986) in his study of rural development perspectives for the region considers as family farms, those land areas up to 10 hectares, a type which corresponds to 92 per cent of the farms in the region. Most of the total agricultural area, about 96%, is usually worked by its land-owners (Appendix 5.2, Table 4). Thus, in the region the rule is: each one should by himself work his own lands.

Table 5.6 Property structure of agricultural explorations

	Farms					Plots	
Class of Area	Nº	(%)	Total area (ha)	(%)	Average area (ha)	Nº total of plots	Average by farm
0 - 1 ha	4 964	28	3 576	4	0.7	25 474	5
1 - 4 ha	8 302	46	18 645	23	2.3	76 234	9
4 - 10 ha	3 168	18	21 382	27	608	52 540	17
10 - 50 ha	1 307	7	25 308	31	19.4	32 588	25
> 50 ha	106	1	11 674	15	110.1	3 571	34
Total	**1 7847**	**100**	**80 585**	**100**	**4.52**	**190 399**	**11**

Source: (Pereira, 1986) ; RAC (1979)

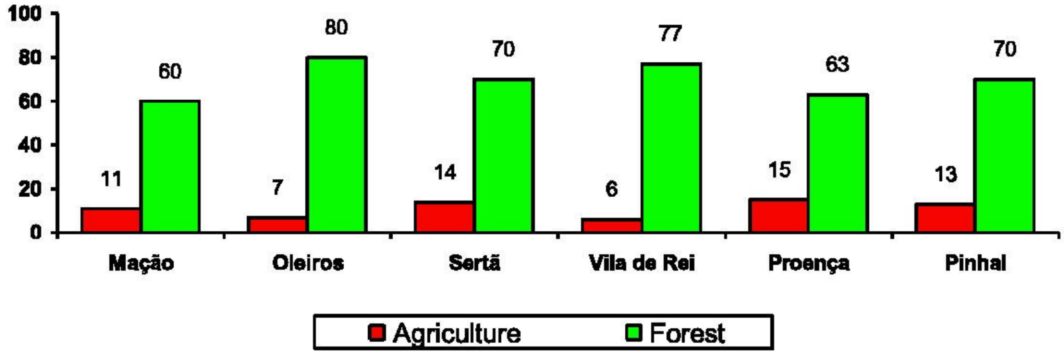
According to the structural conditions described above, agriculture in this region, is in most cases limited to horticulture, usually in very small areas. So, horticulture appears to be the main agricultural activity. A huge variety of products, typical of vegetable gardens, is grown in areas that rarely amount to one hectare. The main products are corn, potatoes, olives, and leguminous grains. Although some specific products could be produced for commercialisation, most of them are usually produced for the household. In this case only the surplus can be commercialised.

Associated with agricultural and forestry activity, goat breeding appears as a singular characteristic of the region of Beira Interior (which includes the study area). In Pinhal Sul this specie represents 67 per cent of AU (Animal Unit) of herbivorous, and it occurs in more than 62 per cent of explorations. However, the AU value for goats by farm is slightly superior than 1 AU.

Goats are animals very well adapted to graze, principally on the younger part of spontaneous plants that usually grow in forests and in sloped deforested areas, the bush. The feeding of these flocks is complemented by some seeded pastures in the valleys. Collective flocks were common in the past, but, at present the number of animals is less, and it is common to see only one animal alone on the pasture, held by one string on the leg (Gomes, 1994).

Forestry is clearly a very common activity in the region. On average, the forest occupies around 70 per cent of the total area of the region, while agricultural activity uses only 13 per cent (Appendix 5.2, Table 5). Figure 5.4 shows the relation between agricultural and forest areas in the five councils, and it gives an idea of how much the forest is present in all of them, from the 60 per cent in Mação to 80 per cent in Oleiros.

Figure 5.4 Forest and agriculture area distribution in (%) in Zona do Pinhal by councils (according Appendix 5.2, Table 5)



Relative to the forest's representation in the farms' area, such value increases with the increase of property area; the bigger the area of agricultural explorations, the bigger the percentage of forest it has (Appendix 5.2, Table 6). Consequently, and following the same kind of analysis, the Production Gross Value of each productive sector of these properties, is also related to the property area. Thus the forest sector is more represented in larger properties than in smaller, and in contrast, agriculture is more represented on smaller rather than larger farms (Table 5.7). The contribution of the animal sector follows the same tendency of agriculture, to decrease as the property area increases.

Table 5.7 Production Gross Value (1000$) according to the different farm types (*)

	Farm types							
	Type O		Type I		Type II		Type III	
Activity	**Total**	**(%)**	**Total**	**(%)**	**Total**	**(%)**	**Total**	**(%)**
Agricultural	111	44	208	43	339	35	1 330	28
Animal production	113	45	142	30	220	23	1 339	28
Forestry	27	11	128	27	403	42	2 074	44
Total	**251**	**100**	**478**	**100**	**962**	**100**	**4 743**	**100**

Source: (Pereira, 1986)
(*) - see Appendix 5.3, Note)

As we have seen above, Proença and Mação are the councils where the forest is less representative in terms of occupied area. This means that in such councils, the forest has a lower contribution for the farmers' revenue from their farms (Table 5.8). In other words the forest could be seen as slightly different from in the other councils, where the forest is clearly the most important sector of agrarian activity. Animal production has similar significance in all the councils. So, the variation is between agriculture and forest production.

Table 5.8 Percentage distribution of the medium value of production by farm (1979 - 1981) according to the different activity sectors

Councils	Forest	Animal	Vegetable	Total
Sertã	51	10	39	100
Mação	26	8	66	100
Oleiros	69	5	26	100
Proença-a-Nova	41	11	48	100
Vila de Rei	52	11	37	100
Average	**48**	**9**	**43**	**100**

Source: (Pereira, 1986)

5.3.3 Associations

The experience with associations is very weak in the Pinhal Sul region. The most relevant cases are the co-operative of forest dealers and an agricultural co-operative. Both are declining and there is a common view that they have never been efficient. The problems faced by such organisations are similar to the problems that all co-operatives in this sector have been facing in recent years - lack of members' participation, a particular model of co-operative management, and a weak identification of the members with the co-operative principles.

The case of Coopinhal, is one of an association of timber dealers (madeireiros) intervening in the wood market. They act as an intermediary by buying the trees *in loco* and then cutting, and transportation to sell it to the industry. Their role is expected to be improved with their future organisation. Once organised, the dealers could manage the link between the industry and forest landowners with further profit for everyone within the cluster. However, their association, seems to have been created in order to solve a particular problem raised by a higher offer of burned trees resulting from forest fires, and at present its activity is almost inexistent. In the beginning of the 1980's, during the implementation of the Portuguese Forestry Plan supported by the World Bank, an intervention in the Pinhal region was planed meant to be undertaken by the local farmers' organisation. A co-operative have been involved in forestry, the Soprolei at the time. The main idea was to create an Union of Co-operatives in the region. However, as we referred in the Chapter Three, the programme ended before reaching its objectives by organising the region's forest landowners. In fact, there was an attempt to create pre-co-operatives at a parish level and to associate them in a main co-operative which would work as an union - the Soprolei. This co-operative was created in 1970, started by extracting resin and extended its activity to the farm of the members' forest. Almeida (1981) cited by Castro (1991) studied the constraints the co-operative was facing and which have almost led to its extinction - its present stage. The main constraints found by the author were those related to the fact that decisions were made in order to give advantages to some members and disregarding the majority. The criteria for the allocation of co-operative's services were based in personal interests rather than in technical considerations. Hence the lack of efficiency in the use of machinery and the dissatisfaction of the members leading to the abandon of the forestry activity. However, as in other regions, there are some examples in Pinhal Sul that can show us the capabilities of association, or the ability of the population to work together.

Given this, except for the groups of forest landowners formed under the Forestry Action Programme, which, as we have already stated, can not be seen as real organisations, there are no other organisations related to agricultural or forestry problems.

5.3.4 Family activity

Relative to the kind of family life of the people who live and work on the agricultural properties, two aspects are relevant, and it is imperative to discuss them when we intend to analyse the family agricultural system: one is the time that each family member spends working on the farm, the other is the origin of the family revenues (the subsistence means). The most significant fact is that only 1 per cent of the farms in the region generally employ agricultural workers. Only 40 per cent of producers usually work on a full time basis on their farms, while 21 per cent devote less then one quarter of their working time.

Concerning the revenue origin of farmers' families, 14 per cent of families live exclusively from the agricultural activity, while for 61 per cent of them the revenues come from the non-agricultural activities.
Oliveira Baptista (1993) has designed a typology for family farms, in which he includes not only the classic functions of production of goods and stock of labour, but also the function of social support, that refers to those families who work on farm but whose revenue comes mainly from sources other than agricultural activity (pension, subsidies, retirement, interests *etc.*). This is the most frequent type of farm in Pinhal Sul region, which because of the ageing agricultural population, and the phenomenon of emigration, succeeded by an economic depression, has began to be more a place to live than a place support with few economic interest for subsistence or whatever other reason.

Cross-tabulating the information relative to family revenue sources with the existence of profitable activities parallel to agricultural activity, we can obtain an image of the importance that family agricultural types have in the region (Table 5.9).
Relative to the function of goods production, families which have exclusively or mainly income from agricultural activity, i.e. without profitable activities not linked to the farm, represent to about 39 per cent of all farms, which in relative terms, is the highest value. Such a household agricultural type represents 57 per cent of the forest area and 53 per cent of UAS in the region Pinhal Sul region.

Table 5.9 Household income and the existence of other profitable activities external to the farm

Total % Column % Line	Without other profitable activity	With other profitable activity	Totals by source of revenues
Revenues only from the farm	1 936 24.2 100.0	0 0.0 0.0	**1 936** **14.4** **100.0**
Revenues mainly from the the farm	1 964 24.5 59.0	1 364 25.1 41.1	**3 328** **24.7** **100.0**
Revenues mainly from other sources	4 112 51.3 50.2	4 082 74.8 49.8	**8 194** **60.8** **100.0**
Totals by situation relatively to external activities	**8 004** **100.0** **59.6**	**5 454** **100.0** **40.4**	**13 458** **100.0** **100.0**

Source INE - Recenseamento Geral da População XIII, RAC, (1989)

The second most important group (family agricultural exploration, FAE, type), in relative terms, is that composed of families with revenues coming mainly from sources external to the farm and without other principal profitable activity. This group involves about 31 per cent of the FAE, which corresponds to 21 and 22 per cent of forest and agricultural area respectively.

In the work function are included the FAE in which the greater part of the family income comes from sources external to farm and where there is an economic activity associated with these revenues. This group includes 30 per cent of FAE, that means, as in the case of the farms with social support functions, 25 per cent of total forested area and 21 per cent of agricultural area of the Pinhal Sul region

5.3.5 Other social indicators

Presently the region is very well equipped with schools for all levels of education. In the nearest town (60 km far way) there is also a private university and a public polytechnic institute. The latter includes three tertiary level colleges: agricultural school, education school and technology and management school. In spite of this, education still remains a limiting factor to the rural development of the region. Data referring to 1991 (INE -

Recenseamento Geral da População XII) presents the picture: the illiteracy rate in Pinhal Sul region is 24.5%, mostly older individuals. The literate population is distributed as follows:

- population with primary education level, 67%;
- population with preparatory education level, 14%;
- population with secondary education level, 16%, and
- population with higher levels of education 3%.

5.4 Description of the parish

In this section we present information which contributes to a picture of the population of the parish where we developed the case study. In a methodological sense, the population is constituted by all forest landowners of the parish. Although the data following relate to landowners in general, most of them are small forest landowners.
Obviously, our interest is to analyse the landowners' socio-economic characteristics as well as their characteristics relative to their agrarian activity. To avoid the presentation of data which have no principal interest for the study, and can not be exhaustive, we present most of the data in the appendix 5.4.
This description is based on data provided by the Ministry of Agriculture in an unanalysed format. Thus, we have proceeded to its analysis in order to use it in the study. The main landowners' characteristics which we think are important to point out are the following:

- about 70 per cent of the 211 farmers of the parish Estreito have at least one or more hectares of land;
- almost all are independent producers who have only empirical agricultural knowledge and who do not keep accounts of their activity;
- relative to the agricultural property, only 2 per cent of the properties have more than 5 hectares. Most owners have around one or two hectares or less. The average of the agricultural property is about 1,4 hectares;

- the forest property is concentrated between 2 and 10 hectares in area, although there are about 25 per cent of properties bigger than 10 hectares and 18 per cent smaller than 2 hectares. The average size of the forest property is about 11 hectares;

- the tractor is the principal machine used in the agricultural activity. Around 17 per cent of the farmers own tractors. Farmers who have no tractor usually rent it as necessary;

- about one third of the farmers have agricultural activity as the exclusive means of subsistence; for to another third the agrarian activity is the principal means of subsistence, and the remaining third have another principal source of income. For this latter group the agrarian activity works as a complementary activity.

- the majority part of the farmers usually work full time on their properties; about one half of them work exclusively in agricultural activity;

- only 7 per cent of farmers consider their forest activity to be as their principal profitable activity;

- usually the second member of the couple works full time on the farm. Only about 12 per cent work part-time;

- in general farmers are elderly. The average age is about 57 years, and about 57 per cent of farmers are between 45 and 65 years old. Around one quarter of them are older than 65 years old, and only 17 per cent are under 45 years of age;

- the household (individuals living together in the village) is constituted in most cases by two or three persons - the average for the parish households is three persons.

In a general way the principal conclusion that we can take from this analysis is the fact that the values of all variables relative to the parish have similar values to those in the municipality or for the region. Such a fact enhances the representativeness of the case study developed in the parish.

6 NPFLs' INVOLVEMENT IN FORESTRY - THE CASE OF ESTREITO

This chapter presents the data from a field study based on a questionnaire administered in May and June of 1995 in a parish "Estreito", that is assumed to be representative of the region under study. It forms the first phase of the fieldwork investigation.

6.1 Methodological aspects

We selected this parish as a sample based on qualitative criteria related to the general aims of our study. Those criteria include: the occurrence of forest fires in the recent past in the region; villages' distance from towns; and villages where the research would be accepted. The possibility of gathering sufficient and valid data was another concern. Before the administration of the questionnaire we were able to conduct a quantitative data analysis. The assumption of the representativeness of the parish relative to the region was grounded in a study of Gomes (1994) who, using a Principal Component Analysis to analyse data from the Agricultural Census of 1989 (unpublished and not analysed, provided by the Ministry of Agriculture), shows the homogeneity of the Pinhal Sul region (Appendix 6.1).

The questionnaire was developed to achieve the following objectives:

- social and economic characterisation of NPFLs;
- characterisation of land use and land tenure;
- to understand NPFLs' mentality related to forest activities;
- to understand the NPFLs attitudes towards forestry and its problems, and
- to understand the role of the state in support of NPFLs activities.

Data were collected by structured interview with questionnaire. The questionnaire was administered directly by the interviewer. It included seventy questions, and it took about one hour to complete each interview.

The unit of study was the NPFLs. It was very easy to meet the potential respondents, as in the region almost everyone is a landowner. During the period of data collection, we found only one landowner who did not own forest land.

The field work took place in six villages of the selected parish. The number of the farmers interviewed (60) represents the number of individuals who are NPFLs that we could meet under the prevailing conditions to answer the questionnaire. In the parish area we can identity two sub-areas, one recently affected by forest fires, and the other one unaffected. During the questionnaire administration we were concerned to take a more or less equal number of respondents from each area. We had also the intention of selecting some villages with a higher number of households and some with a smaller number. The main village was included in our sample, because it presents the part of the parish where there are more traders, and forest land owners who have professions other than that of farmer.

After collecting the data, we prepared it for analysis. In this process we decided to omit three questionnaires, as they were not satisfactorily completed, and we had no confidence in their information. Hence, the present data analysis and discussion relates to 57 respondents.

The parish "Estreito" embodies twelve small villages. However, some of them have been abandoned. Within the six villages selected the smaller were Bafareira, Vidigal and Pião; the larger were Mogueiras, Ameixoeira and Estreito. Table 6.1 displays the distribution of forest landowners interviewed in each village. Respondents were almost all males, because usually the responsibility for the lands falls on to the husband. Only in the case of widows (10 altogether) and where the husbands were working far from the village have we got answers from the wives. In a few cases the questionnaire was administered to the couple, and in this situation the individuals participated each time they had an opinion about the subject in question.

Table 6.1 Distribution of respondents by village

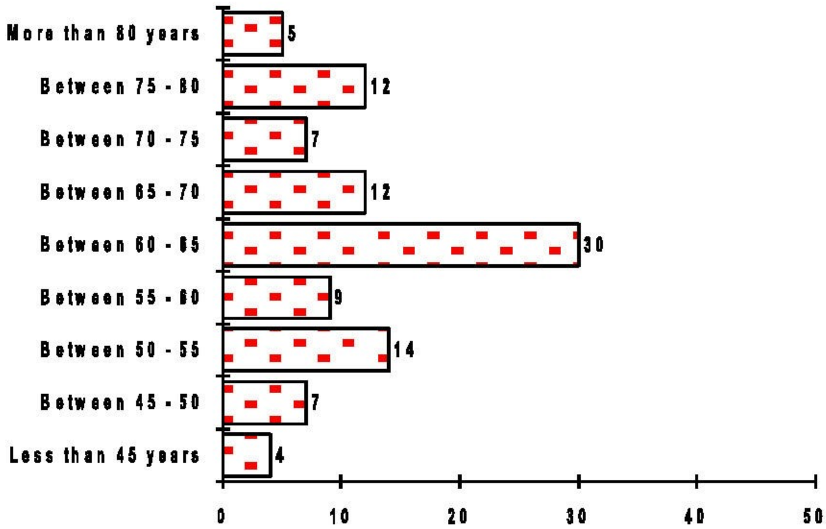
Village	Male		Female		Total	
	Resp	(%)	Resp	(%)	Resp	(%)
Mogueiras	16	28	0	0	16	28
Ameixoeira	13	23	3	5	16	28
Estreito	9	16	3	5	12	21
Vidigal	3	5	2	4	5	9
Pião	3	5	1	2	4	7
Bafareira	3	5	1	2	4	7
Total	**47**	**82**	**10**	**18**	**57**	**100**

The methodology followed was to interview all Non-industrial Private Forest Landowners (NPFLs) whom it was possible to meet in the village on the occasion of the administration of the questionnaire. This means that we tried to interview all NPFLs who were living in the region. In some cases we could obtain answers from almost all NPFLs living in the village. In the main village we only stopped questionnaire administration, when we had already done a number of interviews equivalent to the number of the most populated village that we had interviewed so far. Another indicator that gave us the signal to stop the administration of the questionnaire was the fact that we realised that the answers were becoming more or less the same. In addition, as this is the main village, fewer inhabitants have jobs outside the village making it very difficult to meet all of them with the available time to answer the questionnaire.

6.2 Personal data

The age of the respondents was between 32 and 87 years of age (Figure 6.1). Most of the respondents (65%) are between fifty and seventy years of age. The remainder are mainly older than 70 years old (24%), and there are only 11 per cent younger than 50. The landowner population therefore consists mainly of older people.

Figure 6.1 Distribution of NPFLs' age (%)



Overall, the respondents have 144 children. This means that there are around 2.5 children per household. About half of the children are still living in the region, however only 21 per cent are living with parents (Table 6.2). Those are mostly of school age and usually do not help the parents in forest activities. Some of the children who are living in the region are students, studying in the secondary schools or colleges in the surrounding towns. About one quarter of the children who have been living outside the region are emigrants, living in France, Germany and Luxembourg.

Table 6.2 Distribution of respondents' children according to place of residence

Children allocation	Resp	(%)
Children living with parents	30	21
Children living in the region	43	30
Children living outside the region	71	49
Total	**144**	**100**

We did not meet any children living with parents whose activities were related with agriculture or forestry. For children the rule seems to be that once they reach adulthood they leave home and follow an independent life.

As the age distribution might suggest, a significant number of the NPFLs has not received the minimum education. One half are illiterate or functionally illiterate (Table 6.3). Those who have not completed primary school (four years), usually can sign their names but mostly are unable to read and understand a document or fill in a form. Hence, illiteracy is one of the handicaps of the region, which can not be discussed separately from the population's age, since landowners' educational level is significantly ($P = 0.0094$) higher among the younger landowners (Appendix 6.2 - Table 1).

Table 6.3 Distribution of respondents according to years of school instruction

Education level	Resp	(%)
Illiterate	12	21
Incomplete primary school	17	30
Primary school (4 years)	25	44
More than primary school	3	5
Total	**57**	**100**

The majority (60%) of the NPFLs have never worked outside the region (Table 6.4). Some of them (16%) have tried to emigrate for short periods, usually under seasonal contracts. Only about 22 per cent have worked abroad for long periods of time. The latter group were emigrants till the moment they could afford money enough to maintain good lives in Portugal. This process includes at the minimum the purchase of lands and building a house.

Table 6.4 Distribution of respondents according to the time spent as emigrants

Period of emigration	Resp	(%)
Never	34	60
Less than 2 years	9	16
More than 2 years and less than 5 years	1	2
More than 5 years	13	22
Total	**57**	**100**

As was expected, the main professional occupation of the NPFLs is agricultural activity. Thus, 56 per cent of them are full time farmers (Table 6.5). The population is also characterised by a high percentage of retired people. However all respondents who are not farmers are occupied in agricultural and forestry activity, but as a part time activity.

Table 6.5 Distribution of respondents by work status

Work status	Resp	(%)
Full time farmer	32	56
Retired	10	17
Forest industry worker	5	9
Building construction worker	5	9
Retail trader	5	9
Total	**57**	**100**

When asked about participation in associations or other kind of groups, we registered 95 per cent of the respondents who have never been a member of any group. Hence, they never have assumed the leadership of any association. There were only three exceptions, two cases related to a parish sports club and one related to a religious group, also at parish level.

6.3 NPFLs' family socio-economic characteristics

In the study area, the labour required in agricultural activities is mainly guaranteed by the members of the family. In the majority of the cases (63%), where both members of the couple could work full time in the field, they contribute together (Table 6.6). Otherwise one or other has to face the work alone. As is suggested below, the children are not interested in working on the fields, at least not on a full time basis.

Table 6.6 Availability of labour in the household, for agricultural and forest activities

	Full-time		Part-time	
Source of labour	**Resp**	**(%)46**	**Resp**	**(%)25**
Couple	29	63	9	36
Only husband	10	22	4	16
Only wife	7	15	5	20
Children	-	-	7	28
Total	**46**	**100**	**25**	**100**

In relation to part time work, we found that it is also the married couple who provide most of the labour. The children only help the parents occasionally, on week-ends.

Breeding animals is a quite common activity among the NPFLs. Actually, about 82 per cent of them referred to breeding livestock. However, this value is 12 per cent lower than in the past (twenty years ago), showing that in the current situation the inhabitants of the region have retained their characteristic way of life. The goat is the animal better adapted to and representative of the region (Table 6.7). Usually, they are raised in small herds with 8/9 animals, on average. The goats are bred for consumption of the milk and the meat and if possible to sell the kids. Pigs are bred mainly to provide meat for the household. Some respondents said that they supply meat to their children when they are living elsewhere in the region or in the country. Cattle are bred mainly to be used for animal traction.

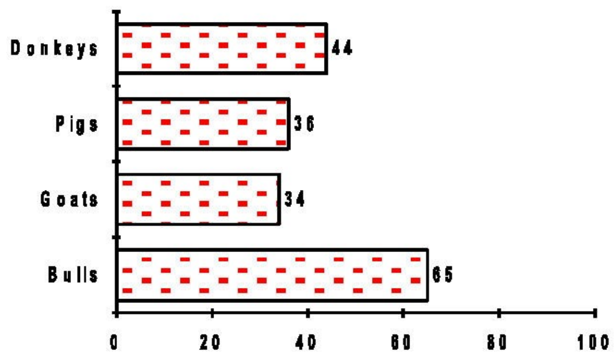
Table 6.7 Species and use of animals raised currently and 20 years ago, according to the purpose of breeding

	Total		Consumption		Sale		Traction	
Species	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**	**Resp.**	**(%)**
Cattle	7	12	-	-	-	-	7	100
Goat	47	82	47	100	15	32	-	-
Pigs	35	61	35	100	-	-	-	-
The objectives of animals breeding 20 years ago								
Cattle	18	32	-	-	-	-	18	100
Goats	52	91	52	100	16	31	-	-
Pigs	42	74	42	100	-	-	-	-

The objectives of animal breeding 20 years ago were more or less the same as nowadays. There is little difference related to cattle. In former times farmers used to breed more animals, and they tried to get an income from selling calves. All respondents now say that they breed animals for consumption, only 15 referred to an intention of sale. There is one village (Pião) where the NPFLs told us that they still breed donkeys to use them for transportation. This village is one of the last to get a road fit for cars.

The brush materials (mato) that were used in the past in animals' bedding is the same as that used today. All (100%) respondents said that they use brush and that they have been using it for years: as the level of brush collected is directly related with the cleaning of the forest, it is also considered as an important forest activity. So, we tried to establish a relationship between the evolution of the number of animals (Figure 6.2), and the evolution of the quantity of brush. Currently, the number of animals bred is inferior in all species, but the more significant are cattle and goats, since they utilise more brush than other species. As the figure shows, those species have been decreasing in recent years.

Figure 6.2 Decrease in animals raised in the last 20 years (%)



As with brush so the same has happened with the consumption of wood as fire wood. All respondents say that they consume less fire wood nowadays than 20 years ago. The main reasons are the use of the gas cooker and electricity; the decrease in livestock (years ago the farmers used to cook the pigs' food); and decrease in the number of persons at home. The following response illustrates this present reality "our cooking pots are smaller and we do not need to cook our own animal-feed any more". They only cook on the fire place during the winter months as they use the fire to heat the house. Some respondents also use gas and electricity for heating.

Our knowledge and experience of the region indicates that agriculture is mainly a subsistence activity. However, the research is interested in understanding how far the farmers are dependent on agriculture and on the forest. As Table 6.8 shows, all respondents consider agriculture primarily a subsistence activity. The forest shows a lower percentage (68%). This means that 32 per cent of the respondents do not get an income from the forest, or at least they do not think about it in that way. When we look for the importance of each mean, it is possible to see that the forest role is bigger than the respondents' data have shown. A relevant consideration is the importance of pensions and salaries. Those are sometimes the most important source of subsistence for the family. In this question, we found a certain difficulty on the part of respondents to give a clear answer.

Table 6.8 Means of subsistence of the NPFLs and their relative importance

Means of subsistence	Resp	(%)
Agriculture	57	100
Forest	39	68
Pensions or salaries	14	25
Importance of each mean		
Principal - Agriculture	8	14
Principal - Forest	8	22
Principal - Pensions or salaries	4	29

It is not easy, for the respondents, to separate the sources of subsistence means, and their relative importance. They usually answered that agriculture provides food products for consumption, while forest land provides some money. Hence, both are important for them, although in different ways. Those ideas are supported in Table 6.9. Almost all respondents (97%) replied that agriculture represents much or very much of their subsistence, because it is related with food self-sufficiency. The money provided by the forest is not so important in this sense, although it is important to buy things other than food, which are essentials required by the household.

Table 6.9 Comparison of the subsistence dependency level on agricultural and forest products, according to their use for consumption in the household or use for trade

	Consumption				Trade			
	Agriculture		Forest		Agriculture		Forest	
Level of dependence	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**
Very high	25	44	1	2	-	-	-	-
High	30	53	5	9	1	2	13	23
Low	2	3	16	28	12	21	14	25
Very low	-	-	24	42	9	16	2	3
None	-	-	11	19	35	61	28	49
Total	**57**	**100**	**57**	**100**	**57**	**100**	**57**	**100**

Usually, farmers trade with the intermediaries of the region, some of them buying products directly at the farm gate (Table 6.10). The respondents also sell or exchange among themselves, mainly between neighbours. The timber wood and resin are usually sold to dealers whom they know in the region. In their turn, those forest products traders could be seen as intermediaries too. Some of NPFLs have children who have shops in Lisbon or around, who sell directly the agricultural products of the family and of the neighbours. This scenario is quite common in other regions of Portugal. Only the trade in resin operates under a different and very characteristic schema, which we shall describe later.

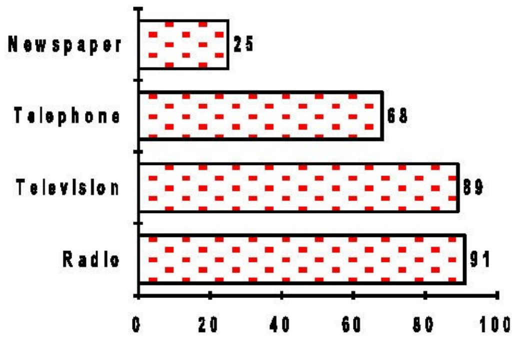
Table 6.10 Distribution of the buyers to whom respondents usually sell products

Entities	**Resp**	**(%)**
Intermediaries - agricultural products	22	59
Dealers - timber wood	6	16
Resin trader	5	14
Neighbours	4	1
Total	**37**	**100**

No response = 20

Most of the respondents have radio and television (Figure 6.3). They usually use television more than radio. The radio is used normally early in the morning, and during the day to listen to religious programmes. More than half of the respondents (68%) have a telephone. Some of the respondents told us that they do not have telephones because they are allowed to receive telephone calls at the neighbours' phones. Most of them have got the telephone to receive calls, more than to make them.

Figure 6.3 Information and communication means used by NPFLs (%)



Watching television has become a habit for the majority of the respondents (Table 6.11). The frequency of the days the NPFLs watch television is directly linked to the time available. Some of them told us that at the end of a working day they are not interested in anything except to sleep. About 25 per cent of the respondents watch television only occasionally, and they have no regular habit.

Table 6.11 Frequency of farmers' use of television

Frequency	Resp	(%)
Every day	18	30
4-6 times per week	4	7
1-3 times per week	20	36
Occasionally	14	25
Never	1	2
Total	**57**	**100**

Usually they prefer to watch television by night, during dinner time or after dinner (96%). Only 4 per cent said that they watch television in the afternoon, during lunch time. The main reason given for watching TV is to listen to the news and the entertainment programmes (Table 6.12). Some of them are also interested in weather forecasts and religious events.

Table 6.12 Type of TV programmes they usually watch

Programmes	Resp	(%)57
News	49	86
All programmes	4	7
Religious programmes	4	7
Entertainment	3	5
Weather forecast	3	5

About 50 per cent of the respondents have their own means of transport (Table 6.13). They use it to travel within the parish, to the municipality or to the town whenever they need. Those who have a car or van can travel every day without problems with distances. Some of them use the transport for their work. The main reasons why they need to travel around, other than access to work, is to shop at markets or shops, to solve problems at the Town Hall council, tax office, banks, and to buy products that they need for their agricultural activity.

Table 6.13 Type of transport owned by NPFLs

Type of transport	Resp	(%)57
Without transport	28	50
Motorbike	14	24
Van	8	14
Car	7	12
Total	**57**	**100**

The respondents who do not have their own means of transport travel by public transport (bus). Some of them use the school's bus whenever they need to travel and when the regular bus can not serve them. Only 10 per cent of the NPFLs ask for help from neighbours when they need something from the parish, rather than going and doing it themselves.

More than one half of the respondents recognise that they are living in better conditions than twenty years ago (Appendix 6.3, Table 1). However, the opposite opinion is held by 38 per cent of them. The reasons which could explain such diversity of opinion were grouped in groups, positive and negative reasons, which are presented in Table 6.14. As we can analyse from this table, the positive causes are mainly linked with material facilities that provide a better way of life. The aspect of retirement became positive because retired people could continue with their activities and still receive their pension money, at the same time. The negative causes are aspects mainly related to the forest fires and their implications. Age and the cost of living are also aspects that contribute to the negative feelings of the NPFLs related to the present way of life.

Table 6.14 Reasons for the changes in quality of life

Reasons for the change Positive	Resp	(%)21
Increase in forest incomes	7	34
Retirement - receiving pensions	4	19
New employment activities	4	19
Improvement of access conditions - roads	3	14
Electricity and telephone to all households	3	14
Negative		**(%)26**
Occurrence of forest fire	16	61
High cost of living	5	20
Aging population	3	11
Decrease of resin price	1	4
Lack of labour	1	4

Regarding the reason for living in the village, Table 6.15 shows us that about half of the respondents are living in the region because they have no other place to live, and because the land is the only means of subsistence they have. They live there because they have to. On the other hand, the other half are living in the region for pleasure and in order to get income from their lands.

Table 6.15 Reasons why NPFLs are living in the village

Reasons	Resp	(%)
Do not have any other place to live	31	54
Personal or affective reasons	29	51
Agriculture and forestry are the only means of subsistence	22	39
To take an income from the properties	17	30

6.4 Land tenure and land use

About 80 per cent of the NPFLs have inherited agricultural and forest land from their family (Table 6.16). This is a very important characteristic of Portuguese society. However, the high percentage of respondents (around 50%) who have bought land is also significant, as it demonstrates the respondents' continuing interest in lands.

Table 6.16 Origin of agriculture and forest land

Type of property and type of land tenure	Resp	(%)
Agricultural land - inherited	46	81
Agricultural land - bought	29	51
Forestry land - inherited	44	77
Forestry land - bought	27	47

Most properties are divided into very small plots. The number of plots ranges from 2 to 56. The average number of plots which were bought or inherited is around 7/8 plots in each modality. Despite the large number of plots, the total areas are usually very small. The values on Table 6.17 illustrate globally the property dimension. For forest activity any plot smaller than one hectare is a small area.

There is reliable information available from the Ministry of Agriculture about the property structure; we were flexible in asking about these four modalities of the variable "property area". Some of the respondents had difficulty in answering this question; they have no idea of the size of their property in hectares, and others have no property documents. The indicator they use to identify the property is the number of trees or resin cups ("bicas" or "feridas"), rather than the property area.

Table 6.17 Distribution of the forest plots' areas

Areas of the forest property	Resp	(%)
Only plots with less than one hectare	22	43
Plots with more than 1 hectare and less than 2	12	23
Plots with more than 2 hectare and less than 5	9	17
Plots with more than 5 hectares	9	17
Total	**52**	**100**

No response = 5

The principal reason to buy land is the intention to join several small plots together to create a bigger unit, which could be more profitable to manage (Table 6.18). Further to this intention there are several other not so well represented in the statistics. However, those reasons are significant in providing us with an understanding of the process of buying and selling property in the region, as well as the values involved. As we can observe in the table, these values are more social than economic.

Table 6.18 Principal reasons why the NPFLs bought their lands

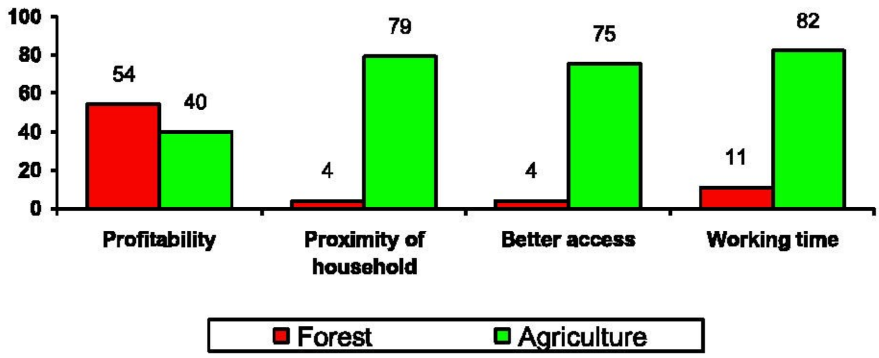
Reasons for buying lands	Resp	(%)27
To join plots, in order to increase the continuous property area	17	69
It was a good deal, was bought at a lower price, and lands are more valuable than money	8	21
It was a good deal, lands are more valuable than money	5	17
Proximity of plots to the house	5	17
To increase the property area	4	15
Personal satisfaction in buying lands	3	11
For their children as inheritance	2	7
Purchase of the brother's inheritance	1	4

In order to understand what agricultural and forestry activities represent to NPFLs, we asked them about the following aspects:

- working time: in which activity they spend more time;
- access conditions to reach the plots: which plots have better access;
- distance from the house to plots: which are the nearest plots; and
- profitability of each activity: which activity is more profitable

We found that agricultural activity takes more working time than does forestry. The former takes place on a group of small plots, usually near the house, with good trails for easy access (Figure 6.4). The opposite usually is the case with the forest property. The data show that the respondents spend more time in agricultural work, but get a higher profit from the forest: this is one of the reasons why they look to forestry as a profitable activity. Poor access and long distance from the household are two characteristics of forest property, observed in the figure, which affect forest activity.

Figure 6.4 Characterisation of agricultural and forest property (%)



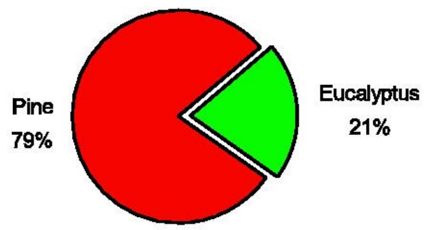
Almost all respondents have a vegetable garden, which provides the household with food products. The first aim is to be self-sufficient, and the second is to try to sell the surplus. A significant figure in Table 6.19 is the percentage of respondents who have olive trees. Olives, as olive oil, are products that can be easily sold. The other products they sell are potatoes, corn and some fruits.

Table 6.19 Main agricultural activities

Agricultural land use	Resp	(%)
Vegetable garden	55	96
Olive trees	47	82
Orchard	21	37
Pasture	12	21

As we have already referred in Chapter Five, the forest of the region is mainly natural pine forest - *pinus pinaster*. Provided such predominance, as Figure 6.5 illustrates, the majority of landowners has pine forest. The alternative to the traditional culture is the eucalyptus, which has been planted or seeded by one fifth of the landowners, who still have pine forests.

Figure 6.5 NPFLs' experience with forestry species



The main forest activity is the collection of brush and fire wood (Table 6.20). Generally, the extractive activities are more frequent than protective or maintenance ones.

Table 6.20 Distribution of forest activities

Activities	Resp	(%)
Collecting products (brush and fire wood)	45	79
Thinning	30	53
Resining	29	51
Cleaning forest, fire breakers and paths	26	46
Open new forest paths	25	44
Timber harvesting	23	40
Planting	11	19
Open newt fire breakers	10	18

Given the higher number of plots, usually dispersed, which constitute the forest property, NPFLs often have to decide which activity to develop in each plot. We found that NPFLs conduct those activities preferentially on the plots nearest to the house, and on the better ones, which have plants in good condition. The objective of such decisions is to improve the quality of the forest in those plots. This means that the more distant or less fertile plots could be abandoned. About 50 per cent of the respondents said they had some abandoned areas. Almost all activities are developed in their own plots. Some NPFLs are charged with taking care of plots belonging to relatives, but in reality this does not happen. It is only a question of showing that these plots are not abandoned.
The most important factors which justify the forest activity are the affective ones (Table 6.21). Those are linked with the land tenure system, the symbolism of the inheritance, and with life experience in rural areas. Traditionally, working in the forest is also a

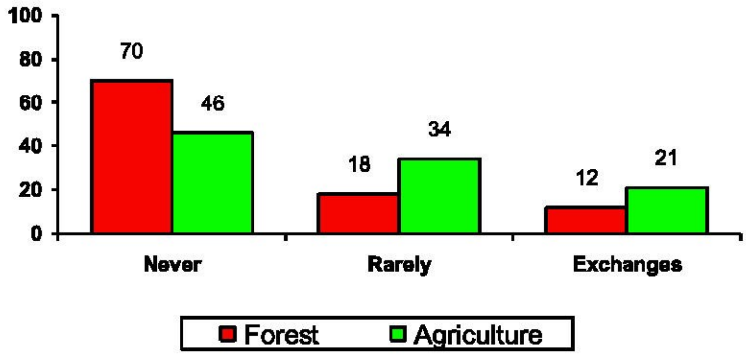
relevant factor. The economic aspects are important as well, but not valued as highly as the affective ones.

Table 6.21 Reasons why the NPFLs develop forest activities

Reasons	Resp	(%)
Personal reasons	35	61
To get profit	23	40
Because of personal conscience	23	40
In order to supply the family subsistence means	14	25

The majority of the respondents never use employees on agricultural or forestry activities (Figure 6.6). Those who do use employees rarely, use them more in agriculture than in the forest, mainly to harvest and seed the fields, and to cut or collect the resin in the forest. One interesting aspect is the fact that the NPFLs prefer to use exchange labour among neighbours than to use employees. They justify this attitude by saying that in this way, it is not necessary to pay salaries.

Figure 6.6 Frequency of the use of employees (%)



One of the reasons why the respondents do not use employees is the lack of labour and its high cost. Most of all, landowners (86%) referred to having difficulty or great difficulty in finding someone interested in working either in forestry or in agriculture (Appendix 6.3, Table 2). Such similarity between forest and agriculture employees results from the fact that they are the same people. This means that they are not specialists in either activity.

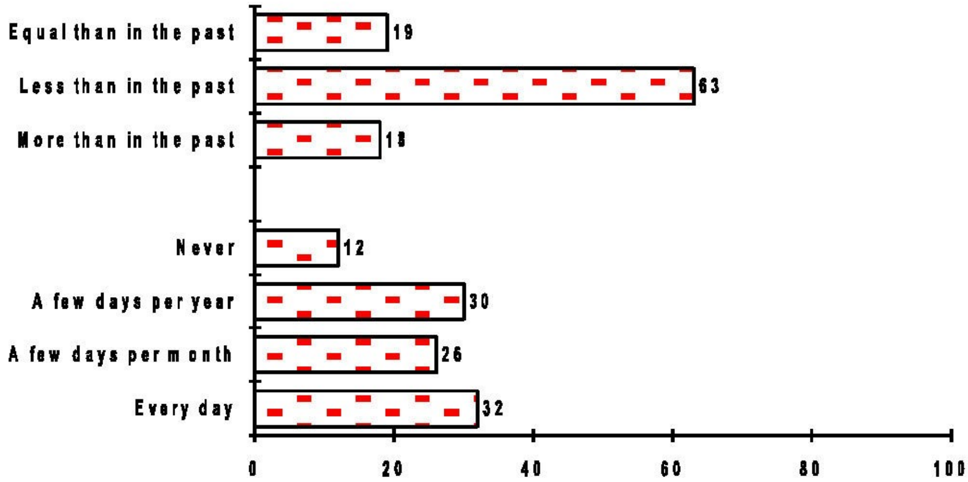
The technology that NPFLs use in their activities is the traditional one (Table 6.22). We include in this term all activities which could be done by man and women using traditional tools and animal traction. However, some of them have exchanged cattle and donkeys for tractors. The tractor is often used more in transportation than in other forest activities. Renting out the tractor sometimes is a way of generating income. Around one half of the respondents have bought machines specifically to cut brush and trees. The use of certified seeds and plants is declared by those respondents who are growing eucalyptus.

Table 6.22 Type of technology used in forest activities by the NPFLs

Types of technology	Resp	(%)
Traditional technology	57	100
Tractor	30	53
Machines	24	42
Chemical products	1	2
Certified seeds	3	5
Certified plants	4	7

The majority of the NPFLs work frequently in the forest (Figure 6.7). But there are some (12%) who do not work in it any more. The respondents said that it is important to visit the forest frequently even when they have nothing to do. This is useful in showing that they are interested, both in surveillance, and to follow the evolution of the forest. However, it is significant to note the high percentage of respondents that, at present, visit the forest less than they did in the past (20 years ago).

Figure 6.7 Frequency of forest activities (%)



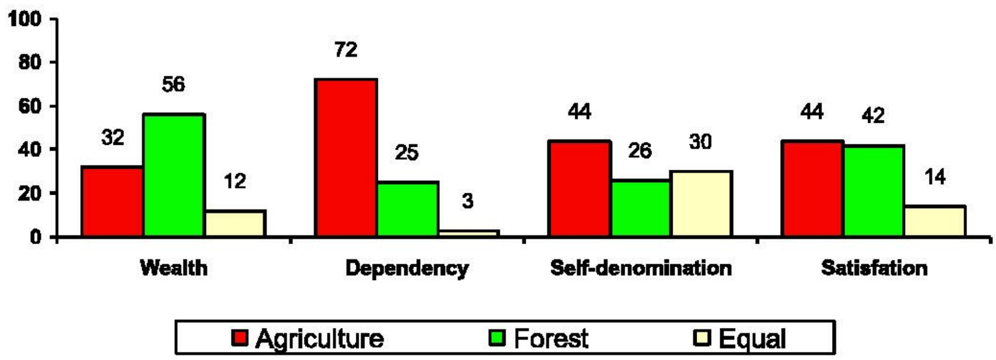
In general, the NPFLs has no specific occasion to visit the forest. Only 20 per cent said that they prefer the summer, in order to survey and try to avoid forest fires, and others prefer the winter as in this time they have not too many activities on the agricultural land. Age could be one of the factors that affect the frequency of working in forest land. However, we only found a significant relation between the "frequency of working in forest" and "landowners who claim that their age constitutes a constraint to forest investment" (P = 0.0052, Appendix 6.2 - Table 2).

The majority of landowners who claim that their age constitutes a constraint to forest investment, have been visiting their forest less often (P = 0.0146). Those who do not feel an obligation to improve forest quality are the ones that have been visiting their forest less or have already stopped the visits. (P = 0.0005). In contrast, the landowners who usually visit their forest are also the ones who feel the obligation to improve the forest quality. The landowners who presently visit their forest less often have visited it more often in the past. However, we have seen that even the landowners who claimed that they usually visit their forest, have been visiting it less now than in the past.

6.5 Non-industrial Private Forest Landowners mentality towards forest activity

One aim of this study was to learn about the NPFLs' perceptions towards forestry. In the next figure we compare forestry and agricultural activities through examining four variables: "wealth" or value of each type of property, "dependency" on each activity, "self-denomination" that means professional denomination used by NPFLs, and the "satisfaction" in working on each activity. Although the respondents said that their forest property has a higher value than the agricultural property, the level of dependence on each activity is higher in agriculture. The majority of respondents introduce themselves as farmers. Only 26 per cent used the term "forest producer" as professional denomination. There are no differences between the percentages of respondents who like working more either in forestry or in agriculture.

Figure 6.8 NPFLs' opinion about their relation to forestry and agricultural activities (%)



There are many reasons underlining these answers. We will present them grouped under four headings that represent the different types of respondents, such as those who have major problems with the forest and those who do not have major problems:

- **Agriculture's positive aspects** - Agriculture provides more profit, at least more than forestry. Agriculture provides enough food products for household consumption and the surplus can be sold. It is less hard to work on the agricultural fields. The older respondents prefer agriculture for these reasons and also because agricultural plots are usually closer to the house.

- **Agriculture's negative aspects** - It is very difficult to trade agricultural products, because both the quantity and the "quality" do not give profit. It is better to produce only for household consumption and to abandon the remaining plots.

- **Forestry's positive aspects** - Forestry provides more income and profit in money. Forestry is their only source of income, and does not take a lot of work to generate it.

- **Forestry's negative aspects** - Forest is good before it gets burned. After fire there is no income, and no work to do other than to wait for natural regeneration, if that happens.

Cutting trees and selling them are the rights that the NPFLs have used more often (Table 6.23). The percentages associated with these aspects are high and similar, since usually when the forest landowner cuts the trees he does so in order to sell them. They do not use the pine wood for self-consumption. The respondents who refer to selling of forest-land (14%), say that they have done it in order to get money to buy other lands. In some cases they have exchanged forest properties. Resin extraction is very common in the region. When the trees reach the legal diameter almost all NPFLs start resin extraction. However, presently only about fifty NPFLs still do it. Such a decrease is due to lack of labour, but mainly due to the decreasing resin price. In relation to forestland sale, it is clear that it is not a wish of the majority (86%) of NPFLs. Thus the NPFLs' idea is to increase the patrimony, to increase the property area and never to sell their lands. We have heard from them several statements on this matter, which can be represented as follows: "only in case of a serious family health problem would I sell a plot of forest".

Table 6.23 Distribution of the use of forest rights

	Yes		No	
Activities	**Resp**	**(%)**	**Resp**	**(%)**
Harvest and sell trees	51	89	6	11
Resin extraction	46	81	11	19
Sale of forest land	8	14	49	86

Some of the NPFLs' attitudes towards forestry are shown in Table 6.24. It summarises the different aspects related to the use of the forest production. From a general analysis we can see that the NPFLs intend to continue to collect forest products (resin, brush, and others). In their disposition to collecting forest products 32 per cent responded negatively; their reasons being firstly the age of the trees, since the older trees cannot give any more resin; and secondly due to the forest fires. From the analysis we can also foresee that the number of animals would continue decreasing.

Table 6.24 Forest activities that NPFLs are disposed to do in the future

Disposition	Resp	(%)
To collect forest products	39	68
To harvest trees	33	58
To sell trees	32	56
To feed goats	14	25

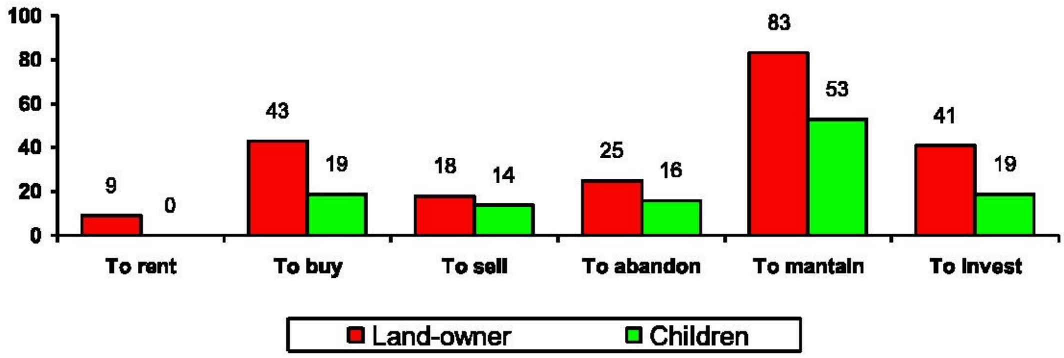
Related to the cutting and sale of trees, the majority of farmers still have trees that in the future they intend to cut. The percentage of 44 per cent that are not available for cutting, are mainly NPFLs with lands without adult trees. Some of them make it a point of honour in saying that they never cut a tree (see Table 6.23), and do not intend to do so in the future. This following statement is an example of general feelings among a few: "whoever will have the land tenure in the future will have to cut the trees, because I have never and I will never cut a tree". However, there are different opinions which we can understand to bear some resemblance to correct forest management: "We have to keep with the times, and do what the forest wants: thinning, cutting and re-planting"; "The forest was giving firstly, its blood (resin) and then later, its body (wood)". All of NPFLs stated that they wished to replant their lands, but they have also stated that such action will be dependent on state support.

If we examine forest land *per se* instead of trees, the scenario would be a little different. The majority of NPFLs are not interested in buying land, although there are a considerable number of them that could buy forest land if they encountered a good deal. To rent forest land never has been customary in the region, and nobody is interested presently in selling forest land. Besides the reason being merely economics, there are also social reasons which have a strong influence in NPFLs' decision to sell forest land. Such reasons could be summarised in this statement "to sell is ugly and shameful". The only exception are those landowners who have lost trees and do not have any chance of regeneration. But, even in these cases, they would only sell for a good price. If they can not reach a good price for selling, they prefer to abandon the lands. Abandonment, suggested by 25 per cent of respondents, in this case means not taking care of it, not working on it, but keeping the tenure of the property. Finally, the most expressive figure, the majority (83%) are interested in maintaining their activity on forest lands.

The concept of maintenance is very subjective in this case, because it is relative to NPFLs' level of care for their forest. Hence, the meaning of maintenance is to keep, at least, the actual level of care. Therefore, we could say that the interest in maintaining the forest might not be synonymous with forest development.

In general, all parents think that their children seem to be interested both to improve the quality of the forest, and to increase the forest patrimony or at least to maintain it (Figure 6.9). Only 16 per cent of parents have the idea that their children will sell the lands as soon as they inherit them. Concerning the pressure that parents feel from their children in relation to attitudes towards forestry, about 56 per cent of respondents expressed the view that the children are not interested (Appendix 6.3, Table 3). However, 31 per cent feel sufficiently encouraged to improve or maintain the forest. Only 13 per cent NPFLs feel pressure from the children to sell the forest.

Figure 6.9 NPFLs' interests compared with their children's interests related to forest (%)



Given that we were seeking to understand the landowners' attitude towards their investment, a crossed analysis was done between this variable and others to which it is related. As was expected, we found that the "interest in investment" appears linked to several variables: expectation of forest activity in the future; landowners' skills in forestry; landowners' age as a constraint to investment; landowners obligation felt in improving forest quality; landowners' interest in maintaining the forest quality; profit as landowner's objective for staying in forest activity (P = 0.0093; P = 0.0179; P = 0.0040; P = 0.0000; P = 0.0059; and P = 0.0004 respectively to each relation between these six variables. Appendix 6.4, Tables 1,2,3,4,5 and 6). Some of these relations seem to follow a logical sense, thus the landowners interested in investment are the ones who have good expectations of the forest's future, who feel the obligation of improving forest quality and who are interested in maintaining their forest. However, the relations between the remaining variables must be discussed separately:

- about one third of landowners interested in investment considered the lack of information about what species to plant and how to plant to be the principal constraints against carrying out investment in their forest;

- the majority (75%) of landowners interested in investment said that their age is a constraint to investment;

- only one third of landowners, who claimed to be interested in investment, admitted profit as their principal objective in forest activity. On the other hand, all of those who seek profit in their activity are interested in investment. This means that there are some landowners interested in investment who are not concerned with the economic value. These ones most probably have no finance to invest, thus their only solution is to wait for government support.

NPFLs generally feel the duty to protect and preserve the forest (Table 6.25). They feel this duty as related to two aspects:

- firstly they feel the obligation to improve forest quality in order to get more profit;

- secondly, claiming their personal satisfaction, they feel the duty to improve forest quality in order to see their lands well managed.

Table 6.25 Obligations (duties) that NPFLs feel related to the forest

	Yes		No	
Type of duties	**Resp**	**(%)**	**Resp**	**(%)**
Maintenance	42	74	11	19
Surveillance	35	61	18	32
Improvement	32	56	21	37
Abandonment	4	7	49	86
None	4	7	-	-

There are four NPFLs who because of age or health, were not interested to answer this question

The majority of the respondents usually only recognise the forest's economic value (Table 6.26). They usually express it in different ways, whether related to money or related to patrimony. Whenever they were talking about incomes and about forest exploration they have referred to money. On the other hand, whenever they were talking about the possibility of increasing the property area in order to become a big landowner, or to give a better inheritance to their children in the future, they have referred to patrimony. Therefore, their concept of patrimony, has several social aspects associated, which are based on feelings about the land tenure system.

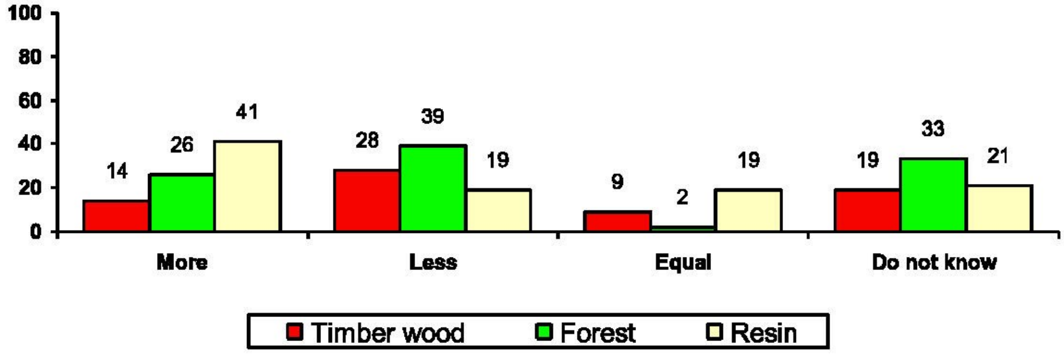
Social value in this case represents the household consumption. Personal satisfaction is the second important value. Only after these did the environmental and aesthetic values appear.

Table 6.26 Values which NPFLs recognise regarding the forest

Type of values	Resp	(%)
Economic value (provide money)	43	75
Personal satisfaction	20	35
Patrimony value (property tenure)	17	30
Environmental value	8	14
Aesthetic value	7	12
Social value	5	9

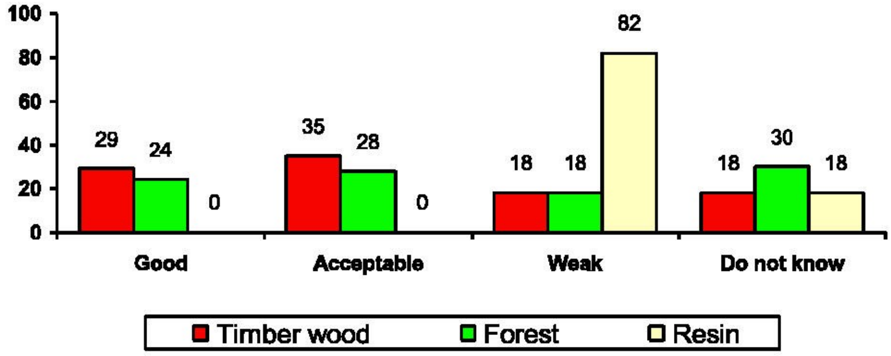
In NPFLs opinion, the timber wood and forest land have been of less value in the past (Figure 6.10). The opposite occurred with the resin value, which was better paid in the past. There seems to have been major crises in resin trading in Portugal since the country joined the EU.

Figure 6.10 Economic values of wood, forest land and resin in comparison to 20 years ago (%)



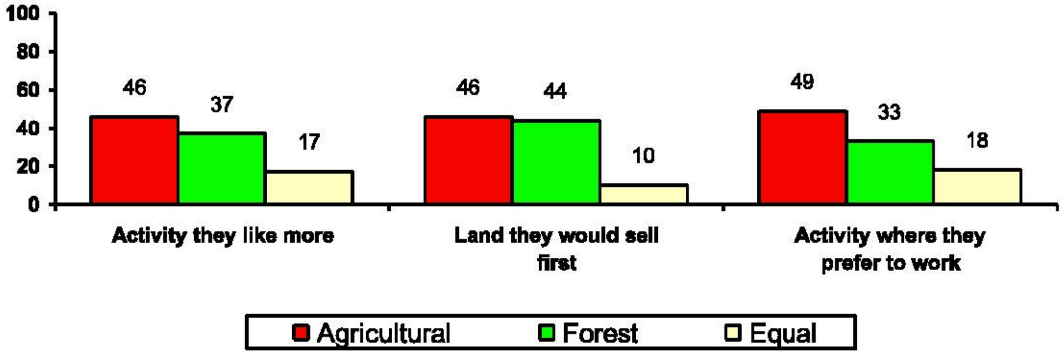
More than one half (64%) of the respondents pointed out that the present timber wood price is acceptable or good (Figure 6.11). The same is true of the forest land price, although with a lower percentage of respondents (52%). In contrast, all respondents, who have information about resin trading, stated that the resin price is very low, and that it could be possible to discontinue this activity in the next years.

Figure 6.11 NPFLs' opinion about the actual economic value of the wood, forest land and resin (%)



In order to understand the level of satisfaction that the NPFLs take in their forest land and in activities directly related to it, we asked questions which provided us with the information that 78 per cent of respondents get the same or more satisfaction than twenty years ago. Comparing forestry with agriculture, according to the figures in Figure 6.12, there seems not to exist any difference between those activities. Only one aspect could be more relevant; there are more respondents who like to work more in agriculture than in forestry. The reasons given for that is the fact of the agricultural plots being close to the house, less solitude, and that it is very pleasant to follow the growth of the culture each year.

Figure 6.12 Comparison of feelings in relation to the forest and agricultural activity (%)



To enhance the idea we have about the values that NPFLs recognise regarding the forest, we asked them about the level of importance of each one. Table 6.27 presents the results, and as we can see, the most important value is economic, preferred by 46 per cent of the respondents, with the affective value appearing in second place. From this analysis we would wish to underline the lower percentages for the environmental and aesthetic values.

Table 6.27 Distribution of forest values by importance attributed by NPFLs

Values	Resp	(%)
Economic	26	46
Affective	13	23
Social	11	19
Environmental	6	10
Aesthetic	1	2

The traditional plant of the region is the pine tree and 72 per cent of respondents consider it to be the right species for the region (Table 6.28). However, in the last 10 years, the eucalyptus has begun to attract some of the NPFLs. Thus, 25 per cent referred to it as an alternative culture. Only 3 per cent did not want to talk about names of plants. However, they presented some negative and positive characteristics of eucalyptus:

- negative aspects, are basically linked with the lack of information about the effects of the plant on soils, mainly related to the use of water resources. Furthermore, there are some misunderstandings about the eucalyptus forest that confuse the landowners, since they are not clearly informed. Another negative claim was the fact that the use of eucalyptus will reduce employment, because of the weak labour needs.

- positive aspects, the use of eucalyptus could finish the dependence of landowners on pine forest. It will allow a gradual profit recuperation through the years, which is very important, since nowadays resin does not give the same profit that it did in the past. So, this distribution of profits also allow landowners to receive for themselves the revenues of plantations, instead of their children, as is commonly said about investment in the pine forest.

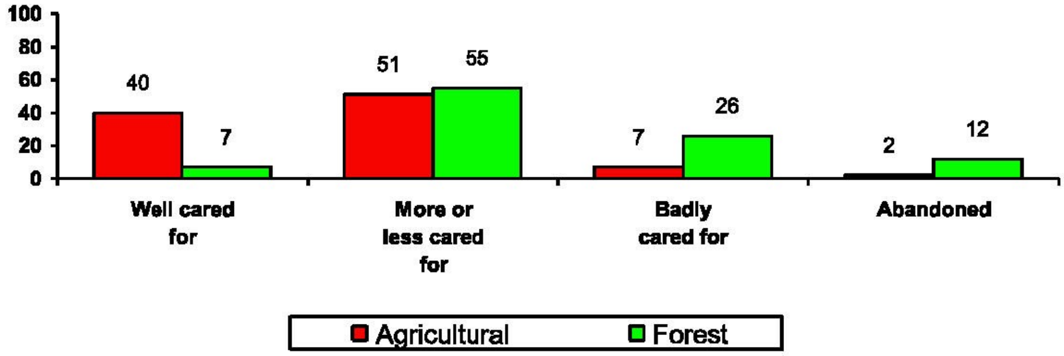
Table 6.28 Experience of the introduction of new forest species

Introduction of new forest species	Resp	(%)
Have never tried a species different from pine, do not need other species	41	72
Have tried the eucalyptus	14	25
Have tried other species (Chestnut tree and Cherry tree)	2	3

6.6 Forest management

The NPFLs are accustomed to take better care of the agricultural land than of the forest land (Figure 6.13). This difference is expressed by the view of 40 per cent of respondents who have the agricultural land very well managed, and in contrast, of 38 per cent of respondents who have the forest badly managed.

Figure 6.13 NPFLs' opinion about the management level on their property (%)



Possible reasons to explain why respondents have their forest badly managed are lack of money and the higher age of the landowners (Table 6.29). There are also other reasons presented in the table which are very meaningful, since they represent problems of attitude and lack of technical support.

Table 6.29 Reasons why NPFLs do not take care of the forest

Reasons	Resp	(%)
Are not able to, (lack of finance and health problems)	46	81
Do not want to	8	14
It is not necessary	5	9
Lack of technical knowledge and information	4	7

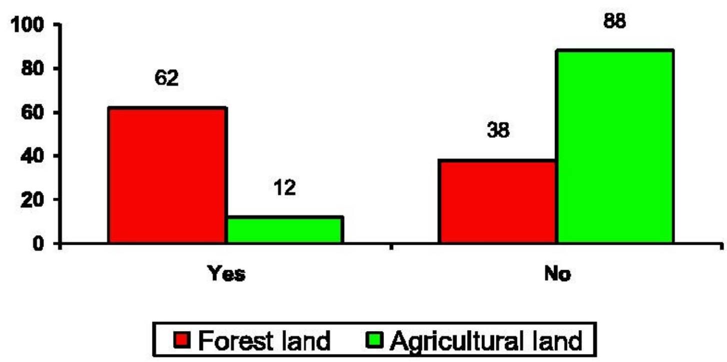
Multiple choice question

The state of the forest depends on the level of work that the landowner does on it. So, there are some of them who usually have their forest well cared for and in contrast there are others who have their forest as abandoned areas. The level of care of forest is, as we have already referred to, significantly linked with the landowners expectations of the forest's future. However, it is also linked to other variables which have been studied:

age; obligation to abandon; interested to abandon; interested to maintain; frequency of visits (P = 0.0473; P = 0.0113; P = 0.0015; P = 0.0085; P = 0.0028 respectively for each variable. Appendix 6.5, Tables 1,2,3,4 and 5). Thus, we can say that the younger landowners usually have their forest better cared for. The few landowners who have felt the obligation to abandon their forest land are the ones who said that their forest has not been cared for or has been abandoned. In contrast, the majority of landowners who have their forest more or less well cared for, do not feel the obligation to abandon: they are usually interested in maintaining or improving it, and in addition to this, they generally work more frequently in their forest, since they visit it quite often.

Concerning forest management, Figure 6.14 presents the fact that agricultural land is less under-utilised than forest land.

Figure 6.14 Existence of under-used lands (%)



The main reasons for the under-use of land shown above are listed on Table 6.30. They are linked with the occurrence of fires in the past, and associated social problems.

Table 6.30 Reasons why forest land is under-utilised

Reasons given	Resp	(%)
Forest was burned	12	39
Aging NPFLs	6	19
Their forest is in a regenerating status after fire	5	16
Their forest does not give profit anymore	5	16
Lack of labour force in the region	3	10
Total	**31**	**100**

No response = 26

All respondents recognised that some forest owners have abandoned their forest lands. The reasons given for this abandonment are listed on Table 6.31. The main reasons given are the lack of young people in the region and the forest fires. Moreover, it is important to note that NPFLs who are living in the region do not agree with other forest-owners who do not care for their forest. Those are the ones who are only concerned to cut all their trees and who do not replant. This means that, in general, NPFLs realise that forest should be managed as a non-renewable resource.

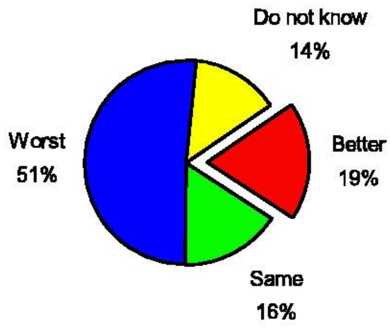
Table 6.31 Reasons why NPFLs think there are forest lands abandoned in the region

Reasons given	Resp	(%)
Young people leave the village	15	30
Forest fires	12	24
Unknown	9	18
Aging NPFLs	7	14
They are only interested in collecting, not in maintaining	7	14
Total	**50**	**100**

No response = 7

Following the above, we present in Figure 6.15 an evaluation of the actual forest quality, from the landowners viewpoint. The majority of the opinions given are negative, while 35 per cent of the respondents have a different opinion. This evaluation correlates with the occurrence of forest fires. The "none response" is related to emigrants or people who had no forest in the earlier period.

Figure 6.15 Evaluation of present forest quality compared to 20 years ago

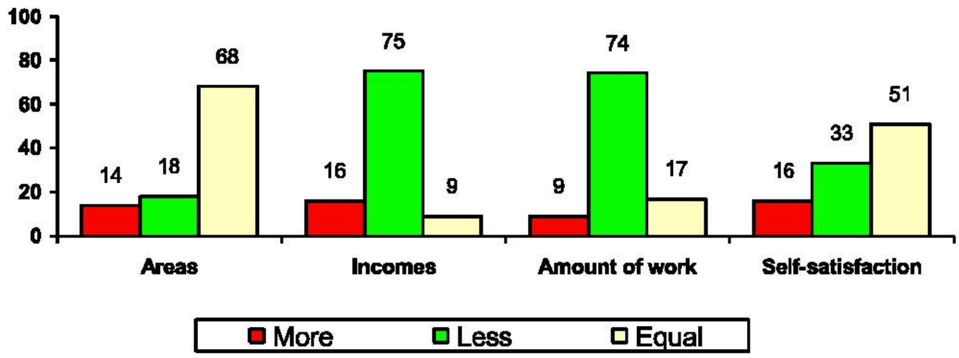


To develop a characterisation of the forest activities and the feelings surrounding the forest we asked some questions about the evolution of some aspects of forestry (forest areas, incomes from forest activity, the amount of work on forest, and the satisfaction the NPFLs experience in this work). The answers are summarised in Figure 6.16.

Concerning the forest areas, the majority have the same areas and there is an equilibrium between the percentages related to respondents who refer to increasing and decreasing the area of their forest land. The income from the forest activities has decreased in 75 per cent of the cases. Nevertheless, there are 16 per cent of respondents that show an increase of incomes. The same analysis could be done related to the amount of work on the forest: it is very clear that the NPFLs currentlly spent less time working on the forest. In relation to self-satisfaction, although it has decreased in 31 per cent per cent of the respondents, it remains equal in one half of the cases or even it increased.

Forest fires were referred to by 64 per cent of the respondents as a main cause influencing this evolution. Other causes were pointed out, but those are linked with personal and social factors, but have no numerical significance.

Figure 6.16 Changes of forestry characteristics in comparison to 20 years ago (%)



The majority (77%) of the respondents seem to believe in the possibility of overcoming the present forest problems (Table 6.32). They expect that the situation is developing in the right way, and that some of their forest problems will be solved. Apparently they have no cause for their optimism; it seems to be a question of faith, and in some cases it seems to be more a wish than a belief. Nevertheless, there are still 23 per cent of respondents who are not so confident of future developments. Thus, some of them mention the possibility of abandoning the activity. Maybe the reason for this can be linked to the age of respondents and with children's lack of interest.

Table 6.32 NPFLs beliefs about forestry in the future

Beliefs for the future	Resp	(%)
Nothing will change	26	45
Will get better	18	32
Will get worse	7	12
Will be abandoned	6	11

As already discussed, the expectation that landowners put on the future of forest is related to the effect of forest fires on their property, as well as to their interest in investment in forestry. Besides this, expectations are also significantly related to the frequency of activities in the forest; to the handling of forest; and related to age as a constraint to investment ($P = 0.0338$; $P = 0.0058$; and $P = 0.0092$ respectively. Appendix 6.6, Tables 1,2 and 3). Thus, it is the landowners with good expectations that usually visit their forest more often, even though some of the others who do not visit the forest often, have also good expectations of the future. Almost all (90%) landowners who have good expectations admitted that they had their property well cared for. In their turn, there is a preponderance of individuals that have their forest badly cared for and that have a negative expectation for their forest's future. Finally, almost all landowners who consider age as a constraint to investment have a negative expectation.

Asked about the forest problems in general over the region, NPFLs seem to be aware of the economic and technical problems. The principal problem with the forest is the forest fires (Table 6.33). Around this problem other different problems appear more or less directly linked, such as cutting trees, and loss of profitability. Altogether these aspects represent 81 per cent of the answers. We have grouped the problems into technical, structural and social problems. Hence, after the fires, the most important problems are the technical problems (43%), the structural problems (31%), and social problems (13%). Abandoning forests is a problem that could be the result of others, but we will analyse this aspect later. Moreover one interesting finding is the fact that nobody referred to the environmental and commercialisation problems.

Table 6.33 Problems identified by NPFLs in forest in general

Type of Problems	Resp	(%)	
Occurrence of forest fires	42	74	*
Lack of maintenance	12	21	**
Property size, they are very small and disperse	11	19	***
Mono-culture, most of the area is covered by only one specie, pine	8	14	**
Lack of access, forest roads	7	12	***
Forest abandoned by some NPFLs	5	9	**
Absence of labour force	4	7	***
Early cutting of trees due to the fear of fires	3	5	*
Aging trees, and do not provide resin anymore	2	4	****
How to replant, with which species and which resources	2	4	**
Forest is losing profitability	2	4	**
NPFLs' health problems	1	2	****
Lack of punishment for arsonists	1	2	*

NR. = 47 (multiple answer) - Kind of problems: Fire (*), Technical (**), Structural (***), and Social (****)

NPFLs' main problem is how to manage their forest, given their lack of finance. Besides this, all of the issues discussed in the tables above seem to have a direct effect on the problems that the NPFLs feel in their particular case (Table 6.34), since the problems mostly referred to are the lack of labour, the high age of land-owners, the low profit from the forest, and the lack of technical support.

Table 6.34 Particular forest problems identified by NPFLs, according to their experience in forestry activities developed in their property

Type of problems	Resp	(%)
Lack of finance to invest in forest	12	22
Lack of labour force in the village	11	19
Aging NPFLs	6	11
Low income from the forest	6	11
Absence of state help (financial and technical)	5	9
High cost of labour force	2	4
Afraid of fire risk	2	4
Lack of capacity to clean the brush and to replant	2	4
Property structure (very divided lands)	1	2

NR = 36; represented by retired people and widows.

It becomes clear that NPFLs' potential solution is through state intervention on private forest, namely in the following domains: legislation, financial and technical support. Table 6.35 shows the principal solutions proposed by the NPFLs in order to resolve the general forest problems in the region. These solutions are based on a strong intervention from the state, whether in orientation terms (23%), or in developing and improving laws (12%), and also supplying material and technical support. Under the term orientation we include both information and education.

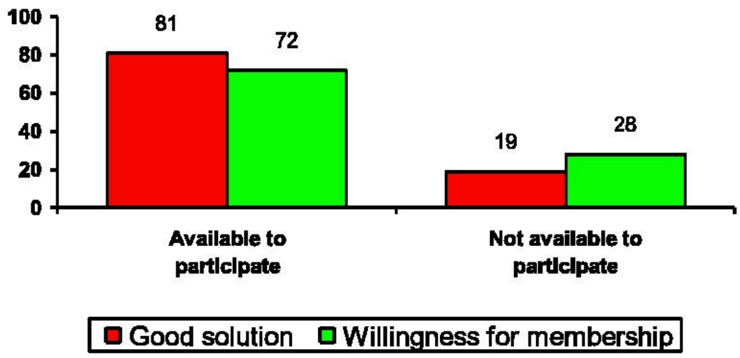
Table 6.35 Potential solutions the NPFLs propose to solve their problems related to forest activity

Solutions	Resp	(%)
Developing the NPFLs organisation by the creation of an association	7	23
State support (technical and financial)	6	19
Implementation of the obligation to clean the forest	4	12
Change the prices and subsidies policy	3	11
There are no solutions, leave things as they are	3	11
To open new forest roads	2	6
To clean and replant burned and abandoned areas	2	6
State should provide them with means for fire fighting	2	6
State should promote the creation of industries in the region	2	6
Total	**31**	**100**

No response = 26

The majority of the respondents who agree with association as a solution for some problems are disposed to participating in the development process (Figure 6.17). However, there were five respondents who agreed with the idea but were not interested in participating. These people are either the oldest or sceptics.

Figure 6.17 NPFLs' attitude toward association (%)



Scepticism, the difficulty of understanding and distrust are the principal obstacles that the respondents express, whether or not they agree with the association (Table 6.36). Age, lack of initiative, and different interests are the problems referred to on the second level. All the problems presented in the table need thought and further discussion, if there is interest in developing this idea of creating a landowners association. A contribution for such discussion could come from the significant (P = 0.0100 Appendix

6.7, Table 1) relation between the disposition to become associated and the positive expectation of the forest's future.

In order to better understand such a relation through other variables, we conducted a stratified analysis, which allowed us to see significant relations (P = 0.0180, P = 0.0294, P = 0.0233, P = 0.0069 respectively. Appendix 6.7, Tables 2,3,4 and 5) between landowners who have a positive expectation and also are available to become associated, with respect to individuals who:

- feel an obligation in improving forest quality;
- are not interested in forest investment;
- are older, and
- have the larger burned area.

However, almost all landowners who have less burned areas and good expectation say they are available to became associated.

Table 6.36 Obstacles the NPFLs identify in developing an association

Obstacles to creating associations	Resp	(%)
Distrust among NPFLs	5	15
Scepticism about the success of the organisation	5	15
Difficulty in agreeing among NPFLs with different opinions	5	15
Aging NPFLs	3	9
NPFLs' lack of initiative	3	9
NPFLs' different interests	5	9
Lack of leaders	2	6
NPFLs' individualist habits	2	6
Property (plots) structure	1	4
Lack of support from state	2	2
Total	**33**	**100**

None opinion expressed = 24

Only 33 respondents expressed opinions about the possible creation of an NPFLs association. Asked about the idea of association as a potential organisation that could improve the implementation of solutions to some of their problems, 70 per cent of respondents agreed with it. However, they thought that the association should be linked specifically with the forest problems only (Table 6.37). They justify their answer by saying that the forest sector has problems enough, while in agriculture there is nothing to do, except to produce food in order to supply the household. A meaningful outcome of this table is the availability of 8 respondents to act as leaders in the association process.

Table 6.37 NPFLs' disposition to create an association

	Yes		No	
Association process	**Resp**	**(%)**	**Resp**	**(%)**
Related with forest issues only	23	70	10	30
Related with forest and agricultural issues	10	30	23	70
Availability to lead the process	8	24	25	76

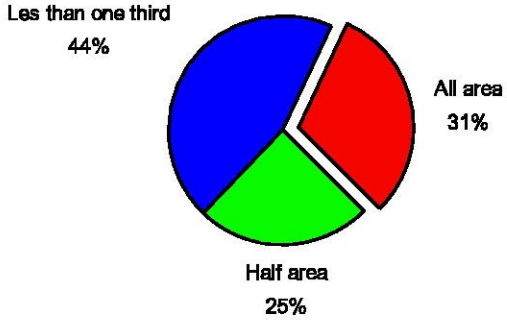
(Only 33 response)

The reasons given as to why they are not available to become leaders are age, distrust, difficulties in understanding and in working with some individuals, and the lack of state support.

Over the past ten years practically all respondents (97%) have been affected by forest fires. All NPFLs are very experienced in handling trees, and know very well its effects. About 70 per cent of the NPFLs stated that they had been affected by one fire in 1991. It was the biggest fire of their lives, but there have been fires every year for the past eight years.

Concerning burned areas, analysing Figure 6.18, we can see that at least 47 per cent of the landowners have lost either all or one half of their forest area. We think that this fact strongly affects all management systems of the farmer, and his attitudes as well.

Figure 6.18 Distribution of respondents according to how far they have been affected by forest fires, (burned area, NR = 48)



The material burned were forest trees (pines and eucalyptus) in 86 per cent of the cases, and in 12 per cent of the cases the fire had burned only brush, and fruit trees (2%). Concerning the level of damage caused by forest fires, 85 per cent considered them to have caused serious damage (Table 6.38). This point can be illustrated, using a single sentence given by one respondent, "even when the burned area is very little the damage is always big".

The cross variables analysis demonstrates a significant relation between the variable "burned area" and three other variables: "expectation of the forest future"; the "obligation landowners feel to improve forest quality"; and the "interest in investment in forestry" (P = 0.0175, P = 0.0144, and P = 0.0298 respectively. Appendix 6.8, Tables 1,2 and 3). This means that landowners with less burned area have better expectations of the forest future, and they feel the obligation to take care of and to improve their forest quality. Hence, landowners who had been weakly affected by forest fires, are the ones who remain interested in investment in forestry. On the other hand, landowners seriously affected by fire, claim to be not at all interested in such investment. Thus, we think that this data gives us a clear idea about the effects of forest fires on landowners attitudes.

Table 6.38 Extension of damage caused by fires

Level of damage	Resp	(%)55
Very serious	25	45
Serious	22	40
Little	3	5
Very little	3	5

NR = 53 - Only two people did not answer this question, as we have 55 NPFLs that were affected by forest fires

In the following table we list the principal damages that were recognised by the respondents as the fire consequences (Table 6.39). Economic damage is referred to more often, in 46 per cent of the answers. "We would be rich if had not been for the fires", this statement shows us the greater importance they attribute to the economic aspects of fire damage. Secondly, are the technical implications of replanting or seeding, because natural regeneration would not occur in the case of a second fire in the same place.

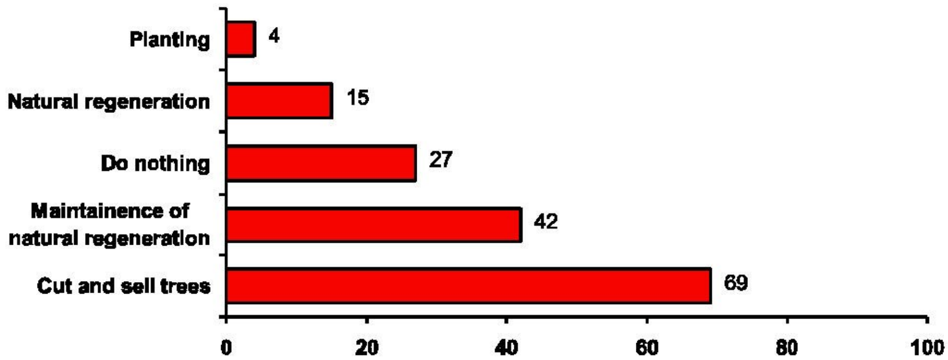
Table 6.39 Fire effects on forest as recognised by the NPFLs

Type of damage	Resp	(%)
Loss of money because of burned trees	17	25
Decrease in revenue from trees and resin	14	21
Destruction of the plants' regeneration	13	19
Cause the lack of brush	6	9
NPFLs are forced to sell trees at a low price	5	7
Cause unemployment and the desertification of the region	4	6
Decrease forest incomes for the next years	4	6
Affects the beauty of landscape	3	5
Delays forest growth	1	2
Total	**67**	**100**

Multiple answer question

The first obvious action after the fires is to cut trees. Following this, one has to wait for natural regeneration and after to maintain it in order to grow another forest. This action plan can be easily followed in Figure 6.19. However, if there is no natural regeneration or if "we want to change the type of species, it is necessary to sow the seeds or replant the new forest". Here a significant number (27%) have adopted as a solution to do nothing, which represents another problem for the forestry sector.

Figure 6.19 Actions taken by the NPFLs after forest fires (%), (multiple answer)



Forest-owners are usually accused of not being active in the prevention of forest fires. In Table 6.40 we have a distribution of the frequency of those preventive activities undertaken by the NPFLs. The most important is the cleaning actions which relate to the collection of brush. These two activities represent 40 per cent overall. On the other hand, we have 30 per cent of respondents saying that they do nothing at all. This is a critical aspect, which we will analyse later, because one potential reason for this negative statement could be that those people who have said they do "nothing" are those NPFLs who have lost the greater part of their forest, because of the fires. One positive aspect shown in the table is surveillance. We know that they have organised groups for surveillance, which is a kind of associative or co-operative action.

Table 6.40 Actions the NPFLs undertake in order to prevent fires

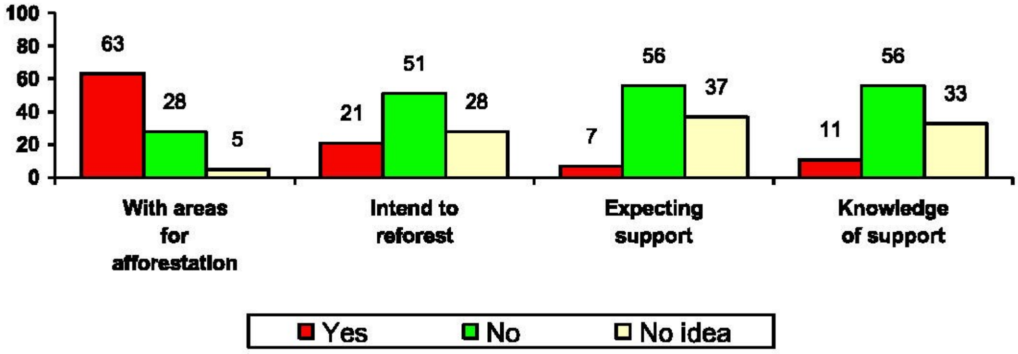
Fire prevention activities	Resp	(%)
Nothing	22	30
Cleaning the forest, its access and fire breakers	21	28
Open new forest roads	11	15
Collecting brush	9	12
Surveillance	6	8
Open new fire breaks	4	6
Construction of dams and water reservoirs	1	1
Total	**74**	**100**

Multiple answer question

In general, all people in the village usually fight forest fires. This is an old custom, since some years ago, there were no fire fighting corporations well equipped to fight forest fires. "Only people who are physically disabled do not leave their work to fight a forest fire". "I prefer to fight the fires on my neighbour land than on mine". These are two sentences that could explain why 88 per cent of respondents stated that they are always available to fight fire (Appendix 6.3, Table 4).

In Figure 6.20 we have summarised some questions that were asked in order to understand the NPFLs' opinion related to afforestation. The first fact to underline is that 63 per cent of them have areas that need to be reforested. However, the majority of them do not intend to do it because they do not know the support that they may have, and at the same time they are not expecting any support. This seems paradoxical, but it is possible because of the lack of information about the potential support for which they could apply. In spite of this, they seem to have a clear idea about the support they need since they often have referred to the kinds of such support.

Figure 6.20 NPFLs situation related to the possibility of reforestation of their lands (%)



The different kinds of support that NPFLs would like to receive in order to try to solve their problem include: financial (26%), material (20%) and technical (10%) (Appendix 6.3, Table 5). In material support we include the support provided to execute forest activities themselves. In technical support we include information and education. The latter should be given in order to allow a better utilisation of the former.

The figures shown in Table 6.41 confirm the hypothesis that NPFLs think that forestry is a profitable activity, since 91 per cent have so stated.

Table 6.41 NPFLs' opinion about the profitability of forest activities

The revenues from forest	Resp	(%)
Some profit	27	47
Large profit	25	44
Little profit	3	5
No profit	2	4

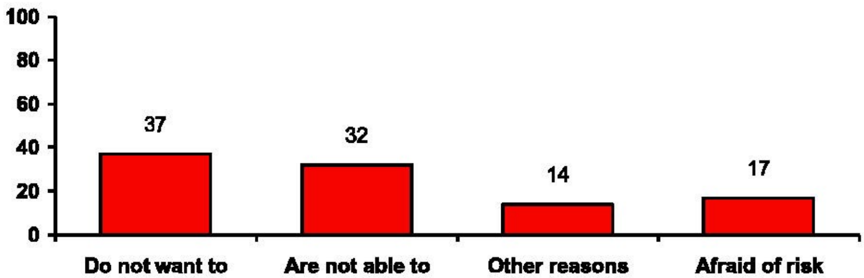
The main reasons why they recognise forest activity as profitable were:

- it is not necessary to invest much money in natural forest, since by its nature pine will grow without any care and will give some revenue one day;
- as forest is natural, man's action is only an exploratory action;

- it is only a question of giving time to natural laws and waiting for collecting, and because the prices of resin and wood still allow some profits.

However, 61 per cent of landowners are not accustomed to spend money on forestry (Appendix 6.3, Table 6). Although the landowners think that forestry is a profitable activity, paradoxically the majority of them do not generally spend money on its management. As we can see in Figure 6.21, the main reason for this is not lack of money, but lack of interest. Only in second place do the problems related to money appear, and others linked to age and technical skills as well. The risk element is of course linked with the problem of fires. In this question, "no response" corresponds to the NPFLs who usually exchange labour power among themselves.

Figure 6.21 Reasons for not investing money in forestry (%)



Asked directly whether it is a good idea to invest in forest, most NPFLs (93%), have answered affirmatively. Furthermore, 28 per cent have stated that they usually spend money in forestry, it is therefore important to analyse the list of reasons why they have this attitude (Table 6.42). The main reasons given are economics, affective, and aesthetics. However, the dominant ideas are that "forest gives a lot of money without working on it and without expenses as well", and "to invest in forest seems to be necessary to ignore the fire risk or to solve this problem".

Table 6.42 Reasons for investing money in forestry

Reasons	Resp	(%)
Provides money without expenses and work	9	33
To overcome the risk of fire	9	33
It is the principal source of money	2	7
To improve patrimony	2	7
To invest the savings	1	4
Forestry is more profitable than agriculture	1	4
To take opportunity of plants regeneration after fire	1	4
Satisfaction in working on the forest	1	4
Improves the general appearance of the land	1	4
Total	**27**	**100**

The aspects that have a negative influence on the disposition of the NPFLs to invest are listed in Table 6.43. We can note several aspects: policy, economic and social aspects. All of them listed were so often referred to that it is difficult to distinguish the most important. However, we can say that the aspects of knowledge, and marketing of products were the less important. But even these were referred to by a significant number of respondents. So, in summary, the table confirms that fires, lack of money, lack of labour and lack of interest on the part of children are the most important factors which leads to the low or nil investment.

We think that the data presented in Table 6.42, which were gathered through an open question, gives validation of data in Table 6.43. The latter were gathered through a closed (Yes/No) question, administered in different parts of the questionnaire.

Table 6.43 Principal factors that explain the lack of investment in forest development (%)

	Yes		No	
Factors	**Resp**	**(%)**	**Resp**	**(%)**
Afraid of forest fires	45	79	12	21
Lack of money	41	72	16	28
Lack of labour power in the region	37	65	20	35
Lack of interest of the children	34	60	23	40
Aging NPFLs	33	58	24	42
Lack of technical support	24	42	33	58
about the future forest policy	22	39	35	61
Uncertainty about commercialisation in the future	17	30	40	70
Lack of information about the forest programmes	10	18	47	82

Expecting that the lack of money and experience in handling subsidies could enter into NPFLs' answers, we tried to understand some aspects of this. Of all the respondents only three of them have experience in asking for loans from banks. Only 35 per cent of the respondents have been receiving subsidies, mainly for agricultural products (Table 6.44).

Table 6.44 Kind of subsidies the NPFLs are used to receiving

Products subsidised	Resp	(%)
Goats	11	46
Olive trees	6	25
Petrol	5	21
Burned trees	2	8

6.7 NPFLs relations with Ministry of Agriculture

Over the last eight years farmers have been able to ask for support for forestry interventions, through project applications. Asked about their knowledge of these financial supports, about half of the respondents answered that they have heard something about subsidies or forestry projects. However, this information was not sufficient for them to be well informed about this subject. As Table 6.45 shows there are only two respondents who have received clear information. This raises two questions, either the information was not passed to the farmers, or it was not presented efficiently, or both.

Table 6.45 Information about forest programmes

	Former		Present	
Information level	Resp	(%)	Resp	(%)
No clear information at all	24	42	31	54
Some, but insufficient information	33	58	24	42
Clear information	2	4	25	44

(Multiple answer question)

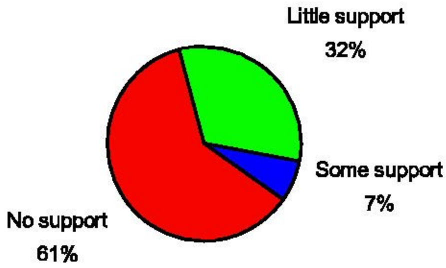
Nowadays there are also different supports offered for forest intervention, which could be applied for by submission of a project application. Relative to these supports, around half of the NPFLs have no clear idea, having only heard something, but they are not well informed about it. However, they also have not tried to get this information (Table 6.45). Related to the level of information and the actions that the NPFLs have taken in order to get information, we can analyse Table 6.46. Only 7 per cent of the respondents know the forest technician who works in the local forest services. They met him occasionally. It was not in a specific situation, in which they could be informed about forestry issues. Around 34 per cent of the NPFLs know where the office is, but they do not usually go there.

Table 6.46 Knowledge of the Ministry of Agriculture office

Contacts with the Ministry of Agriculture	Resp	(%)
Knows both offices	17	30
Knows the regional forest technician	4	7
Only knows the agricultural office	3	5
Only knows the forest office	2	4

After analysis of the table above, we are not surprised that 61 per cent of the NPFLs claimed that the state never supported their activity (Figure 6.22). If we associate the latter with the NPFLs who have referred to the little support, almost all (93%) have this opinion. So, these figures give a broad idea of the relations between the forest landowners and the Ministry of Agriculture.

Figure 6.22 Level of state support provided to NPFLs



All respondents who answered the question about the state's obligation in supporting forest activities, said that they agreed with it. They expect and they agree that government should support them. In Table 6.47 we list the ways that the NPFLs think that the state could support the forest activity. These figures enhance the NPFLs' thoughts which we have already presented in this study. However, we can see three relevant aspects in this table, which are more important by their mean than by the numerical expression:

- firstly, the feeling of lack of justice in relation to the judgement of people who have set forest fires. In the respondents' opinion, forest fires seem to be a profitable crime;

- secondly, explicit reference to the lack of information. The NPFLs feel and know that something is happening which could be of interest to them, but this information does not reach them. This could be a problem of lack of information about activities, or lack of efficiency in delivering information;

- thirdly, the reference to the need for forest protection and fire prevention actions, sometimes more important than fire fighting measures.

Table 6.47 Ways in which the state should support NPFLs on their forest activities

Ways in which the state could support NPFLs	Resp	(%)
Providing technical support and information (specially to small NPFLs)	19	25
Intervening in fire prevention and forest protection	12	16
Providing subsidies	10	13
Control of forest activity and the use of subsidies	8	11
Cleaning the forest which the NPFLs is unable to do.	7	9
Imposing severe sentences on those who set fires	5	6
Intervention in burned areas	5	6
Implementation of technician visits system	5	6
Providing forest machinery	4	5
Intervening on prices policy (resin and wood)	2	3
Total	**77**	**100**

During their responses, some respondents (14%) have made comments about the management of subsidies. In their opinion it should not be bureaucratic, but clear, based on something like self-management. However, they also agree with an efficient control on the use of such subsidies. Considering this idea which a few of them have "we only want financial assistance if we are given the assurance that the state will not take back our lands one day", we think that before offering financial support opportunities, the government should clarify the conditions surrounding such support schemes. This is because as they say in Portugal "when the handout is big the poor tend to distrust".

The discussion of the problem of information in this case could be related to the access to subsidies. First, the respondents referred to their need for information in order to apply for and receive the subsidies. Second, they suggest technical support. The lack of information seems to be related to the utilisation of new forest species, mainly eucalyptus. All of them, except one, referred to the fact that they had never received training from official institutions, nor from other sources. The exception referred to a training course in extraction of resin.

About half of the respondents agreed that the state should make it legally obligatory for the forest landowners to take care of their forest (cleaning at least). The others are against the idea of obligation. However, when we asked for the reasons, all of them pointed out that it would be necessary to have state support behind this law. It means that if we include the support in the law, everyone will accept it, as they were unanimous in answering “yes, if the state gives us support to do it”.

Only 33 respondents answered the question about the involvement of the town hall in forest activity management; but all of those agree with this involvement. The reasons given were mainly the fact that they have a good knowledge of the region and of the NPFLs, and a good knowledge of the people and their properties. The local authorities were seen as the most important individuals who could defend the interest of the landowners. The main attributes the respondents attributed to the local authorities were linking the state to them. They expected that this linkage would be useful in getting better informed, in receiving subsidies and technical support, and in controlling the activities related to the utilisation of those subsidies.

6.8 Conclusions

Following the data presented and discussed above it is useful to draw some conclusions. We intend to confront such conclusions with the questions and hypotheses which form the basis of this study.

Family socio-economic characterisation - The characteristics of the households in our sample are quite similar to the characteristics derived from the documentary analysis and the data analysis provided by the Agricultural Ministry. Therefore, we can conclude that the population in the study area have the following main characteristics:

- high average age; more than two thirds of landowners, who in the majority are men, are older than 60 years;

- about one half of the population is illiterate, and the percentage of people with an educational level higher than primary school is very low (5%). This means that most of them are not able to read or understand any written information;

- in general, the families of the region do not have their children living with them, except for the school going children. After school age, children usually look for a job outside the region and outside the agricultural and forestry sector, and therefore, landowners' children generally do not work in forestry or agriculture. There are some exceptions, children who, on week-ends, usually help theirs parents work in agriculture and forestry. Hence, both or one member of the couple are the only source of labour for forestry work;

- the family living conditions have improved over recent years. Compared with the past, all families claim to live better. Such satisfaction is due to the increase and improvement of access conditions (mainly roads), electricity and telephone, the easier access of children to school, and availability of food and other products in shops and markets. In certain cases, the retirement of one or both members of a couple, to whom a pension is paid, has became the most important factor for the improvement of living conditions.

Subsistence means - The subsistence of households is based on the output of agriculture, forestry, and salaries and pensions. Agriculture is practised in order to supply self-consumption products. In general, the surplus of those products can be sold. However, market conditions are not favourable to farmers, and it becomes difficult to reach profitable prices. So, in the landowners' opinion, forestry is an activity that gives much profit, in cash. Beside this, in its turn, forest products, mainly timber and resin, usually are collected for sale, and they are easily sold.

Therefore, we can say that both agriculture and forestry are very important for the NPFLs' lives; the first through the food provided and the second through the money that the landowners get by selling forest products. Nevertheless, related to the problems that affect these activities, the NPFLs are more concerned with forest problems. Their concern could be related to the fact that forestry is the most important (sometimes the only) source of money in the household.

Livestock - Integrated with agricultural and forestry activities, all families in general, raise livestock. Goats, pigs and chicken are the animals mostly raised followed by bulls and donkeys. The number of animals has decreased by about 12 per cent over the past 20 years. Such a decrease seems to be due to the decline of the number of individuals in families. Its implications on the forest can be seen through the lower quantity of bush collected. Because of this, the forest becomes over grown with more brush, which increases vulnerability to fire.

Land use and land tenure - Land tenure is still one basis of wealth and honour for their owners. All landowners get access to lands through inheritance. The inheritance rules lean to the division of the properties, which were already small, and property becomes more divided through the generations. This results in each landowner rarely having a plot with sufficient area to permit correct management.

The wish to join several small plots, in order to increase the property area, is the principal idea that leads landowners to buy forest-land. On the other hand, landowners are not interested in selling their plots, unless they have the objective of buying another one or to exchange. Meanwhile, the inheritance system creates affective relations related to the land tenure system, which goes from parents to children.

These relations sometimes cause barriers or obstacles to forest development. It is often possible to meet landowners who are in no condition to take care of their forest. They consider their children as the real owners, and all intervention in the forest will depend on them. The problem is that most of these landowners' children are living outside the region, and are not interested in forestry. Such attitudes lead to the abandoning of some areas, which creates problems for the neighbours around them. Any attempt at planning forest development action should carefully consider such relations.

Furthermore, NPFLs' mentality is highly conditioned by the strong feelings about land tenure and their self-satisfaction in working their own lands. The significance of inheriting or buying a plot is so strong that most of them do not think about losing the tenure of their plots. In normal conditions, the idea of selling plots is out of the question.

The forest role - Because of their characteristics and objectives, agriculture and forestry require different tasks and different care from the landowners. Usually the forest does not demand much time for working, and it grows without care. Given this, forestry is seen as a more profitable activity than agriculture, where money comes from the sale of timber wood and resin. Brush and fire wood are other products that NPFLs used to collect from their forest, but are not seen as economic assets.

The private forest is almost all occupied by maritime pine that grows naturally in the region. There are some landowners (21%) who have experience in planting forest, but in this case they have tried a different specie (eucalyptus). Forest property consist of several plots, usually of a small size. About 43 per cent of landowners have plots of less than one hectare.

Landowners, in spite of realising that they have more economic value in their forest property, feel more dependent on agricultural activity than on forestry. Such difference is related to the different incomes from both activities, which are used for the satisfaction of different necessities. Thus this dependence level is more qualitative than quantitative, given that it is more dependent on necessity than on any quantitative factor.

Forest activity - Generally, the main forestry activities are related to the exploitation of forest products, wood and resin. Activities for improving forest quality are less frequent, and most of the landowners have claimed that they realised that much more should be done in this domain, but they feel unable to carry out such tasks. The same applies to fire prevention activities, which are exclusively linked to cleaning a small part of their properties, and cleaning trails and firebreaks. However, most cleaning activities occur because they coincide with the necessity of collecting brush, to be used in livestock bedding, and this is usually done in plots nearest the house. Given this, most of the plots far from the house are not so well cared for, and some of them are abandoned.

In general, landowners use traditional technology in forest activities. Some of them have tractors, which are used in their plots, and rented whenever possible. Rarely do landowners use employees to work in forest. The rule is each one does as much as possible with his family labour, and every time they need help, they use exchange labour among the neighbours, or otherwise give up doing the task. Such an attitude is related to the lack of employees and the lack of finance to afford the expense of such employees. In addition to these causes, there are also some landowners who, for several reasons, discussed previously in this chapter, are not interested in spending money on their forest.

Expectation of forest future - Forestry activities developed by landowners are similar to the ones their parents did in the past. The knowledge and skills were transmitted through generations As we have already seen, such activities are mostly collecting activities. In the future, landowners expect to continue to explore their forests, more based on harvesting trees than extracting resin. This is because the price of resin has become lower, which makes its extraction less profitable. Another indicator of future use of forest is that the declining tendency in using forest as pasture will continue, thus only 25 per cent of landowners expect to maintain their flocks of goats.

Relative to the forest landowners' interests in their forest, it is clear that the will to buy is stronger than the will to sell. In addition to this, about one half of forest landowners are interested to invest in forest, if some constraints can be overcome. However, most of them seem to be waiting for government actions which could give them advice, information, and support in order to implement actions promoting forest development. While they are waiting, they take a passive attitude towards forest, hence the higher percentage (83%) of landowners who are interested in maintaining their activity as at present.

Landowners interested in forest investment are concerned with forest quality, and they are interested to improve it. They understand the importance of quality and of the investment as two factors that could be decisive in forestry management as a profitable activity. So, their principal objective is to pursue a forestry's management according the economic aspects of the activity.

Forest values - Landowners recognise all forest values usually referred to in the specialised literature (economic, environmental, social and aesthetic). Besides these, they also point out one more value, the self-satisfaction that they feel in working in forest and in their own lands. But it is clear that they follow mainly the economic value. However, for some landowners the effects of forest fires, and the desolation scenario of a burned landscape, raise in their mind the environmental and aesthetical importance of forest. Regarding the economic value, most of them consider that the forest has a good or acceptable value. Only the decreasing resin price is a negative factor which affects the landowners' forest economy.

Despite the economic value that landowners recognise in forestry activity, since it gives them profits in cash, they have a slightly higher preference for the agricultural activity. Part of such preference is due to the kind of task they have to do in forest compared with agricultural ones. The latter are not as arduous as in forestry, they occur near the house, and farmers feel satisfaction in working every day with cultures whose products can be collected and consumed in the household.

Forest problems - The aspects mentioned above have an effect on the state of the forest. It means that, in general, agricultural property is better cared for than the forest. However, it should be said that the forest state is not only dependent on such aspects, as there are others such as the landowner's age and expectation of the forest's future. Regarding this, presently, the majority of landowners consider that incomes from forest and the amount of work on it are lower than in the past, and that forest quality has been decreasing through the last twenty years.

In recent years several factors have put forestry in a crisis, the most important of which are forest fires and the leaving of young people from the region. These variables seem to be inter-linked as in a circle (Figure 6.23).

Figure 6.23 Scheme of relations among problematic factors in forest development

With the increase of these two factors through the years, the population gets older, and the wish and the availability of labour to work on forest becomes lower. The result of this circle is decrease of the forest quality, of the forest areas, and desertification of the region.

Potential solutions - Landowners also recognise the structural problems in their forest, such as the lack of access, and the division into small plots. These problems, altogether, lead to landowners' low motivation which leads to the weak state of their forest. They think that the main potential solutions to forest problems would be through the creation of associations and through an appropriate state intervention in the private forestry domain. Such an intervention must attempt to empower the landowners to work in forest, to direct intervention on structures of support for forestry activities and to solve the problem of fires.

Among the potential solutions pointed out by landowners, only the creation of an association seems to be dependent on them. Most of them (81%) agreed that association could be a solution for some forest problems. However, not all of these individuals are interested or available to be involved in a process of being associated. In fact, only 72 per cent claim to be available to become associated. On the other hand, they have already the idea that it could not be easy to carry out such a process. Some of them are aware that government services could help them in this process. They are also aware of the potential problems and difficulties, which they claim could be overcome if the process would attempt to address such problems, and if landowners have the opportunity to participate, and to be well-informed about the whole process.

In our opinion, there is a lack of initiative, a lack of leadership, that hinders the first steps, which in turn are the most difficult. Among those who believe in association as a solution, we met several landowners (24%) interested to assume leadership roles. However, they have also stated that everything would be different and easier if the government services could help them in the creation of an associative process.

All questions under discussion lead in certain cases to the abandonment of agricultural and forestry activity. Regarding this, most landowners have more under-used forest land than agricultural land. The principal reasons are the age of landowners, the migration of population, and the effects of forest fires. We found a significant relation between fire effects and the expectation of forest future. In its turn, the expectation is significantly related to other variables which conditioned the forest landowners attitudes and behaviours.

Although landowners understand very well the economic, the social and aesthetical effects of forest fires, they do not perceive the ecological effects. So, after fires, they usually cut the trees which can be sold, and accept natural regeneration if it occurs. If not, nothing more will be done. Only in a few cases were eucalyptus planted in the burned areas.

In general, all landowners think that they have been doing everything possible, given their limited available means, in order to prevent forest fires. They are aware that at least more forest cleaning could and should be done. But such cleaning by itself will not solve the problem, and they have not the financial and technical conditions to clean all areas. There are also global and specific forestry management problems, which they think could be solved or decreased through a landowners' association.

The significant relations ($P<0.05$) between variables in studying, which we have been discussing, have been summarised in Figure 6.24. This figure allows us to understand the relation between the availability for association of landowners and their positive expectations, as well as all other variables related to them.

Figure 6.24

NPFLs' relations to government forest services - In general most landowners look at forestry as a profitable activity, in which they are interested to invest. However problems with age, lack of finance, lack of information and state technical and financial support and the risk of forest fires are, all together, stronger than landowners willingness. So they have a positive expectation that if some of these problems could be solved, they could improve their forest quality. In the final analysis, they attribute such a responsibility to government policy.

The relations between the Forestry Institute and landowners are very weak. Most of them do not have any contact with the technician of the government forest institute, and they have not received clear information about the programmes supporting forest activity, either in the past or in the present They have only an idea that something was happening, but they did not realise what it was in reality, and they have never been informed about the ways to apply for this support. So, it seems that state interests are different from the landowners' interest, or that the government has not demonstrated a clear interest in supporting small private forest landowners. In our opinion, it is clear if the forest institute has only one technician for the whole region, who spends all of his time solving bureaucratic problems, that there is major work to be done close to the landowners that has never been attempted.

Finally we can conclude that forest fires and the lack of forest management seem to be the principal factors responsible for the present private forest situation. Given that, we think that it is imperative that some interventions could and should be done in order to improve forest quality. Such interventions should be related to:

- promote forest management;
- clean the forest;
- prevent fires, to construct forest roads and fires breaks;
- replanting the burned areas, or the news areas.

However, these actions are only possible if landowners can receive from state the financial, technical and material support, as well as, through the creation of landowners associations. Given this, we are strongly interested in contributing, with our study, and according to our possibilities and limitations, to understand the forest landowners attitudes towards association. More specifically we are interested in understanding how landowners perceive the problems related to association and the land use and tenure of the land, how the problems of property dimension and division could be solved through the association. Another aspect related to the outcome of this association is forest management and planning, which at present involves a significant interest in keeping the natural resources such as soil, water, and the population in the rural areas as well.

Given the conclusions discussed above we would like to finish this chapter by raising three main points that will be the basis of the next part of our study: the kind of association landowners had in mind, when they claimed association as a potential solution for some forest problems; the reasons why despite agreeing with association, they are still not associated and have never tried to be; and, the opinion of the other agents (technicians and local authorities) in the region upon such issues.

7 THE NPFLS' ATTITUDES TOWARDS ORGANISATION AND ITS PERCEPTIONS REGARDING THE FEATURES OF FANCP MODEL

The Forestry Association of North and Centre of Portugal (FANCP) has been implementing in the Northern and Centre regions an association model based on the principles already discussed in Chapter 4. Therefore, in this chapter we will try to describe and understand how able and interested are the NPFLs of the Pinhal Sul region in implementing such a model. In addition to this, we also wish to define the principal guidelines for the implementation of NPFLs' organisations in this study area. The information presented derives from field work developed under these objectives and embodies the study of the NPFLs' attitudes towards forest organisations, their reaction to the model adopted by FANCP and their views about the creation of a forest organisation in the region.

7.1 Methodological aspects

On choosing the methodology to define the sample we had to bear in mind the aim of getting a sample which would provide information from each council involved in the study. As Barnett (1974) suggest in studies of this type the number of NPFLs interviewees depends on the sample accessibility. However, it should be at least one hundred to ensure reasonable precision of data analysis. Data were analysed by a descriptive data analysis mostly based in percentage. Dependent on time and resources, the expected number of interviews was at least 30 per council. This meant a total of 150 interviews, which were divided in three groups defined by farmers' age. These age groups were established according to administrative criteria: young farmer 18 to 40 years, adult farmer 41 to 65 years and those over the retired age over 65 years.

The villages were selected by council according to the number of their inhabitants and the empirical information about their receptivity to participate in this kind of events. Two villages were selected per council, totalling ten villages. The respondents were met by chance in their working place, in the street or at home.

To design the sample by age we used data from the last (1989) agricultural survey. According to this survey there is a very low percentage of young farmers in each council (Table 7.1). However, the real situation is quite different, the number being quite superior. An opposite situation occurs in those up to 65 years: in this case reality is presented by figures lower than the ones given by the survey. So, it is possible to conclude that in the last few (six) years there has been a transfer of responsibility in property management. From the point of view of the property rights, the situation needs to be analysed more carefully, since some of the younger respondents stated that they are not yet the real property owners, not until the death of their parents. This situation could explain the difference between the age distribution provided by the last national survey and the age distribution in the sample utilised (Table 1).

Table 7.1 NPFLs' age in the population (*) and in the sample (questionnaire respondents) by council (%)

	Less than 41 years			41 to 65 years			More than 65		
Councils	Population	Sample	Differential	Population	Sample	Differential	Population	Sample	Differential
Mação	5	20.6	+15.6	53	58.8	+5.8	42	20.6	-21.4
Oleiros	8	17.6	+9.6	57	61.8	+4.8	35	20.6	-14.4
Proença	10	17.6	+8.2	55	58.8	+3.8	35	23.5	-12.0
Sertã	9	17.6	+8.4	54	55.9	+1.9	37	26.5	-10.5
Vila de Rei	7	23.5	+16.5	51	52.9	+1.9	42	23.5	-18.5

(*) Source: RAC (1989)

A total of 178 farmers were interviewed, but eight questionnaires had to be rejected as they did not fulfil our global objectives. Therefore, the sample is composed of 170 questionnaires divided by five councils, which means a total of 34 questionnaires per council. All data presented in the next sections derives from those 170 questionnaires.

7.1.1 Social and economic description of the respondents

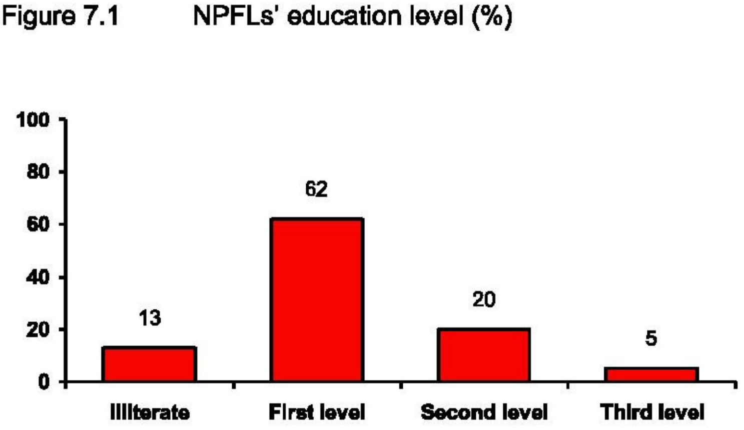
As expected, the most representative class of landowners is the adult farmer, representing around one half of the population (Table 7.2). The other half could be divided in more or less equal parts between younger and older farmers. The average of the landowners age is 56 years (Appendix 7.1, Table 1). The results are consequently analysed according to the three groups used to construct the quota sample by age. The first group corresponds to the young farmers, the second to the adult or mature farmers, and the third to the retired farmers (categories usually utilised by EU programmes). Women have a weak representation, the few we interviewed were widows or emigrants' wives. The largest part (91%) of the respondents were male (Appendix 7.1, Table 2).

Table 7.2 Distribution of NPFLs' age in the sample (%)

	Less than 41 years		41 to 65 years		More than 65 years		Total	
Councils	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**
Mação	7	4.1	20	11.8	7	4.1	34	20.0
Oleiros	6	3.5	21	12.4	7	4.1	34	20.0
Proença	6	3.5	20	11.8	8	4.7	34	20.0
Sertã	6	3.5	19	11.2	9	5.3	34	20.0
Vila de Rei	10	5.9	14	8.2	10	5.9	34	20.0
Total	**35**	**20.6**	**94**	**55.3**	**41**	**24.1**	**170**	**100.0**

Another aspect viewed as an important indicator, which could be understood as one of the main negative handicaps of rural populations is their educational level. Despite the existence of illiterates, the scenario shown by Figure 7.1 leads us to believe that the education level does not constitute a major constraint in rising a favourable environment towards the idea of implementing of development actions such as the creation of farmers' organisations. In this case, the majority of the farmers (62%) has a primary educational level, even if some of them are nevertheless functionally illiterates. The main concern is the level of illiterates, amounting 13 per cent. Comprehensively, there was found a significant relation between age and educational level, in fact younger people have a higher level of education than older ones, this last group representing the illiterates ($p = 0.00010$, Appendix 7.1 Table 3).

Figure 7.1 NPFLs' education level (%)



In all five councils of Pinhal Sul the way of life is quite similar, and the employment opportunities are not so varied as in urban areas. This justifies the distribution of the main job-occupation of the interviewed landowners (Table 7.3). Therefore, such concentration in agricultural activity seems natural.

Due to the population's age level it is not surprising that besides their agricultural and forestry activities a significant part of the respondents (21%) were retired people. An interesting point retained from the interviews with retired farmers, is the fact that all of them stated that they would continue with agricultural and forest activity for as long as their health permits. However, they also stated that the main reason for their activities was subsistence or household supply. People working in services and small shops' owners are very well represented in the sample for two reasons: because they were easy to meet, and also because they are in fact strongly represented in the rural areas.

Table 7.3 Principal professional activity

Principal professional	**Less than 41 years**		**41 to 65 years**		**More than 65**		**Total**	
activity	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**
Farmer	4	11.4	21	22.3	15	34.1	40	23.5
Retired	0	0.0	19	20.2	17	38.6	36	21.2
Services	14	40.0	19	20.2	2	4.5	35	20.6
Trader	6	17.1	14	14.9	2	4.5	24	14.1
Truck/machinery operators	2	5.7	8	8.5	1	2.3	11	6.5
Building construction	3	8.6	5	5.3	1	2.3	9	5.3
Small enterprise	2	5.7	4	4.3	2	4.5	6	3.5
Housewife	1	2.9	4	4.3	0	0.0	5	2.9
Forest dealer	2	5.7	0	0.0	1	2.3	3	1.8
Teacher	1	2.9	0	0.0	0	0.0	1	0.6
Total	**35**	**20.6**	**94**	**55.3**	**41**	**24.1**	**170**	**100.0**

Among the different family means of subsistence the income derived from forestry play an important role. About 52 per cent of families receive income from forest products. In addition to this, it is interesting to note that some families do not receive regular amounts from forestry, even though it is important to their medium term economy. Table 7.4 shows to what extent forestry constitutes an indispensable source of funds for the families. Salaries and retirement pensions are linked to the landowners' age. The younger farmers are more dependent on salaries, older farmers on retirement pensions (Appendix 7.1, Table 4 and 5). Regarding the dependence upon forest, results show that landowners older than 40 years old are more dependent on forest than the younger landowners ($p = 0.00259$ Appendix 7.1, Table 6).

Table 7.4 Importance of forest resources for the family subsistence

Level of Importance	Resp	(%)
Very high	22	12.9
High	62	36.5
Medium	56	32.9
Small	26	15.3
None	4	2.4
Total	**170**	**100**

Due to the frequency and intensity of forest fires, forest incomes have been decreasing in recent years. The farmers who stated that they were less dependent on forest incomes are the same as those who suffered a larger area of burned forest. So, the reason for the results seems to lie in forest fires which seriously affect forests. Hence, a significant connection was found between the level of family dependency on forestry and the forest burned area ($p = 0.0253$, Appendix 7.1 Table 7).

7.2 Attitude towards collective action - forestry organisation

As in the other regions of the country, Pinhal Sul's farmers are used to sharing services, among neighbours or among family members. The phenomenon is more frequent (32%)

in agricultural, seasonal tasks as planting and picking potatoes, or collecting olive fruits, than in forestry. Only 14 per cent of interviewees stated sharing forestry activities, namely thinning and bush collection. Sometimes, farmers also share machinery and labour.

Despite the lack of a forest landowners' organisation, there are some agricultural organisations in the region. About 20 per cent of the respondents are members of one of those organisations. Almost all of them are members of a co-operative of olive oil producers. This can be explained by the percentage of agricultural area covered by olive groves in the region and, it is also due to the need to follow new extraction and commercialisation rules. In order to follow these new rules several collective actions took place, and are still working successfully.

A significant attempt to develop the collective action between farmers was made by the agricultural ministry by attributing higher subsidies to projects which involve groups of landowners. About 25 per cent of the respondents stated that they had implemented forest projects - around 80 per cent of these projects were collective projects and only 20 per cent were individual projects. However this only reflects, as Almeida and Goldey (1995) have concluded about FAP, the intention to get more funds instead the farmer's collective attitude. Regarding the FAP, and the new forestry development programme (Reg.-2028), which could be described as encouragement of collective actions in forestry activities, among the interviewed farmers 25 per cent of them were involved in collective actions. This means that 25 per cent of them already had an experience dealing with group projects in forestry. These farmers have received the funds from the EEC and the Portuguese government to implement their projects. Almost all have a higher education level, and due to this our data show a significant relation between education level and the projects' application ($p = 0.01963$, Appendix 7.1, Table 8).

To enhance the information about experience of groups and farmers' capacity for working in groups, but not only for this, they were asked to answer according to an attitude (Likert) scale (Appendix 7.2). Such a scale, used to measure the NPFLs' attitudes towards forest organisation, include sixteen positive and negative statements. Its values correspond to a five point scale (1 - strong agreement, 2 - agreement, 3 - neither agree nor disagree, 4 - disagreement, 5 - strong disagreement). Table 7.5 deals with the answers to positive statements. Based on the scores, these statements were grouped according to the attitude level reached. The determination of the attitude level, as explained in appendix 7.2, allows classification of the NPFLs, according to their attitudes towards each statement. The total scores of each statement were grouped in five levels (from 1, for the very positive, to 5, for very negative attitude), and according to such criteria, only the statements "Some plots would be profitable to working them if they were joint in a large plot only" and "Trading in groups the NPFLs would arrange better prices" have a low positive level.

Table 7.5 Results of positive statements

Statements	1(%)	2(%)	3(%)	4(%)	5(%)	Total	Attitude Level
The NPFLs would solve better their problems if they become organised	50.6	38.8	6.5	2.4	1.8	282	1
The NPFLs' voice would be stronger if they become organised	48.2	44.1	6.5	0.6	0.6	274	1
Some plots would be profitable to working them if they were joint in a large plot only	31.8	31.8	10.6	12.4	2.9	361	2
The forest cleaning should be organised among all NPFLs in a group	58.8	30.6	2.4	5.9	2.4	276	1
Fire surveillance should be done by all NPFLs in a group	60.0	25.9	4.7	7.1	2.4	282	1
Trading in groups the NPFLs would arrange better prices	25.3	38.2	17.1	10.6	8.8	407	2
One organisation would be better informed about state supports	53.5	41.2	4.1	4.1	1.2	262	1
For the state it would be easier to help the NPFLs if they were organised	60.6	35.3	3.5	0.0	0.6	246	1

(1 - strong agreement, 2 - agreement, 3 - neither agree nor disagree, 4 - disagreement, 5 - strong disagreement).

Using the same calculations to determine the attitude level within the negative statements, we can see in Table 7.6 that: "Trading in group would be very difficult to control" and that "Cutting trees is a task that would not be done by NPFLs in a group" these are statements towards which forest landowners presented less favourable opinions when considering undertaking them together.

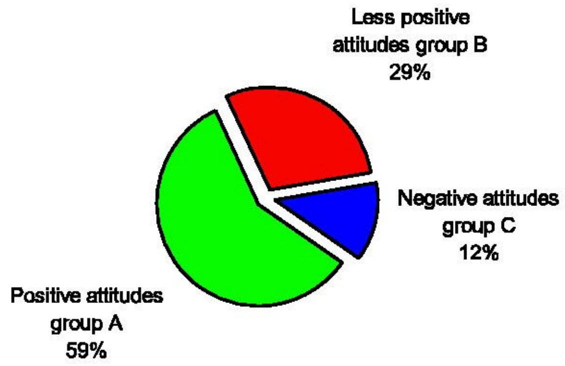
Table 7.6 Results of negative statements

Statements	1 (%)	2(%)	3(%)	4(%)	5(%)	Total	Attitude Level
An NPFLs organisation would fail in a short period of time after its creation	7.1	12.9	23.5	27.6	28.8	609	2
Each NPFLs should solve his problems by himself	10.0	14.1	12.4	38.8	24.7	602	2
The one who become associated would lose the control of the ownership rights	5.9	11.8	9.4	28.8	44.1	669	2
Cutting trees is a task that would not be done by NPFLs in a group	24.1	30.6	11.2	17.6	16.5	462	3
Each landowner should make the surveillance only in his plots	10.0	9.4	3.5	32.9	44.1	666	2
The plots of your neighbours which are not clean constitute a problem only to them	10.7	7.7	4.7	30.8	46.2	666	2
Trading in groups would be very difficult to control	23.7	33.1	13.6	14.2	15.4	447	3
Supporting the NPFLs individually would be the best way for the state to help them	11.2	20.0	10.0	25.3	33.5	595	2

(1 - strong agreement, 2 - agreement, 3 - not agree and not disagree, 4 - disagreement, 5 - strong disagreement).

After such a data analysis, it is possible to classify the landowners in five groups according to their attitude level towards farmers' organisations (Appendix 7.3, Table 1). As there are no individuals presenting a strong negative attitude, and the ones presenting a medium negative attitude are only 2.4 per cent, it seems reasonable to associate these two levels. By doing this, we get only three groups of forest landowners presenting different attitude levels (Figure 7.2). One group represents the respondents who have a strong positive attitude, the second group is formed by the ones who have a slightly weak positive attitude and the third represent the forest landowners that have neutral or negative attitudes. At this moment of the data analysis, the general comment that could be made is that the figures seem to point clearly to the fact that forest landowners' attitudes towards organisation do not seem to be the main reason for them not to be organised. However, we think that the following data analysis and discussion, will enable us to clearer idea on this point.

Figure 7.2 Forest landowners accordingly to their attitudes towards organisations



Thus, further data analysis will be undertaken based on those three groups of individuals which will be called the group of positive attitudes - group (A), group of less positive attitudes - group (B), and the group of negative attitudes - group (C).

Moreover, in order to decrease the source of variation we have also undertaken a second analysis, this time regarding only two groups. Therefore the groups (B) and (C) were associated. However, this analysis will only be presented where the results were significant.

From now on the data will be presented according to a cross analysis between the variable landowners' attitude towards organisation and the other variables. Table 7.7 shows the relation between attitude and some variables such as residence area, landowners' age, area of forest holdings, burned forest area, family's dependence on forest resources and the experience of being a member of a farmers' organisation.

Table 7.7 Forest landowners' attitudes towards organisation according to their council, age, forest area, burned forest area, dependence on forest resources and their experience in being member of a farmers' organisation (%)

Attitude level	Group - A	Group - B	Group - C	Total	p value
Councils	**(%)**	**(%)**	**(%)**	**(%)**	ns
Mação	64.5	29.5	6.0	20.0	
Oleiros	67.5	20.5	12.0	20.0	
Proença	50.0	35.5	14.5	20.0	
Sertã	53.0	29.5	17.5	20.0	
Vila de Rei	56.0	32.5	12.0	20.0	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Age					0.0147
20.6	71.4	22.8	5.8	20.6	
55.3	58.6	32.9	8.5	55.3	
24.1	46.5	27.0	27.0	24.1	
100.0	**58.2**	**29.4**	**12.4**	**100**	
Educational level					ns
Illiterate	37.9	42.7	19.4	12.4	
Primary level	56.6	29.2	14.1	62.4	
Secondary level	64.5	29.5	6.0	20.0	
Superior level	100.0	0.0	0.0	5.3	
Total	**58.2**	**29.4**	**12.4**	**100**	
Forest area					ns
Less than 5 ha	53.9	33.4	12.7	51.2	
Between 5 and 20 ha	61.4	29.0	9.6	36.5	
More than 20 ha	66.1	14.5	19.4	12.4	
Total	**58.2**	**29.4**	**12.4**	**100**	
Burned area					ns
More than one half	61.1	25.0	13.9	42.4	
Around one half	47.3	36.6	16.1	11.2	
Less than one half	58.3	31.6	10.1	46.5	
Total	**58.2**	**29.4**	**12.4**	**100**	
Dependence on forest					ns
High dependency	52.4	32.2	15.4	49.4	
Medium dependency	59.0	30.4	10.6	32.9	
Low dependency	73.3	19.9	6.8	17.6	
Total	**58.2**	**29.4**	**12.4**	**100**	
Experience on forest projects					ns
With experience	60.8	21.1	18.0	18.8	
Without experience	57.7	31.4	10.9	81.1	
Total	**58.2**	**29.4**	**12.4**	**100**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

The NPFLs' attitudes towards organisation are homogeneous throughout the region's five councils. But with regard to landowners' age, the situation is quite different, and in this case there is a significant relation between the landowners' age and their attitude towards organisation (p value = 0.01472, Appendix 7.4, Table 1). This relation is characterised by a higher percentage of individuals younger than 41 years with a positive attitude (group A), and a higher percentage of individuals older than 65 years who have a less positive or even a negative attitude (group B), and also by the fact that almost half of those with a negative attitude belongs to the older age group. With regards to the other variables, even if there seems not be any significant relation among them, some relevant aspects can be identified:

- Apart the lack of validity of the Chi square, it is clear from the Table 7.7, that the NPFLs with a lower education level are responsible for the majority of the answers falling into the groups B and C. Moreover, opposed to this, farmers with a higher education level have a higher representation in group A.

- There seems not to exist any relation at all between attitude and burned forest area or between attitude and farmers' dependency on forest resources. However, the farmers holding larger forest areas have a higher representation in group A, while farmers holding smaller forest areas have a higher representation in groups B and C.

- The individuals who had previously experienced being associated have a large representation in group A - positive attitudes.

7.3 The acceptance of the FANCP model and the desired type of organisation

To test the acceptability of the model, we could only look at the data in a global way. In other words, the total values for the answers linked with the model, should give us an idea about the acceptability of the model by the NPFLs. However, as we are also interested in learning about the relations between these answers and NPFLs' attitudes towards organisations, consequently we have undertaken a cross analysis between the variables regarding the model and the NPFLs' attitude level. The following results presented derive from this cross data analysis.

Regardless of the attitude level, the main issue is that 88 per cent of the farmers strongly agree with the creation of a formal organisation according to all recommended legislation. Understandably there is a relation between attitude and the agreement upon the creation of forest landowners' organisation in the region (Table 7.8). However, the Chi square value is not valid because there is expected values inferior than 5 (Appendix 7.4, Table 2). This means that the few individuals who do not agree with the creation of an organisation are in its majority individuals with less positive attitude towards organisation.

The majority of respondents (68%) hold the opinion that in case of the creation of an organisation members could either be landowners or not, if they have interest in forest development. But there is a significant relation between the opinion about the type of individual to be accepted as a member and the attitude towards organisations ($p = 0.0053$, Appendix 7.4, Table 3). The majority of respondents holding the opinion that members should exclusively be forest landowners belong to the group of individuals showing a less positive or negative attitude.

Regarding the social dimension of an organisation, there seems to be a general preference towards running an organisation at a parish level, although the councils were also preferred by 31 per cent of the NPFLs. Those who suggest a local level (small influence area of the organisation - parish level) for the organisation, are mainly the same as those with a less positive attitude. In the same way, most landowners who suggest a regional level for the organisation belong to the group with a positive attitude. However, such relations were only supported by a statistical analysis test after the association of landowners attitude in two groups ($p = 0.0066$, Appendix 7.4, Table 4).

Regarding the type of activities to be undertaken by the organisation, the respondents seem to expect an organisation to be able to handle all forestry activities. The hypothesis of an organisation exclusively meant to deal with a single forest activity, was supported by only a few of them (19%). However, we think that the group preferring an association handling only one activity, could support the organisation's expansion, after its implementation and based on positive results. From this emerges the idea of a gradual process towards the creation of an organisation. This is confirmed by the preference of 68 per cent of NPFLs. Then, it could be said that landowners clearly prefer to start an organisation with a gradual process. In their opinion it would be better to create an organisation dealing with a single forestry task and wait to see its evolution. Even without being asked about which activity should be used to start with, some of them referred that "forestry cleaning actions" could be a very good starting point. Depending upon positive results, they would be interested in extending the organisations' activity to the whole range of forest activity.

Table 7.8 Forest landowners' attitudes towards the creation of an association (%)

Attitude level	Group - A	Group - B	Group - C	Total	p value
Agreement in creating					ns
Agree	62.4	29.5	8.0	88.2	
Uncertain	27.0	33.7	40.4	8.9	
Disagree	20.0	20.0	60.0	3.0	
Total	**58.2**	**29.4**	**12.4**	**100**	
Kind of members					0.00534
Only forest landowners	42.5	35.2	22.3	31.8	
Everyone	65.5	26.7	7.8	68.2	
Total	**58.2**	**29.4**	**12.4**	**100**	
Social dimension					0.0066
Parish	52.1	31.8	15.9	55.3	
Council	55.9	36.6	7.8	30.6	
Region	87.9	4.3	8.5	14.1	
Total	**58.2**	**29.4**	**12.4**	**100**	
Type of organisation					ns
Only one forestry activity	62.8	34.6	3.2	57.6	
All forestry activities	57.1	28.5	14.3	28.8	
Ask for subsidies	57.5	26.8	15.7	13.5	
Total	**58.2**	**29.4**	**12.4**	**100**	
Way of starting					ns
At once	56.7	30.3	13.1	31.4	
Gradually	59.5	29.3	11.2	68.6	
Total	**58.2**	**29.4**	**12.4**	**100**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

We were aware that agreeing with the creation of an organisation does not mean that the individual is available to become a member of it. As we can see in Table 7.9, only 58 per cent of NPFLs are willing to become members. Therefore, a significant proportion (29%) of them prefer to be careful and to assume a neutral position. Even so, only 4 per cent of the individuals who strongly agree with the creation of an organisation were at the same time clearly not available to become members.

Even if the majority of respondents not willing to become associated belong to the group with less positive or negative attitudes towards organisation at the moment, this does not mean the existence of a significant relation between these variables. On the other hand, the availability to become associated with unknown people or associated only with confident people is significantly related to the attitude towards organisation (p=0.0000 and p=0.0266, Appendix 7.4, Tables 5 and 6). Table 7.9 shows that first over one third of the respondents do not agree with becoming associated with people whom they distrust. Regarding their willingness to commit, the percentage is slightly higher than the percentage of NPFLs willing to become members. This means that they are aware that to become a member involves a commitment, and also means that the ones who are disposed to become members are also receptive to make the commitment involved in membership. This disposition to accept commitments is related to the NPFLs' education level, all of them not interested in commitment are illiterate or have achieved only the first educational level (Appendix 7.5, Table 1). The same analysis, and the same conclusions could be drawn from the values about the willingness to accept ideas from other members, and also about their will to attend meetings.

Only about 35 per cent were clearly willing to take leading roles. But, such a value is big enough to justify good expectations about the NPFLs' participation in leadership. Willingness to accept leadership in the organisation is stronger in individuals with positive attitudes. In the same way, those more interested in participation as leaders are also the individuals with positive attitudes, and seem to be more available to attending meetings in order to create the organisation and keep it working.

Table 7.9 Forest landowners' attitudes and their position towards aspects of the creation of an association

Attitude level	Group - A	Group - B	Group - C	Total	p value
Disposition in became associated					ns
Agree	62.3	32.6	5.0	57.6	
Uncertain	57.3	24.7	18.4	28.8	
Disagree	43.7	25.9	30.4	13.5	
Total	**58.2**	**29.4**	**12.4**	**99.9**	
Association with unknown people					0.0000
Agree	75.1	13.2	11.7	40.2	
Uncertain	74.4	25.6	0.0	20.7	
Disagree	33.2	48.3	18.2	39.1	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Association with confident people					0.0266
Agree	47.0	34.7	18.6	47.9	
Uncertain	68.2	27.7	4.1	14.8	
Disagree	69.7	23.9	6.4	37.3	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Commitment's acceptability					ns
Agree	62.0	29.5	8.5	62.1	
Uncertain	59.9	22.7	17.4	20.7	
Disagree	44.8	37.8	17.4	17.2	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Acceptance of ideas from others					ns
Agree	61.0	29.1	10.0	59.2	
Uncertain	64.1	22.9	13.0	23.1	
Disagree	43.3	39.9	16.9	17.8	
Total	**58.2**	**29.4**	**12.4**	**100.1**	
Disposition in attending meetings					ns
Agree	58.6	28.4	13.0	68.6	
Uncertain	60.5	36.4	3.1	19.5	
Disagree	55.1	25.4	20.3	11.8	
Total	**58.2**	**29.4**	**12.4**	**100**	
Disposition in became member leader					ns
Agree	63.5	28.3	8.2	35.3	
Uncertain	75.2	17.0	8.5	14.1	
Disagree	50.6	33.8	15.0	50.6	
Total	**58.2**	**29.4**	**12.4**	**100**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

The NPFLs' interest in becoming a member, and the activities which they would like to develop through the association, can be of a diverse nature. A closed question referred to six activities or interests, in order for respondents to quantify their interests in each of them. So, with such an approach we have found the extent of the NPFLs' interest in undertaking these activities through the organisation. Therefore, and according to the data in Table 7.10, we can say that, in general, forest landowners seem to have clear interests in using an organisation to improve collective protection action, in designing projects enabling them to apply for subsidies, as well as for getting technical support. The interest in the collective use of machinery, cleaning, cutting and in collective trading, is not as clear. In fact, there a significant percentage of individuals who are not interested in these collective actions, respectively 12, 18, and 34 per cent. In addition to that, Table 7.10 shows a significant relation between cutting and trading of forest products, and the landowners' attitude towards organisations ($p = 0.0003$, Appendix 7.4, Table 7). The majority of respondents who are not interested in these collective actions have less positive attitudes.

Table 7.10 Landowners' interests in organisational activities according to their attitude towards organisations

Attitude level	Group - A	Group - B	Group - C	Total	p value
Interest in using machinery					ns
Agree	63.4	28.8	7.9	59.8	
Uncertain	58.9	28.1	13.0	23.1	
Disagree	41.5	34.5	24.0	17.1	
Total	**58.2**	**29.4**	**12.4**	**100**	
Interest in cleaning forest					ns
Agree	61.3	28.2	10.5	73.4	
Uncertain	49.4	43.4	7.2	8.3	
Disagree	51.9	29.0	19.7	18.3	
Total	**58.2**	**29.4**	**12.4**	**100**	
Interest in harvesting and trading					0.0003
Agree	76.0	16.5	7.7	46.7	
Uncertain	51.8	39.5	9.2	19.5	
Disagree	38.6	42.1	19.3	33.7	
Total	**58.2**	**29.4**	**12.4**	**100**	
Interest in collective protection actions					ns
Agree	62.3	25.3	12.4	81.7	
Uncertain	40.6	52.5	5.9	10.1	
Disagree	43.4	43.4	14.5	8.3	
Total	**58.2**	**29.4**	**12.4**	**100**	
Interest in forest projects, subsidies					ns
Agree	62.3	25.3	12.4	81.7	
Uncertain	40.6	52.5	5.9	10.1	
Disagree	43.4	43.4	14.5	8.3	
Total	**58.2**	**29.4**	**12.4**	**100**	
Interest in receiving technical support					ns
Agree	62.6	27.1	10.4	85.2	
Uncertain	34.7	44.9	20.3	11.8	
Disagree	40.0	40.0	20.0	3.0	
Total	**58.2**	**29.4**	**12.4**	**100**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

The interest in becoming organised and in future forestry can be understood, keeping in mind NPFLs' expectations, and their concept of forest development. In this way, about one half (48%) of the respondents stated that they had good expectations for the forest's future (Table 7.11). Despite the lack of significance of the relation between the expectation and the attitude towards organisation, it is possible to see, in this table, that the individuals with less positive attitudes represent the majority of the landowners with worse expectancy for the forest's future.

Table 7.11 Expectation for the future of forest activity (%)

Attitude level	Group - A	Group - B	Group - C	Total	p value
Expectation					ns
Good	61.5	28.9	9.6	48.8	
Uncertain	58.0	28.2	14.1	37.6	
Bad	48.1	34.8	17.8	13.5	
Total	**58.2**	**29.4**	**12.4**	**100**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

Forests' development seems to depend on the enlargement of the areas used in forestry activities, since that seems to be the only way to make forest management economic and technically efficient. Comparing the NPFLs' answers with the above mentioned idea, we can say that it is not clear what the landowners' opinion about the type of forest management is. Some of them have the idea that it would be necessary to work several plots together in order to make forestry work profitable. However, others, even if not as many, have got the opposite idea. They argue that it is possible to develop forestry without joint plots (Table 7.12). Furthermore, the percentage of landowners who are willing to join their plots with their neighbours (43%) is clearly lower than the percentage (62%) agreeing with the need to work in a large area. This means that 18 percent of the NPFLs agree with the idea, but even so, they are not interested in its implementation. These attitudes are significantly related with the attitude towards organisations ($p = 0.00001$ and $p = 0.0002$, Appendix 7.4, Tables 8 and 9). The ones not interested in joint plots are mainly landowners with a less positive attitude.

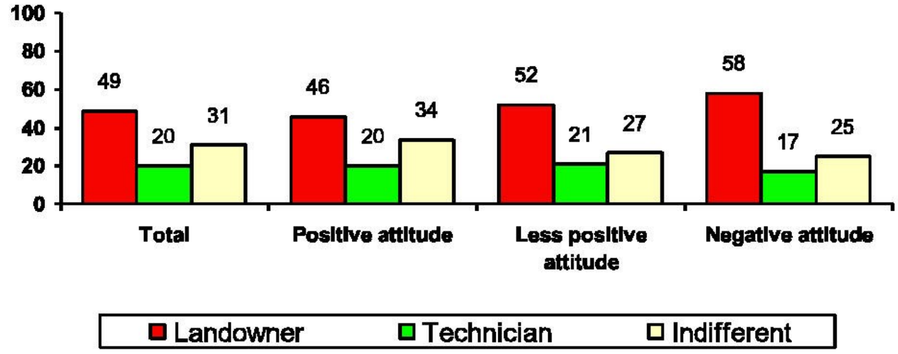
Table 7.12 Attitude towards the need of working in joint plots and in joining plots in order to work together

Attitude level	Group - A	Group - B	Group - C	Total	p value
Need to work in join plots					0.00001
Agree	74.1	21.1	4.9	61.5	
Uncertain	50.0	38.3	11.7	15.4	
Disagree	22.9	43.7	43.7	23.1	
Total	**58.2**	**29.4**	**14.9**	**100.0**	
Agreement in joining					0.0020
Agree	46.6	37.1	16.6	42.9	
Uncertain	51.5	42.7	5.8	20.6	
Disagree	75.6	12.9	11.2	36.5	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - (p<0.05)

The president of any organisation could and should play a decisive role towards its way of working. Considering this important role of a president, and given that the NPFLs seem only willing to give responsibility for their affairs to individuals whom they know, we think that the image of the president could assume capital importance in the process of creating an association. Figure 7.3 shows that the NPFLs have a preference for a forest landowner acting as president instead of a technician, although to 31 per cent of NPFLs this point seems to be irrelevant. A significant relation was not found ($p<0.005$) between the attitude and the type of president desired for the organisation.

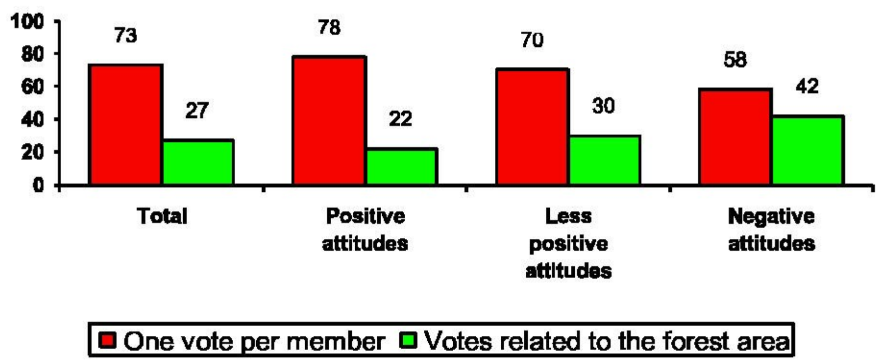
Figure 7.3 Relation between attitude level and the kind of person desired for president (%)



A similar opinion is presented in the hypothesis of such a president being a known or unknown individual. Here, ideas are quite similar: 39 per cent disagree with the idea of having an unknown individual as president of their organisation, 38 per cent agree in having a known individual as president (Appendix 7.4, Table 10).

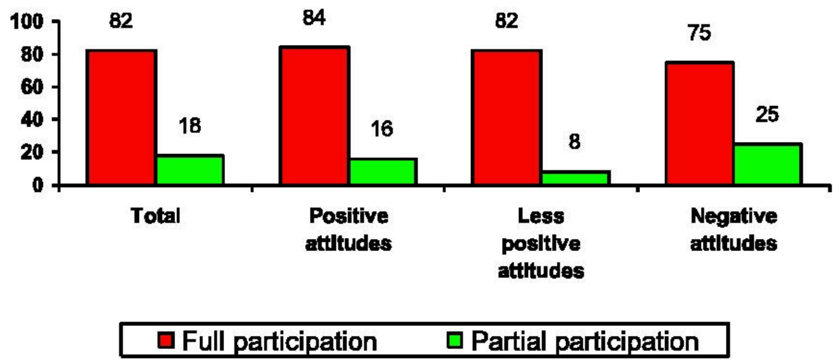
Confidence in the president and the familiarity with some members can be determinant factors for someone to become a member. Moreover, another factor that gives confidence to any individual thinking of becoming a member, is the right to participate in the decision-making process. On the field, we perceived some constraints regarding this matter. In NPFLs' mind there seems to be a relation between the large/small forest area owned, the fact of being rich or poor, and the power each one should have in the organisation. Our data shows that the majority of the respondents thinks that it would be better for each member to be entitled to a single vote (Figure 7.4). Most of them stated the importance of equality among members, and thought it necessary to avoid the domination of the larger landowner. However, 27 per cent of them think that the fair answer to this problem should be to introduce a proportional voting system taking into account the forest area owned by each landowner. These respondents base their opinion on the need to avoid the intervention of some jealous landowners who are more interested in raising barriers to their neighbours than in promoting forest development.

Figure 7.4 Members statutory position in the poll (%)



Apart from the decision about the organisation's internal statutes and other rules, it should have to make decisions about technical aspects of the forest management. The NPFLs' opinion about their participation in the decision-making process shows their desire to be independent of the members not directly involved with the issues at stake. This means that they prefer only to participate in polls regarding problems directly involving their plots, in other circumstances they prefer not to vote. About 82 per cent think that the decision about management of a certain area should be made by the landowners to which the involved plot belongs (Figure 7.5). This means that only 18 per cent of the respondents are really interested in participating in all the organisation's decision-making. There is no significant relation between these opinions and attitude towards organisation, but there is a clear link between these opinions and the forest holdings' area ($p = 0.00008$ Appendix 7.5, Table 2). The NPFLs owning larger areas are the ones more interested in a decision-making process involving only the ones directly involved in the particular forest at stake.

Figure 7.5 Members participation at the decision-making process (%)



Regarding the non-resident forest landowners' intervention, we found a positive attitude towards such a possibility. Most of the respondents (91%) stated that they agreed with the inclusion of emigrants as members of the association, and consequently, they would accept that such members could be represented by a legal proxy, allowed to participate in the decision making process.

Besides the participation in the decision-making process it is also important to gather funds, or other type of contribution, in order to provide the organisation with resources to cover its expenses. This is a point often tackled with the traditional idea that farmers are never interested or available to spend money, even if just a small amount. However, such an idea is not confirmed by our data. The data shows that all landowners understood that an organisation needs funds to meet its expenses. Given this, the majority of respondents are willing to participate with funds, either through a quota system or through a retention of funds gathered from trade (Table 7.13). The landowners not agreeing with financial participation, are almost only the ones with less positive or negative attitude towards organisations, and who state that they are not interested in becoming members. Lack of money was stated as a problem by a very few individuals, and apparently the refusal to contribute it is mainly a question of attitude.

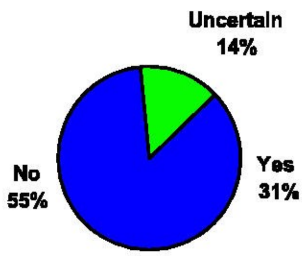
Table 7.13 Landowners' opinion about their financial participation in the organisation

Attitude level	Group - A	Group - B	Group - C	Total	p value
Association should keep the funds					ns
Agree	62.5	29.1	8.4	77.1	
Uncertain	42.7	22.0	35.4	8.2	
Disagree	44.2	36.1	19.7	14.7	
Total	**58.2**	**29.4**	**12.2**	**100.0**	
Financed by a quota					ns
Agree	61.1	30.5	8.5	69.4	
Uncertain	56.3	25.9	17.8	13.5	
Disagree	48.0	27.5	24.0	17.1	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

In general, NPFLs do not show any kind of reluctance towards receiving funds from the state, they even seem to look at it from the view point that it is a state obligation to support them. This is particularly relevant in the case of those NPFLs who have had their forest burned. The damage caused by forest fires is always given as a reason to claim support. Although it is true that they expect financial support, the majority is not willing to make any deal towards investments that involve the state as partner (Figure 7.6). The global opinion is that NPFLs should get a contribution without any charge but 31 per cent stated that they were willing to accept state financial support even if they had to share the revenues. Many of the landowners not willing to do it stated that they were afraid to lose property rights and that they did believe in the state. Some of the respondents who say they are uncertain, justify their doubts with legal problems having to do with property rights and inheritance aspects.

Figure 7.6 Forest landowners willingness towards making a investment deal with the state



In NPFLs' opinion, the lack of skilled people, and/or the lack of landowners' confidence in those people does not justify the absence of forestry organisations in the region (Table 7.14). Nevertheless, there could be a problem related to starting the process of creating an organisation. We can even say that almost none of 49 per cent respondents believes in the possibility that an organisation would be created in the future, despite all these conditions. In general, all respondents referred to the indispensability of the state's support and intervention in the process.

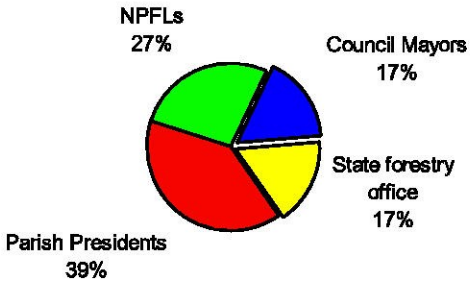
Table 7.14 NPFLs' opinion about the conditions to start a organisation process

Attitude level	Group - A	Group - B	Group - C	Total	p value
Landowners capability					ns
Agree	63.8	27.2	9.1	51.9	
Uncertain	51.8	38.4	9.8	24.5	
Disagree	52.5	25.0	22.5	23.6	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Confidence in those landowners					ns
Agree	65.0	28.1	6.9	66.9	
Uncertain	41.4	32.8	25.8	19.8	
Disagree	48.9	30.8	20.3	13.3	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Probability of starting the process					ns
Agree	70.2	14.9	14.9	23.5	
Uncertain	50.0	37.0	13.0	27.0	
Disagree	57.0	32.1	10.9	49.5	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

There are different opinions about who should start the process of creating an organisation. During the administration of these questionnaires we realised that almost all respondents pointed out that such a process should involve all entities: forest landowners, parish's president, council and government through the state forest services. However, when we asked their opinion about which entity should have the obligation to take the first step, most of them attribute such duty of initiative to the parish's president, even if they recognise their own responsibility regarding this point (Figure 7.7). The council seems to be referred by farmers preferring an organisation working at a council level, and by the NPFLs who do not trust the parish's president. Enhancing this opinion our data shows a significant relation between the variable "council of origin" and the opinion about the duty of taking the initiative (p = 0.0004 Appendix 7.5, Table 3).

Figure 7.7 Entity thought to be responsible for starting the organisation process



As mentioned above, there seems to be a recognition by the NPFLs of their own importance in participating in the process of creating an organisation. Many of them prefer to create their own organisation, instead of becoming members in an organisation created by others and out of their control (Table 7.15). Nevertheless, about 30 per cent of them prefer this latter situation. The majority of the respondents prefer an organisation that has already been created, and showing good results, are the ones with a less positive attitude towards organisation (p= 0.0387, Appendix 7.4, Tables 14,). They do not believe in the possibility of creating an organisation to work according to their interests. We expected it to be unlikely that all individuals interested in participating would also be available to accept leadership within the process or the organisation itself. However, about one half of the former group expressed their availability to become a leader. The NPFLs' availability for leadership is significantly related to their age, given the significant relation between this variable and the NPFLs' age (p = 0.0078 Appendix 7.5, Table 4). In fact, it is generally the younger respondents who express the possibility of becoming director members. It is very interesting to see that 33 per cent of the NPFLs would be willing to assume the leadership in such a process and it gives good base for further actions.

Table 7.15 Landowners willingness to participate in the process of creating an organisation

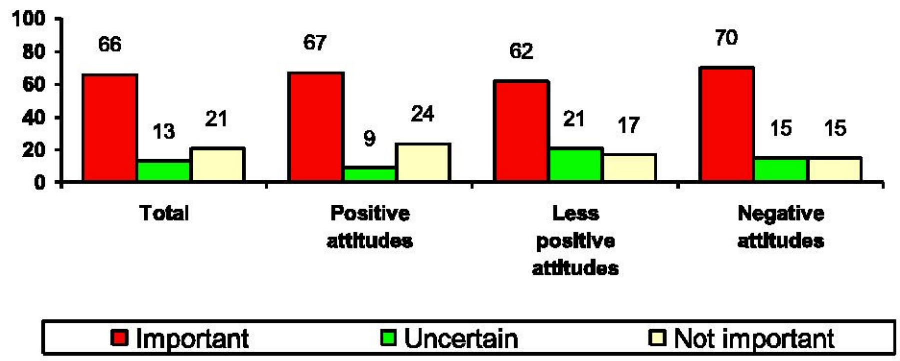
Attitude level	Group - A	Group - B	Group - C	Total	p value
Availability to work in the creation process					ns
Agree	67.5	21.1	11.5	59.3	
Uncertain	57.0	31.5	11.5	16.5	
Disagree	36.4	48.3	15.3	24.2	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Preference for an association already created					0.0387
Agree	41.3	45.0	13.7	30.0	
Uncertain	60.7	25.9	13.3	13.5	
Disagree	66.5	21.9	11.5	56.5	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Availability to accept leadership					ns
Agree	68.1	23.1	8.8	32.9	
Uncertain	75.8	19.4	4.8	12.4	
Disagree	48.3	35.5	16.3	54.7	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

7.4 State's and the Local Authorities' participation

From the field work an idea emerged, subsequently confirmed through data analysis, that the NPFLs desired and expected to be supported by the state, expressing it as a duty. Because of that and considering the several questions regarding this point, we found that almost all respondents (93%) agree with the idea that the state should support the forest landowners in the process of creating their own organisation (Appendix 7.4, Table 11). In addition to this, the majority thinks that without the state's support the landowners would never become organised. However, about 21 per cent do not agree with the indispensability of state support (Figure 7.8). Regarding this point, landowners with a positive attitude towards organisation seem to be responsible for this opinion.

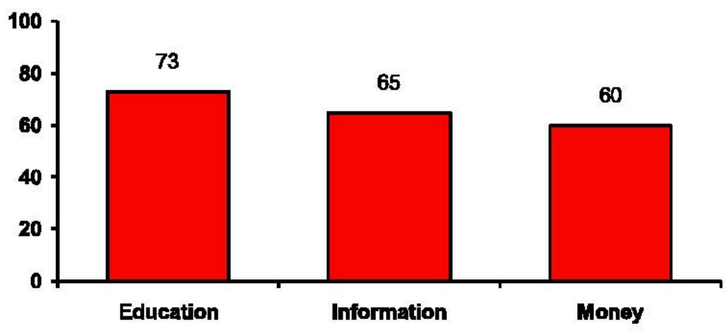
Figure 7.8 Level of importance attributed by the NPFLs to the state support in the process of creating an organisation (%)



If the state were to support them in the process of creating and maintaining their organisation, about 63 per cent (in similar proportion of positive and less positive attitudes) of the respondents stated that they would agree with the direct participation of the state in the decision-making process (Appendix 7.4, Table 12). They agree that if the state participates in the organisation, even if only in the decision-making process, it should be regarded as a real member, being therefore entitled to vote as any other member. The ones who do not agree with the state's participation in the decision-making process (22%) argue that if the state is not a real landowner, its action should be limited to supporting the organisation, therefore not having the right to vote.

Cognitive and affective support seem to be very important for landowners' desires, because they feel that it enables them to participate in the process of creating an organisation (Figure 7.9). Financial support comes last, although they also recognise it as very important (Appendix 7.6). Many of the respondents stated that money would not be the real issue. The real issue seems to be landowners mentality and the lack of capacity of the state to support them through such a process.

Figure 7.9 The level of importance of state support (%)



The participation of the Local Administrative Authorities in the process of creating a landowners organisation is well accepted by the majority of the respondents (Table 7.16). They agree with the participation of the parish president as a leader in the process. At the same time, the intervention of the town hall in the process is well accepted, and understood as a potential entity with the required capacity for making all the parishes of the municipality work together, as well as to establish the links between other councils in the region. The group who do not agree with the involvement of the local authorities is composed of landowners with a less positive or even negative attitude towards organisation (p = 0.0079 and p = 0.0177, Appendix 7.4, Tables 13 and 16).

Tables 7.16 NPFLs' attitudes towards organisation according the role of the local administrative authorities in the organisation

Attitude level	Group - A	Group - B	Group - C	Total	p value
Role of the president of Parish hall					ns
Agree	59.5	29.4	11.1	74.1	
Uncertain	30.9	43.6	25.5	9.4	
Disagree	67.9	21.2	10.9	16.5	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Role of council hall related to parish hall					0.0079
Agree	65.6	23.0	11.4	71.8	
Uncertain	36.6	42.0	21.4	11.2	
Disagree	41.2	48.2	10.6	17.0	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Role for the council hall related to others					0.0177
Agree	63.5	27.1	9.4	75.9	
Uncertain	52.7	25.9	21.4	11.2	
Disagree	31.8	45.7	22.5	12.9	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

Enhancing the importance of cognitive and affective support, Table 7.17 shows that landowners are almost unanimous in recognising the importance of making contact with forest landowners' organisations already created. They stated that visiting an association existing in a different region and to contact with some of its members, this will be important to convince them, and that they also can learn from those contacts.

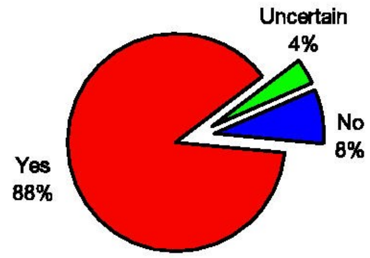
Table 7.17 Usefulness in visiting an already existing organisation

Attitude level	Group - A	Group - B	Group - C	Total	p value
Usefulness in visiting an organisation					ns
Agree	58.1	29.7	12.2	87.1	
Uncertain	57.3	35.4	7.3	8.2	
Disagree	61.7	12.8	25.5	4.7	
Total	**58.2**	**29.4**	**12.4**	**100.0**	
Probability in become more interested					ns
Agree	59.3	29.3	11.3	88.3	
Uncertain	50.0	35.4	14.6	8.2	
Disagree	48.6	17.1	34.3	3.5	
Total	**58.2**	**29.4**	**12.4**	**100.0**	

Group - A positive attitude; Group - B less positive attitude; Group - C negative attitude; p value - ($p<0.05$)

Only landowners with serious age or health problems, stated that they were not interested in attending a first meeting, meant to discuss aspects related with the creation of an organisation (Figure 7.10). Problems of availability and the date and time of the meetings was also raised.

Figure 7.10 Willingness to participate in a first meeting



The issues presented and discussed in the previous table and in the previous figure, provide clear information about the utility of some of the actions which could and should be undertaken if there was any intention of organising the forest landowners of the Pinhal Sul region such as: farmers' discussion meetings and their knowledge of the other experience with forestry organisations. On the other hand, according to the data we also could expect a good participation of the forest landowners in such actions.

7.5 Summary

Forestry constitutes a very important source of income in the subsistence of most families. Therefore, the occurrence of forest fires in the past years has affected some of those families, some of them whom have lost their most important source of income. In this way forest fires have been decreasing the economic dependency of those families upon forestry, and this could affect and change the NPFLs' mentality regarding their forestry activity. Besides this effect of forest fires, the eventual occurrence of a forest fire, or fire risk, appears as an increasing constraint. It is very frequent referred in the NPFLs' speech as in the phrase: "if we knew that, it would not have burned", "if it was not the fire", etc. According to Portuguese and Spanish forestry researchers, the potential solutions to decrease the frequency of forest fires and its intensity also depend on the development of forest management methodologies, which would be based on large scale forestry, or at least, forest areas large enough for management to be economically profitable. In regions such as Pinhal Sul, and like most of the Portuguese and Spanish forest, where private property is divided into several small plots, the way suggested to manage such areas is to join plots, or to work them together. These solutions by their nature are very dependent on the capacity and willingness of forest landowners to become organised, and on their ability to work together. These last two points are not completely new for farmers of Pinhal Sul, since they have had some experience in sharing labour, machinery and in getting together to solve problems related to agricultural products, such as in the associations of Olive Oil Producers. However, forest and forestry, because of their particular characteristics related to the biological cycle of trees and the forestry's economic specificity, encompass some different aspects which could affect the development of the forestry sector. As this study shows, the NPFLs' attitude towards organisations seems not to be a real problem should any forest landowners' organisation programme be implemented. Only the oldest farmers present a lower level of attitude, the others, even independently of their education levels have favourable attitudes towards forest organisations.

If, instead of looking to the NPFLs' attitudes towards association demonstrated by the results from the attitude scale, we look to its statements as single units, we can conclude that actions such as cutting trees, or commercialising forest products are not likely to be undertaken together by the NPFLs. Some hesitancy concerning these two aspects was frequently shown by the respondents. In their minds, the problem is not in agreeing or disagreeing, it is a question of the process' feasibility. They have no idea how such activities can be undertaken in common. So, it seems more a problem of education than a real opposition to the organisation process. The results indicate that almost all of the NPFLs recognise the important role that a organisation can play in a region; in other words, they agree that a formal organisation can help them to solve the forest's problems.

Given the above, it is interesting to discuss two major aspects related to the hypothetical creation of a forest landowners organisation in the region: first, what type of organisation would it be? and second, what would be the NPFLs' disposition to participate in it and how would they do it? In general we can say that about 60 per cent of the NPFLs look for an organisation with membership open to all individuals with an interest in forest development. From this, it becomes clear that such an organisation should work on all aspects of forestry activity. However, the NPFLs understand that such an organisation should be created through a gradual process: first, it should start dealing with only one activity, and then after its consolidation as a true organisation it can extend its action to the remaining forestry activities. Given the particular agreement presented by the NPFLs in what regards the participation of the Parish Presidents as leaders in the process of creating the organisation, and the agreement that the council hall should both make the parishes work together and establish links with the neighbouring councils, we conclude that the NPFLs would be receptive to developing their organisation from a local level to a regional level, unless their position would be secured by their natural representatives, the Parish President, or another leader whom the NPFLs could chose for their organisation at a local level. Most individuals supporting this opinion are already willing to become members. Given this, and according to the data, such willingness means that they are also available to attend meetings to discuss their points of view, and to accept ideas approved by the discussion groups. In addition, about 30 per cent of the NPFLs have stated that they would be available to participate, assuming a directive role.

Although the NPFLs realise that everybody could be accepted as a member of the organisation, they are referring themselves to people they know, in most cases at a parish level. From this, they recognise that is important to be associated with people whom they trust. Association with unknown persons would be slightly problematic for them. Because of this, the beginning of such a process should be based in small units of familiar individuals as a first step in trying to develop the organisation. This would be another gradual approach, though in this case related to the organisational structure instead the forestry activities undertaken by the organisation.

Given the high NPFLs' interest regarding forest protection and in applying for forest development projects, these can be used as starting activities. The extension of the organisation's action to the other activities encompassing forest development would come later. Applying for forest projects may be the issue towards which they will be more motivated, because working in forestry involves cash amounts that they can not afford. Thus, they are confidently expecting state support, and they are aware that applying for forest projects is the only way to get it. Cutting and commercialising forest products by the organisation it is not a real interest for 47 per cent of them. This lack of interest is, as the scale statement analysis suggested, related to the negative attitudes towards organisation. It seems that forest landowners are only interested in solving the problems they see to be such. This means that they do not face serious problems whenever they decide to sell or cut trees.

The same number also realise that only by working the forest altogether, under large areas, would it be possible to develop the forest. Even though they think the same on this matters, some of them are not interested in trying to work their areas together with their neighbours, and the main reason for this seems to be the age level of these individuals. Facing the perspective of not living long enough to see the results of such forestry interventions, the older NPFLs prefer to be reserved towards this aspect. Usually they say "the one inheriting the forest lands will decide when his time comes".

The NPFLs' opinion is that the organisation's director should be a landowner, but a technician would also be well accepted. In some cases it would be possible to find both in the same individual, as well as a person known to the owners.

The word democracy is quoted by most of them when they suggest the rule "one man one vote", and that all members should have the right to participate in all decision making acts under scrutiny. The question of power emerges: the smaller owners are afraid of losing control to the larger if the latter have any chance of controlling the decision-making process through a vote proportional to the forest area; on the other hand, the larger ones are afraid that the smaller owners will get the power to make decisions going against their opinions regarding forest development perspectives. However, one vote per member and the right to fully participate seems to get some consensus.

Payment for services provided seems to be preferable to a quota system. All of those who agree with the idea of becoming members easily understand the need to pay a quota to cover the organisation's expenses; however, they feel that it should be symbolic, since they have not access to funds to assume regular expenses.

Despite the existence of skilled people interested in creating an organisation, they are in fact not organised, and one of the reasons for that can be the difficulties involved in starting the process: these form a barrier to taking the first step. These reasons could be linked to the responsibility of taking the initiative and assuming leadership of the process. Only one third of the NPFLs think that they should themselves start the organisation. The remainder attribute such a responsibility to the local authorities. An interesting fact is the lower percentage of those who attribute such responsibility to the government forestry services. From this appears that their understanding of the organisation is more dependent on their capacity to become organised than on the forestry aspects themselves. Regarding leadership, in the same way, there seem to be sufficient individuals to assume the leadership of the process, but once more, the problem would be how to start such a leadership? Who should take the initiative? It is one thing to be available for leadership and another to become leader. The questions that might clarify this gap in information were not asked, since it did not form part of the objectives; but, in our opinion, the gap could be solved by meetings between the NPFLs in order to discuss their opinions and, after this, to give their support to those who are willing, and able to assume leadership. From this point, they can participate from the beginning in the whole process of creating the association as they want it to be.

Getting government support is in the mind of almost all NPFLs, either for forestry development or for the creation of the association. Moreover, they believe that without such support they will not become organised. This urgency in an indispensable state's intervention is grounded in the NPFLs' needs of education and information about how to and why is become organised. The material reasons are only related to money. Several individuals have said that there are no problems in finding a place with all the conditions, electricity, telephone etc., to install the organisation's services. Financial support is desired; first, to help cover the organisation's expenses, since they realise that even paying an annual quota would never cover the total expenses; and second, but not secondary, to support the forestry activities, since it is difficult to realise both these aspects separately.

8 THE NON-RESIDENT NPFLS' VIEWS

In Pinhal Sul region the forest is almost one hundred per cent private, but this does not mean that all the forest owners live in the region. Because of the need of finding different ways to live, or because the mobility of population, a significant number is living out of the region. At the same time, the inheritance system and the freedom regarding property trading also contributes to the spatial dispersion of the plots. According to our research data, and to our knowledge of the region we can say that one significant part of the forest belongs to non-resident people, who certainly also have interests, opinions and attitudes towards forestry. Therefore, in our opinion, a forest development policy could not take place without paying attention to the values and interests of these owners. On the other hand, since they are not living in the region, they will be, perhaps, even more interested in a forest landowners' organisation which would represent them and defend their rights.

Given the above, this study would be at fault if we did not include in it the opinion, perceptions, and attitudes of the non-resident forest landowners. As the information collected from the non-residents is similar to that collected from the NPFLs residents in the Pinhal Sul region, presented in the previous chapter, in order to avoid repetition about some common aspects approached, the following data presentation and its discussion, will be briefer.

8.1 Methodological aspects

To achieve a representative sample of the non-resident NPFLs was not an easy task, mainly because we do not know how many they are, who they are and where they are living. Therefore we adopted a strategy in order to get as representative information as possible. We used a mail questionnaire, which, as described in Chapter Four, was developed according to the methodological advice from the literature and also according to our knowledge of the region. Given the type of target population and the methodology chosen, the response rate, which was around 19 per cent, can be easily accepted. So, from the 250 questionnaires sent out, 53 were returned, but some of them did not fulfil our criteria and were subsequently rejected. In the end we accepted 45 questionnaires as a representation of the possible sample of non-resident NPFLs. All the information presented and discussed in the following section derives from these questionnaires.

8.2 Social description of the respondents

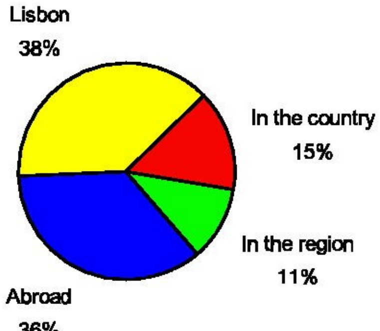
One disadvantage or bias of using mail questionnaires is the fact that we can only reach individuals skilled enough to fill in the questionnaire. As we can see in Table 8.1, there are no illiterate individuals among the respondents. On the other hand, there is a higher percentage of individuals with education at secondary level or even at a university level than in the sample of the NPFLs residents in the region. However, we think that this sample would be a suitable description of the education level of the non-residents, because most of the people who left the region usually have had a higher level of education, and others have achieved such a level after leaving the region.

Table 8.1 NPFLs' description by age and education level (%)

	Education level			
Age	Primary school	Secondary school	University	Total
Less than 35 years old	4	11	11	26
> 35 and < 65 years old	36	20	14	70
Older than 65 years old	0	4	0	4
Total	**40**	**35**	**25**	**100**

After receiving the questionnaire it was possible to define four groups of respondents according to their present place of residence: those who are living in the capital (Lisbon) or in its suburbs; those living in the district around the study region; another group including the individuals living in the remainder part of the country and finally one group of emigrants The representation of each group presented in the Figure 8.1, shows that most of the data came from the emigrants and from Lisbon residents.

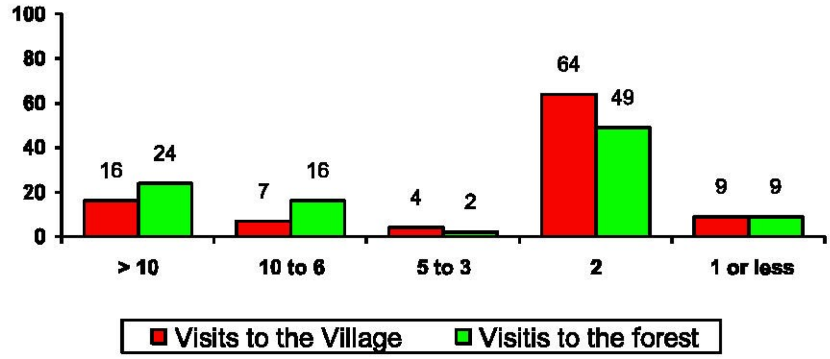
Figure 8.1 Locality of residence of the respondents



Although we were sure that the distance between the place of residence and the parish where they have their plots would not be the only reason to influence the frequency of their visits to the region, it was the only way we found to catch this aspect, and conclude, as was expected, that the individuals who are living closer are the ones who visit their parish more often. About 73 per cent of respondents usually visit their parish once or twice per year, and only about 23 per cent visit it more than five times per year. To visit the parish does not mean to visit the forest. As Figure 8.2 shows there are individuals who only come twice a year but sometimes they do not visit their properties. Only the individuals coming more often visited their forest regularly. Hence, we can conclude that the interest in the forest remains with the non-resident landowners, and mainly with the ones living near the region. However, to discuss these results we should be aware that to visit or not visit the forest is always a subjective criterion, since the landowners could be interested in the forest, and could have started taking care of it through a second entity to whom they have given representative powers.

The fact of having an agent (proxy) is a good indicator about the interest shown towards the forest by both landowners and farmers who accepted to be responsible for the forest management of the non-residents' property. Such a situation was referred to by 38 per cent of respondents with a proxy. This means having an agreement with someone who takes care of the forest on behalf of the landowner. Most of these agreements are not formal, only 7 per cent of the respondents referred to having formal contracts (Appendix 8.1, Table 1).

Figure 8.2 Frequency of visits of the NPFLs to their village and to their forest property (No times per year) (%)



In terms of characteristics, the forest owned by the non-residents has more or less the same structure as that of the other owners (Table 8.2) - usually small areas divided into several plots. However, 29 per cent of the holdings are larger than ten hectares, a very good property related to the average size of the region.

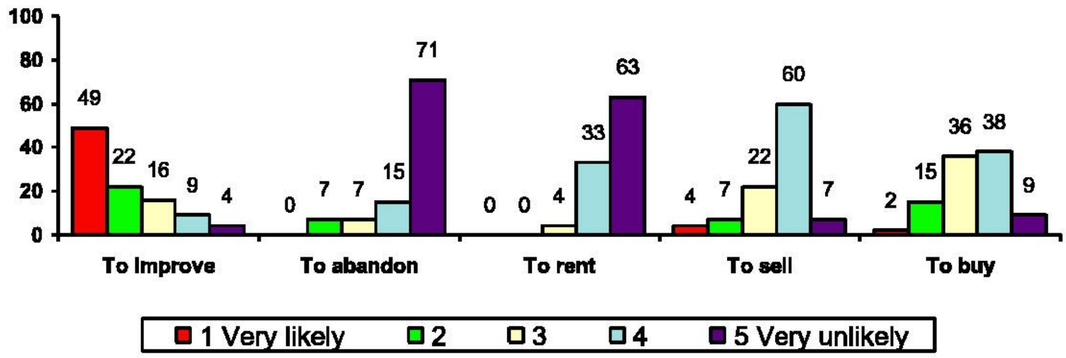
Table 8.2 Forest area owned by the respondents

Classes of area	Resp	(%)
Less than 2 ha	6	13
2 - 5 ha	17	38
5 - 10 ha	9	20
10 - 20 ha	4	9
20 - 50 ha	5	11
More than 50 ha	4	9

These landowners, like the others, do not have a tradition of belonging to farmers' organisations. Only 9 per cent stated that they were members of organisations, mainly co-operatives, but not related to forestry or agricultural activities. Their participation in forestry is based on their forest managers (proxies), and in addition about 24 referred to having implemented forestry projects. Such projects were mainly group projects (83%); only 17 per cent were individual projects (Appendix 8.1, Table 2, 3 and 4). Such projects were mainly related to the FAP programme, and cleaning actions supported through the Reg. CEE 2080/92. This means that these individuals had no problems in getting together in order to seek their interests, and also that property division is a problem which can be overcome, at least in some cases.

An image of the NPFLs' intentions towards forest for the future is given in the Figure 8.3. In brief, we can say that it represents the NPFLs' desire to stay as landowners and, if possible, to become bigger and better. From the figure we can discuss two main points: the landowners' interests in their forest, its use and management, and their interest in land tenure. Regarding the former issue it seems clear that they expect to improve the forest management and refuse the idea of abandoning their holdings. However we have no information about how far they are able to carry out such intentions. In our opinion, behind this must be an expectation of EU or government funding or some other kind of support. To rent the properties is not a tradition in the region and it does not seem likely that it will become an issue in the future. Regarding the second aspect, the forest tenure, if there should be any change this would have to do with increasing the forest property's area.

Figure 8.3 NPFLs' intentions towards their forest's future (%)



8.3 NPFLs' attitudes towards association

To measure the non-residents' attitude we have used the same Likert sixteen items scale, and despite the fact of the scale having been presented to the respondents through a mail questionnaire, and the number of respondents being lower than in the case of the residents' questionnaire, the reliability's coefficient was acceptable, even a little higher (Appendix 4). In order to undertake an analysis of the scores regarding the sixteen statements of the attitude scale, it was grouped into five levels (Appendix 8.2), from 1 the very positive, to 5 the very negative attitudes). As Table 8.3 shows, in general all statements achieved a positive or even a very positive level. Similarly to the study of the resident NPFLs, the positive statements achieved higher scores.

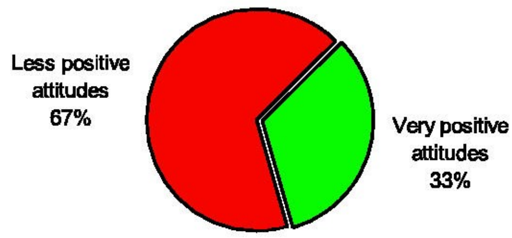
Table 8.3 Results and scores of sixteen statements of the attitude scale

Statements	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Total	Attitude level
The NPFLs would solve their problems better if they become organised	53	38	7	0	2	72	1
The NPFLs' voice would be stronger if they become organised	56	35	7	0	2	71	1
An NPFLs organisation would fail in a short period of time after its creation	31	42	20	2	4	93	2
Each NPFLs should solve his problems by himself	22	49	24	2	2	96	2
The owner who becomes associated would lose the control of the ownership rights	24	51	18	4	2	94	2
Some plots would be profitable to work only if they were joined in a large plot	29	44	13	9	4	97	2
Cutting trees is a task that would not be done by NPFLs in a group	13	44	31	9	2	109	2
The forest cleaning should be organised among all NPFLs in a group	42	51	2	4	0	76	1
Fire surveillance should be done by all NPFLs in a group	38	51	7	2	2	81	1
Each landowner should make fire surveillance only in his own plots	31	53	9	4	2	87	2
The plots of your neighbours which are not cleaned constitute a problem only to them	27	62	7	4	0	85	2
The NPFLs would arrange better prices trading in groups	29	49	13	4	4	93	2
Trading in groups would be very difficult to control	11	42	24	20	2	117	2
One organisation would be better informed about possible sources of state support	40	53	4	2	0	76	1
For the state it would be easier to help the NPFLs if they were organised	31	53	13	0	2	85	2
Supporting the NPFLs individually would be the best way for the state to help them	22	29	33	13	2	110	2

(1 - strong agreement, 2 - agreement, 3 - not agree and not disagree, 4 - disagreement, 5 - strong disagreement).

Concerning the score's distribution per individual, we have proceeded in the same way as in the previous study; by the scores in attitude scale, forest landowners were grouped into five levels (Appendix 8.3), from 1 the very positive to 5 the very negative attitudes. But, in this case, due to the smaller representation of levels three and four, we had to associate them into level two. Then, as a result of this association, we have only two groups of NPFLs according to their attitudes towards organisations: the first group including the individuals with the very positive attitudes, and a second group including the individuals also with positive attitudes but at a lower level. We will allude to the former individuals as the ones with less positive attitudes (Figure 8.4). Since almost all the respondents have positive attitudes and 33 per cent of them at a very high level, we tend to say that these individuals give an encouraging picture of the hypothetical creation of an association in the region.

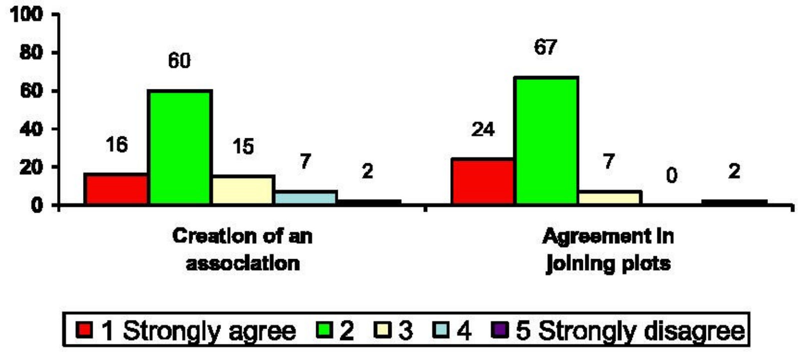
Figure 8.4 NPFLs' attitude towards association



As in the study about the resident NPFLs, we proceeded to a cross analysis between the attitude level and other variables. However, the results were not significant, maybe because of the small number of respondents. Hence, we think that it is better, for the explanation of the non-residents' views, to follow a descriptive analysis according to the percentages obtained in each variable.

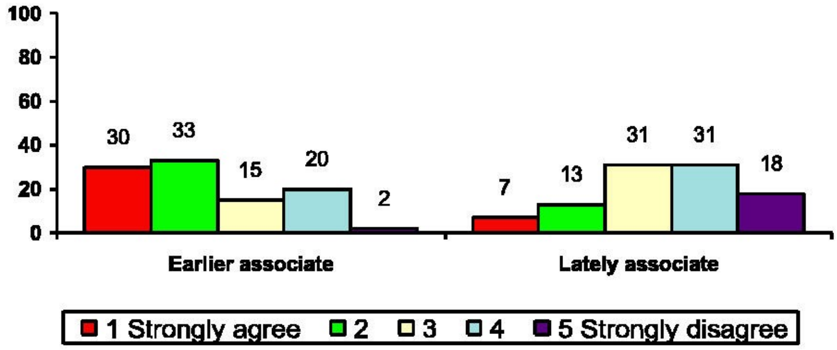
Only one quarter of the respondents did not express their agreement with the creation of an association in the region. Nevertheless, this does not means that they are not receptive to collective actions in forestry, since almost of all (91%) referred to agree with joining their plots with their neighbours (Figure 8.5). This figure also allows us to compare the distribution of the agreement about the creation of an association in the region with the intention to join together the forest plots in order to manage them together. As we can see, they seem to be the same. This would be an indication that most of the respondents link the idea of creating an association with that of joint management. More than this, it also an the idea of the predisposition of these forest landowners to become involved in common forestry projects with their neighbours.

Figure 8.5 NPFLs' attitudes towards the creation of an association and towards joining forest plots (%)



About 63 per cent of the respondents stated that they were willing to become members of an association, and one half of them were most sure about this question (Figure 8.6). Part of the NPFLs who were not predisposed towards being associated or at least were not sure about it, stated that they were interested, and maybe later, after seeing the association already created and working well, they would probably be interested in becoming members. However, the most interesting information for our study is that, as this data shows, an important number of the landowners would be willing to associate themselves early in the process, becoming the earlier adopters of the association process.

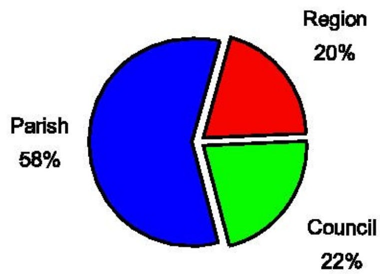
Figure 8.6 NPFLs' disposition towards being associated (%)



8.4 Type of organisation suggested by the NPFLs

In organisation studies particular attention is usually paid to issues related to the criteria used in selection of members, and the area under the organisations' influence - the social dimension of the organisation. Thus, we have asked forest landowners about these two main organisation's characteristics. Throughout the answers, we realise that non-resident NPFLs are a little more receptive than the residents to an extended social dimension for the association, as they perceive it. But in any case, the majority of them preferred an association at parish level (Figure 8.7).

Figure 8.7 Social dimension suggested by the NPFLs for the association to be created



Regarding the type of members, non-resident NPFLs prefer open membership (Table 8.4). However, the number of those who do prefer an organisation exclusively constituted by forest land owners is quite significant, about one quarter. A similar differential was found between the variables "type of organisation", "way of starting the organisation", and "agreement about the intermunicipality". This means that about two thirds of the NPFLs have in mind a forestry organisation that should start working in one specific forestry activity, and gradually develop in all forestry activities, eventually reaching a regional level.

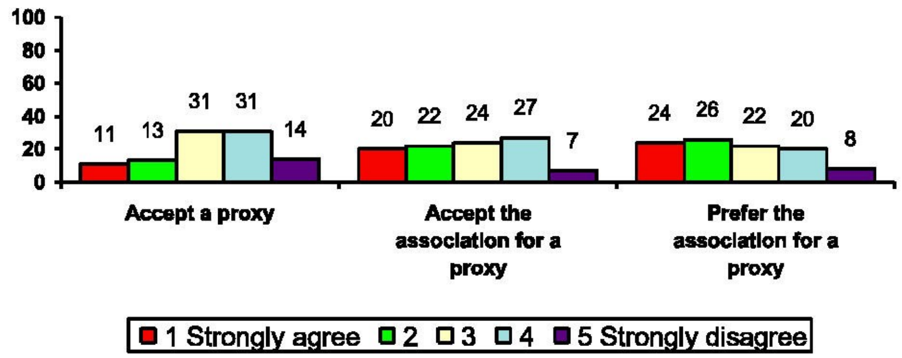
Table 8.4 Forest landowners' attitudes and aspects related to the creation of an association (%)

	Total
Kind of members	
Only forest landowners	26.7
Anyone with interest on forestry	73.3
Type of organisation	
Only one forestry activity	15.6
All forestry activities	71.1
Application & management of subsidies	13.3
Way of starting	
At once	35.5
Gradually	64.5
Agreement with intermunicipality	
Agreement	66.7
Uncertain	11.1
Disagreement	22.2

Following the previous discussion about resorting to a proxy for representing the forest landowners' interest and for taking care of the forest management, we faced the landowners with the hypothesis of using an organisation to represent them. The level of acceptance of such a hypothesis is double the acceptance level of the idea of having a proxy (Figure 8.8). This means that there is a clear preference for the association as a proxy and that such preference can be understood as an indicator that in fact the NPFLs perhaps would trust an association more than a single individual to be proxy. Therefore, it could be concluded that the lack of an association is contributing to the abandonment of the forests on the part of owners who are living far from it. In other words, we can say that data shows us that such abandonment could be partially avoided through the implementation of credible associations.

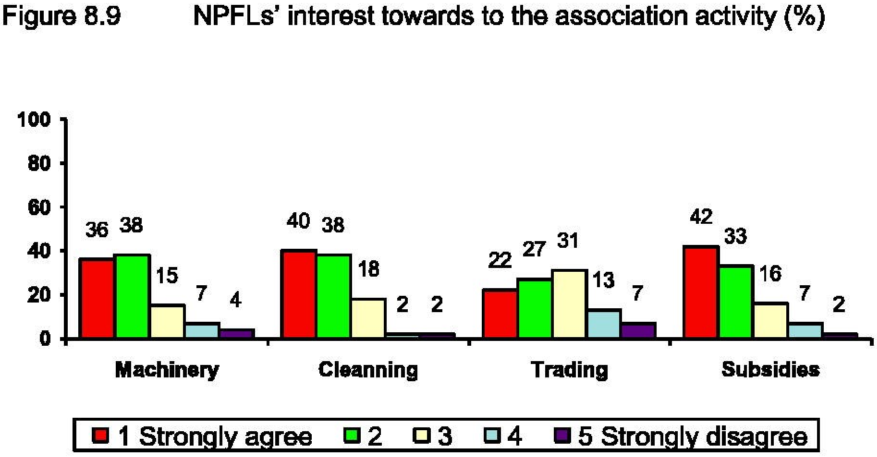
The reason why some landowners do not have a proxy at the moment, is due to the lack of people interested in taking care of others' people's forests. This also could explain the abandonment of some properties. Given this, one of the forest organisation's tasks should be to become proxy of the owners in all aspects related to forest activity. To enhance this idea we can see in the figure that 49 per cent of the landowners prefer having the association as proxy more than having any other individuals as such. This means that they do not only agree with an association but they also expect to use it as their official representative.

Figure 8.8 Probability of NPFLs accepting a proxy (%)



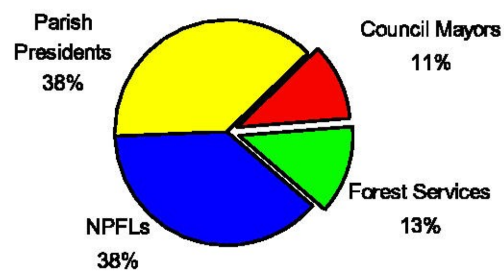
In order to clarify the NPFLs' perception about the objectives of the organisation they have in mind, we asked them about the forestry activities that they would like to see undertaken by the association. The general idea which emerges from the data (Figure 8.9) is that they are interested in all activities which can contribute to the improvement of their forest. But, the commercialisation of the forest products under the association rules or control, does not seem to be an acceptable measure at least for half of them. This brings us to the discussion of the problem of the forest landowners' mentality, who have usually agreed with everything they see as an improvement for their property. The commercialisation of the forest's products constitutes a personal affair which in general they would not let go. Commercialisation appears as a personal activity.

Figure 8.9 NPFLs' interest towards to the association activity (%)



Regarding the decision-making process, in their opinion everybody should participate in all the decisions. Only about 22 per cent of the NPFLs think that everyone should have the right to get individual treatment and participate only in the decisions related to their specific problems. Regarding participation in decision making, we found that 62 per cent of the NPFLs agrees with one vote per member and the others (38%) agreed with a voting system based on a landowners' property area (Appendix 8.1, Table 5 and 6).
The responsibility for taking the initiative is basically attributed to both the NPFLs and the parish president (Figure 8.10). A global analysis of the data shows to what extent the landowners recognise the local authorities as responsible for the process of starting an association. From this, it is reasonable to infer that they are attributing to them some responsibility by the actual situation.

Figure 8.10 NPFLs' opinion about the entity that should take the initiative to create an association



One interesting point of this analysis is to realise that the percentage of respondents agreeing with the participation of the parish as the organisation leader (49%) is higher than the percentage attributing to them the duty of taking the initiative (Table 8.5). This means that they recognise the president of the parish more as an operational actor of the people's wishes, and that it would be the NPFLs interested in the association who could legitimate the parish president's actions in the process of starting the organisation. Even if most of them recognise the state's participation in the process of creating an organisation and agree with the idea of state support, only 58 per cent think that the state could intervene in the decision making process. These last individuals are agreed that in these case of state participation, the state should have some authority.

Table 8.5 NPFLs' opinions about the role of other entities in the association (%)

Variables	Total
Parish leadership	
Agreement	49
Neutral	27
Disagreement	24
State authority	
Agreement	58
Neutral	22
Disagreement	20
Agreement with intermunicipality	
Agreement	58
Uncertain	27
Disagreement	15
Support the organisation's expenses	
Agreement	74
Neutral	13
Disagreement	13
Payment of a quota	
Agreement	62
Uncertain	20
Disagreement	18

Finally, the last concept that we used to understand the NPFLs' perception and disposition to become a member of an association has to do with the financial support of the organisation's expenses and also the expenses related to the services provided by the association. The general conclusion as shown in Table 8.5, is that in general the NPFLs are more interested in paying a quota than in paying expenses through retaining a certain amount of the farmers' income from their forest activity.

8.5 Summary

The main characteristic of the non-residents, as is implicit, is that these NPFLs live far from their properties, and do not tend them. In the previous sections of this chapter we have referred to the frequency of NPFLs' visits to their forest. But, before any further considerations, it is important to realise that such a indicator was only meant to approach the NPFLs' interest in their forest. Therefore, visiting the forest does not mean tending it. With this in mind we found that the NPFLs who are living in the country and visit their parishes more often are the ones that show a higher interest in forestry. There are only a few NPFLs who do visit their parish without visiting their forests. Distance was not a constraint for landowners involved in forestry projects, although we know that many of such landowners have assumed a passive role in the projects' application and implementation. As most of these projects were implemented under the leadership of the parish council, it leads us to think that the non-resident NPFLs would see it as a good option to deal with their forest's management under a collective form.

The use of the proxy is one way that allows non-resident NPFLs to guarantee their forest management. However, the lack of available people interested in taking care of forest plots belonging to others, appears to be the main problem for those interested in such a kind of agreement. From this emerges the role that could be played by a forest landowners organisation. Such an organisation can be a privileged actor undertaking the role of any proxy. Moreover, as the data has shown, sometimes landowners would prefer an association to any individual.

This willingness to delegate the management functions and the expressed interest of the landowners in keeping their forest lands, together with their intention to improve the forest quality, pushes those responsible for the forestry sector to design forest development policies which take these perspectives into account. This means that the abandonment of land would never be a solution, In the same way we would not expect solution to come from renting the plots. So, with these two aspects out of the question, the potential solutions will depend upon the implementation of actions allowing the participation of the non-resident NPFLs. The positive attitude they present towards the association, and the high agreement they show with the importance of the creation of a forest landowners' organisation, appear as two strong indicators that lead us to face the hypothesis of creating an association as the most plausible solution.

The position of the non-resident NPFLs regarding the characteristics of the organisation they expect to see implemented is as follows: agreement with an organisation that accepts all people interested in forestry development as members, and that at the same time aims to deal with all forestry activities at a parish level. Forest cleaning activities as well as forest projects seem to be the most desired activities to be developed by the association. The only activity that has not a clear standing is the commercialisation of forest products. Regarding this activity forest landowners hold some reservations. But as far as we can see, this attitude is due more to a lack of information about undertaking commercialisation under a common action than to anything else. Despite the tendency to prefer a parish level organisation, we could perceive some willingness to go a little further, and perhaps a council level would not be refused.

The dependency of the creation of the association on state intervention seems to be clear to the respondents since they believe that state support would be indispensable to develop the process. Furthermore, they share with the parish presidents the responsibility for taking the initiative. Although we have not asked them about their disposition to participate in the process, we suspect that they, in general, reserve this role to the local authorities. In what regards their participation in supporting the expenses of the association, the quota system is preferred.

9 THE VIEWS OF OTHER ACTORS TOWARDS THE ISSUES OF FORESTRY ORGANISATION

In the Portuguese rural areas the local authority is centred in the parish president (Presidente da Junta de Freguesia), elected every four years. In general, the president of the parish is an individual who knows the region, the people and their problems very well, at the same time has got the confidence and capacity recognised by the inhabitants in order to represent them in the council assembly, and to manage the local affairs. Like almost all inhabitants of the region, the presidents of the parishes are also forest landowners themselves, thus, they face the same problems and the same urgency to solve the forests' problems. Their experience in dealing with groups and individuals, and their knowledge of behavioural patterns of the population allow them to make inferences and to sustain opinions which are relevant to the issues that we are studying. In addition, we have often seen the involvement of the parishes' president in farmers' and forest organisations. Although, such involvement has never been studied, we know by experience and as a result of our research, that in most cases the president has participated in the process of creating such an organisation. Given this, we therefore expect that the opinion of the parishes' presidents would play a fundamental role in the discussion and definition of a strategy for forest landowners' organisations in the region.

9.1 Some methodological aspects

The following information is the result of the data collected through a mail questionnaire. This questionnaire, developed according to the guidelines outlined in the chapter about methodology and methodological instruments, was sent by mail to all parish presidents of the Pinhal Sul region, that means a total of 43 questionnaires. The response rate was 86 per cent, and since all questionnaires answered were fully completed (none was refused), the information is based upon the opinion of the 37 parish presidents who responded to the questionnaire. Table 9.1 shows the distribution of the response by councils; the only additional comment that could be made lies with the non-responses, and it we did not find any link to any of the councils in particular.

Table 9.1 Council to which the parishes who answered the questionnaire belong to

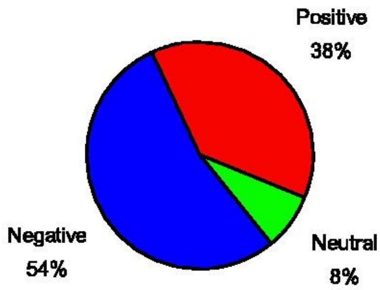
	Parishes' President answer	
Councils	**(Resp)**	**(%)**
Mação	6	16
Oleiros	10	27
Proença a Nova	8	22
Sertã	9	24
Vila de Rei	4	11
Total	**37**	**100**

9.2 Parish presidents' experience in forestry and forest projects

As we stated in the brief introduction to this chapter, we expected almost all of the parish presidents (PP) to be landowners as well. However, we also know that in Pinhal Sul, as in other regions of the country, the Parishes have themselves holdings which include agricultural and forest lands. In this particular case, about 28 per cent of the parishes who answered the questionnaire have forest property (Appendix 9.1, Table 1). Thus they constitute a particular case of forest ownership and they would have a direct empirical point of view towards the forest problems examined in this study.

In the past, but mainly after Portugal joined the EEC, the forest programmes, implemented through both individual and group projects have been frequent all over the country. Some parishes have been involved in these projects either as forest owners or as project promoters where groups were involved. Parishes also collaborate in the development of forest programmes undertaken by the council authority. In a global way, the participation of the parishes in forest development has offered them an experience that should be very useful for their future potential intervention. In the Pinhal Sul region about 36 percent of the parish presidents have experience in implementing forestry projects, almost of all of them (92%) carried under the parish's initiative (Appendix 9.1, Table 2). Only in one case did the parish participate in the project's implementation because the farmers, who took the initiative, asked for help. The fact that such projects were mainly group projects enhances the experience of the president in dealing with people with different interests and different problems but all interested in a common objective. We believe that this kind of experience should be an indicator of the interest of presidents in continuing to work in this field. Thus, as we can see in Figure 9.1, about one third of these experiences were considered positive. The number who hold a neutral opinion about the value of the experiences, leads us to think that there were some aspects that did not work as expected, but were not bad enough to provoke a negative position. Hence, we also suggest the conclusion that those presidents would be willing to undertake new experiences if some of these negative aspects were improved or avoided.

Figure 9.1 Evaluation of the parish presidents' experience in dealing with group forestry projects



Therefore, and according to the reasons for the evaluations conducted by the PP, we should be aware of the need to pay attention to the main difficulties faced by the PP in dealing with forestry projects, now and particularly before the implementation of future programmes. Solutions and actions to mitigate constraints such as bureaucracy, difficulty in gathering and filling all required documents, distrust among forest landowners, individualism, lack of interest, diversity of opinions and the fear of being cheated should be included in the programme.

9.3 Parish presidents' attitude towards association

To measure the presidents' attitude towards association we have used a different Likert scale from the one used with the forest landowners. Two main reasons underlie this decision: first of all, we were interested in using statements prompting the respondents to answer as president of a parish rather than as a common forest landowner; secondly, our objective was not to compare the attitude between forest landowners and presidents, but to try to identify the links between parish presidents' attitude and the other variables in study. As in the previous scales, the analysis of the statements' scores indicate that the PP had answered more frequently in the second scale point (2 agree), and as a result the computed attitude level never reached the highest level. From Table 9.2 we can extract two of the PP's opinions: the first is that they feel prepared and able to help the NPFLs in the process of creating an organisation; the second one, which is grounded in the two statements that reached the attitude level 3, concerns the doubt that the PP feels towards the creation of an organisation or its hypothesis of survival (Appendix 9.2).

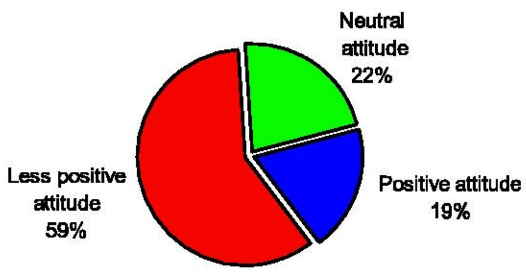
Table 9.2 Results from the attitude scale regarding the Parishes' presidents attitudes towards organisations (%)

Statements	1 (%)	2(%)	3(%)	4(%)	5(%)	Attitude level
Forest development is dependent on the forest landowners becoming organised	16	76	5	3	0	2
The forest landowners will never become organised in the future	13	35	35	5	10	3
The parish is the best local authority to help the forest land owners become organised	32	51	11	3	3	2
The parish would never be concerned with problems of the private forest	19	60	8	11	3	2
The parish would be very well seen by the citizens if it takes the initiative to create a forest landowners organisation	11	62	16	11	0	2
Even in the case of the parish create an organisation the forest landowners would never be interested in becoming members of it	0	49	38	11	2	3
The parish does not help the forest land owners to become organised because its staff would not known how to do it.	3	52	13	30	3	4
The parish, due to its knowledge about the people and about the region, should be principal actors in the process of forest landowners organisation	22	57	16	5	0	2

(1 - strong agreement, 2 - agreement, 3 - not agree and not disagree, 4 - disagreement, 5 - strong disagreement).

Computing the attitude score by individual through the calculation formula used in the former analysis (Appendix 9.3), we realise that the PP's attitudes towards organisation lay in the positive and neutral levels as Figure 9.2 shows.

Figure 9.2 Parish's presidents attitude towards association



Furthermore, we have undertaken two cross analyses between attitude towards organisation and the other variables. The first was done before any association of the variable attitude, and the second was done after an association of PP's attitude into two groups. Given this, we have proceeded with a cross analysis, in order to find out how far the other variables were related with the attitude level. However, the general results from such an analyses were not so significant to give us the idea that the answers were significantly related with individual characteristic of the president. Hence, we will only sporadically refer the significant cases, but the remaining analysis will be a descriptive point based on the frequency of the PP's answers.

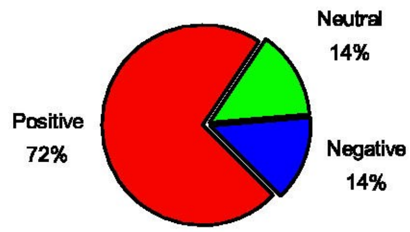
In order to provide one image about how familiar the idea of association is among the local authorities, we included in the questionnaire some questions about the creation of a forest association (results presented in Table 9.3). A broad analysis of the table leads to the conclusion that a little more than one third of the presidents have been thinking and talking about the possibility of creating an association, and that, at least, the lack of leaders would not be a problem in most of the cases. Most of the PPs who present positive attitudes have already been thinking about the possibility of creating an association ($p = 0.0164$, Appendix 9.4, Table 1).

Table 9.3 Parish presidents' actions related to the idea of creating an association

Actions developed	Resp	(%)	p <0.05
Parishes that have already thought about creating an association	14	38	0.0164
Parishes that have felt interests from other parishes in becoming associated	11	30	ns
Parishes that have felt interests from their council to become associated	16	43	ns
Parishes that would easily find leaders for a process of creating an association	31	83	ns
Parishes that prefer to create an association instead of accepting one already created	17	46	ns

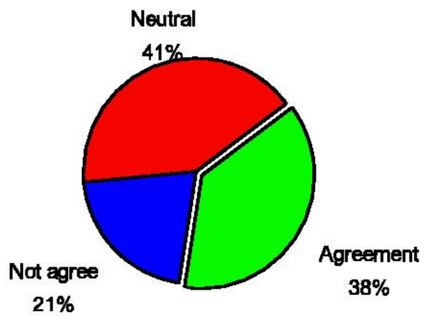
Another important indication can be taken from Table 9.3 in regard to the last statement: given such a percentage of PPs who would prefer to create their own association instead of accepting one already created, we think that we can expect such a preference to work as a motivation factor to increase the presidents' participation in any such attempt. To confirm, or increase, such expectancy, the Figure 9.3 shows a high percentage (72%) of presidents willing to participate in the process of creating an association. Only 14 per cent said that they would not be available to get involved in such a process. Moreover, we found a significant relation between the parishes without forest holdings and the unavailability of their presidents for leadership of the association (p = 0.0167, Appendix 9.4, Table 2). Even so, there are some presidents available to assume a leader role, even if they do not own any forest holdings.

Figure 9.3 Parish presidents' disposition to participate in the process of creating an association



According to the idea that about two thirds of the PPs are motivated to accept the challenge of being involved in the process of creating an organisation, the next figure adds more information about how they are willing to participate. The most relevant fact is that about one half of the PP available to participate are willing to accept a leading role in such process. The 21 per cent of them who would not agree to assume a leading role, are more or less the same people not willing to participate in the process (Figure 9.4). The fact that 41 per cent presents a neutral position does not mean that they are definitely unavailable to assume leadership of the process. Such a situation will, in most cases, depend on several factors other than the intention or the disposition of the parish presidents.

Figure 9.4 Parish presidents' disposition to assume the leadership in the process of creating an association (%)



9.4 Opinion about the type of forest organisation the parish presidents perceive as ideal for the region

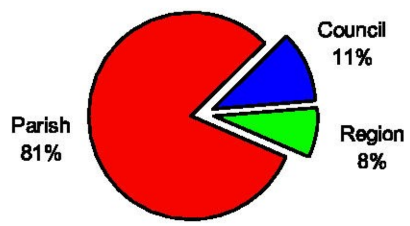
Until now we can state that almost all presidents recognise the utility of a forest landowners' association, and although some of them are not interested in getting involved they have an opinion about the type of organisation that they think would fulfil the forest landowners' interests. Thus, in their opinion, the organisation to be created should encompass all forestry activities (Table 9.4). Hence, for the parish presidents a different kind of organisation seems to be out of question. However, the second more expressive value (19%) regarding an organisation aiming at machinery management, should be used as an indicator of a need that may become an objective if any potential organisation is to be created.

Table 9.4 Type of activities the parish presidents think as important to be developed by the association

Activities	Resp	(%)
All forestry activities	25	68
Machinery management	7	19
Projects' application	3	8
Only one forest activity	2	5
Total	**37**	**100**

Regarding the type of individuals who would be accepted as members of the organisation, the majority (58%) supports the idea that it should admit only forest landowners, and 42 per cent are agreed that all people with an interest in forestry could be admitted as members (Appendix 9.1 Table 3). This division of the opinion raises the idea that forest landowners could be seen as a class, having their own particular interests to solve. The membership of people with interests others than their own would not help them to defend their specific interests as forest landowners. As in the former discussed aspect, the social dimension of the organisation also constitutes an indicator about how far the different interests are likely to be developed by the organisation, and in regarding this point, the presidents have a very clear idea that the association should be run at a parish level (Figure 9.5).

Figure 9.5 Opinion about the preferred social dimension of the future association

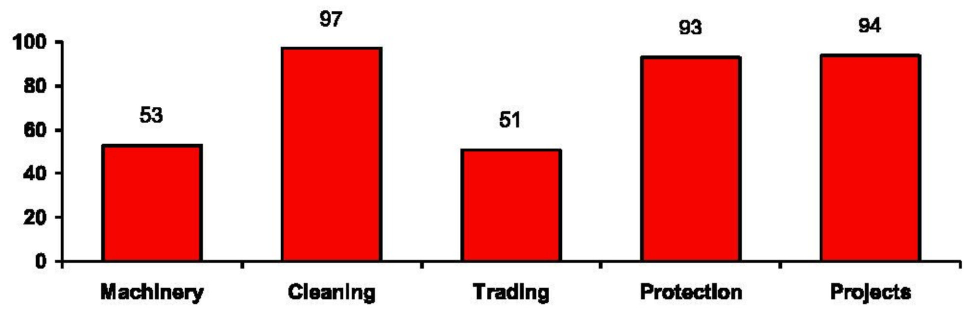


9.5 The parish presidents and the process of creating a forest organisation

Through this section of the chapter we will try to approach the way of starting the process of creating an organisation, to look to some aspects which could act as promoters or as constraints. It also includes a discussion of the state's involvement.
Facing the possibility of choosing to start an organisation meant to deal with all forestry activities or with only one specific forest activity first under a perspective of gradual

evolution, the majority (69%) of the PP holds the opinion that it would be preferable to start the association with only one activity and wait for a gradual evolution (Appendix 9.1 Table 4). Although they were not asked about an activity which could be used to start the organisation, some of the PPs conveyed the idea that cleaning the forest could increase the probability for forest landowners to become organised. Of course such a view was not systematic in all questionnaires, but as they were asked to identify a potential interest which would lead forest landowners to become members, the results presented in Figure 9.6, show that forest protection or the implementation of forest projects would also be good activities with which to start the organisation.

Figure 9.6 Interests which would make the NPFLs interested in becoming associated



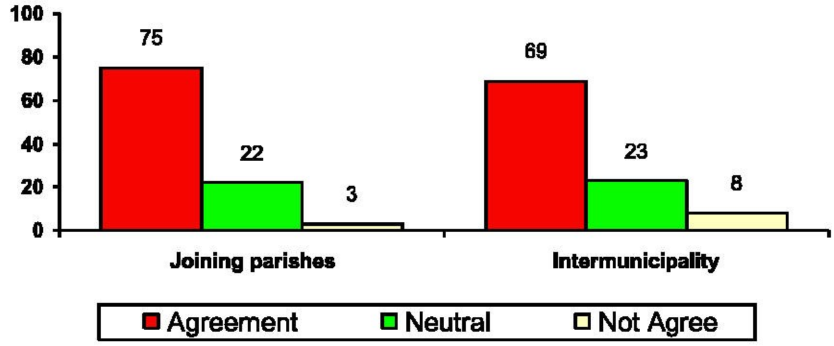
With a very close relation to the above discussed question, the following, represented in the Table 9.5, clarify about the potential objectives for the organisation. Since the majority of the PPs stated that in their opinion such an organisation would have to be related with all forest activities, the information gathered on the table and the previous figure together allow us to design an hypothetical scenario around eventual forest cleaning and protection projects involving financial support to facilitate and carry on the activities. Activities such as machinery management and the commercialisation of forest products do not seem as important as some literature usually states as a reason to promote the forest landowners organisation.

Table 9.5 Main activities to be developed by the association

Activities	(%)
To support forest protection	75
To apply and manage subsidies	64
To represent and defend the NPFLs' rights	61
To support forest activities	53
New techniques and new species	33
To support commercialisation	33
To provide services	27
To make available and to manage machinery	19

Usually farmers' organisations belong to a higher level organisation, which can be developed before or at same time as the local farmer's organisation; thus, the importance of understanding the PPs perception of the evolution of the forestry organisation process in the region. As already discussed, the social dimension preferred by the majority of the PPs was the parish level. However, they have in mind that an organisation at a parish level will have to deal with major difficulties while following its purpose. Then, the question is to learn their attitude towards the articulation of interests among the different parishes of the region. Figure 9.7 shows that the PPs, in general, do agree with joining parishes in the same council. But towards those aims at the next higher level - intermunicipality (joining councils) the scenario is slightly different, even if 64 per cent of PPs agree with it.

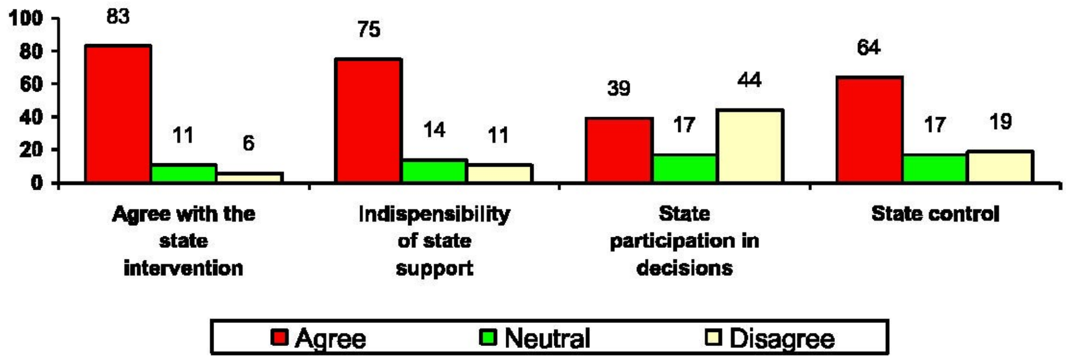
Figure 9.7 Opinion of the parish presidents about the organisational process' evolution (%)



About one half of those who do not agree with intermunicipality, stated that they would eventually agree with it only if their parishes were to be represented. Following this view, the importance or need for the parish to be represented in an intermunicipal approach seems to be held by almost all parish's presidents. Hence, it appears that intermunicipality can only be pursued if there is some kind of participation of the parish.

As already stated in other chapters of this thesis, Pinhal Sul is a private forest region, but this does not mean that state intervention in the area is not expected. On the contrary, according to the last and present European forest development programmes and to the recognised importance, increasing with time, of forest-based activities, state intervention appears indispensable, not only in providing support to private forest owners but also in an attempt to reach harmonisation of interests regarding the forests. The PP have expressed similar opinions, 83 per cent of them agreeing with state intervention in order to promote and support a forest landowners' organisation (Figure 9.8). Furthermore, about 75 per cent think that without such support an organisation of forest landowners would not be possible. This data makes clear the recognised and claimed indispensability of state intervention in this region.

Figure 9.8 State intervention in the process of creating a forestry association: respondents opinion (%)



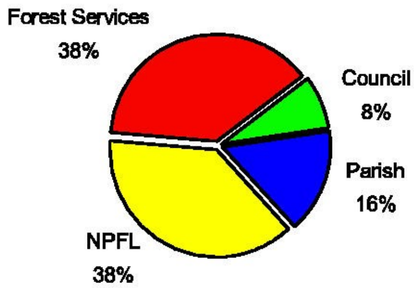
Given the emphasis on and the amount of money usually involved in forestry projects for private forest, it seemed fair to ask the PPs about the state's participation in the organisation's decision-making. As a conclusion, still according to the above figure, it seems that in the PP's opinion the state should be a passive intervenier in the process, whose recognised right is that of controlling their participation. Even so, the percentage of PPs agreeing with the state's authority, if it supports the organisation (39%), is very significant. One interpretation has to do with the idea that if the state is giving money it should have the right to set the guidelines of how to spend such money. However, the support desired by the PP from the state is not exclusively about money. As Table 9.6 shows, even if with very close percentages, other kinds of support are also desired, and education appears to be the support more often stated as the most important. Such data lead us to think that the PP interested and willing to participate in the process expect that some of the constraints they faced in their previous experiences would be minimised through education and information of forest landowners. Thus, even if money is not all, their opinion may also be based on their previous experience with forest projects.

Table 9.6 Relative importance of the three kinds of support expected from the state

Kind of support	(%)
To support teaching about how to become organised	63
Financial support for the organisation's activities	61
To point and explain the advantages of the organisation	59

Sometimes the reason given for the lack of associations has to do with a lack of initiative: all entities are waiting for someone to start, and each entity attributes the responsibility of starting to others, holding ideas such us "we do not mind in collaborate, but it is not my duty to start the process". This situation leads to an impasse of initiative and, if there is no one to take the initiative, nothing will be done. In this particular case (Figure 9.9) the PP divided their opinion between forest services and the forest landowners. Only 16 per cent accepts such responsibility. So, it seems clear that the PPs agree that local authorities have no obligation to start the process. In other words, they are the ones waiting for the first step to come from either the forest services or the landowners, only then will they be available to collaborate. Figure 9.10 shows that about 72 per cent of the PPs are in such a situation. In addition, more than one half of the PPs available to collaborate are available to assume leadership positions.

Figure 9.9 Parish presidents opinion as to who should take the initiative for creating an association



The PPs with less positive attitude towards organisation have a dichotomised opinion about who should take the initiative. For them such an initiative should be undertaken by either the government forest services or the forest landowners themselves in about the same proportion ($p = 0.0256$, Appendix 9.3, Table 3). On the other hand, almost all of those assuming the responsibility for undertaking the initiative have very positive attitudes.

Besides the problem of lack of initiative there are other reasons recognised by the PPs as constraints to a forest landowners' organisation. In Table 9.7, we present a list of such constraints, the likelihood of them been seen as such and the importance that the PP recognise to them. Thus, according to the relative importance of each constraint, it is possible to see that the factors linked to forest landowners are the ones referred to as being the less important ones. Once more the role of the state and the problem of initiative was highlighted, since about 65 per cent of the respondents saw the lack of state support as being the main constraint. This distribution shows that, in the PP's opinion, problems related to forest landowners personality are secondary problems, and that it is possible to deal with them. Hence, we can conclude that according to the PP the lack of forest landowners' organisation is not only a failure of the landowners themselves.

Table 9.7 Parish presidents' opinion about the main reasons for the lack of organisations in the region and its level of importance

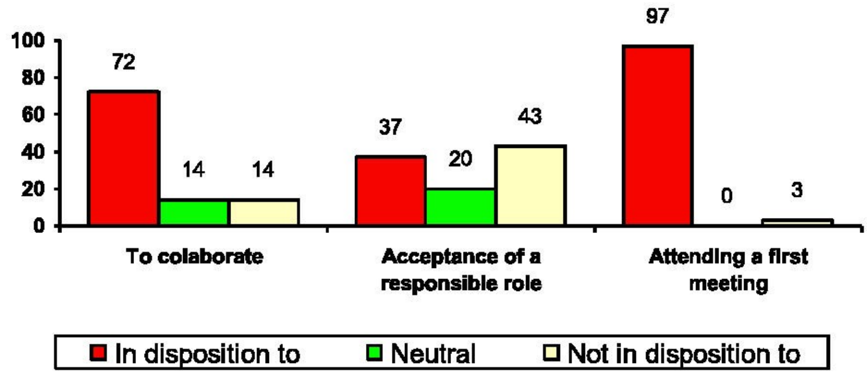
Reasons	Likely (%)	Neutral (%)	Unlikely (%)	Importance level (*) (%)
Lack of state support	94	3	3	64.9
Property division	91	9	0	45.9
First step	79	15	6	40.5
Afraid to be deceived	88	3	9	32.4
Waiting for others	98	9	3	21.6
Aged NPFLs	73	21	5	18.9
Distrust	59	15	26	18.9
Not wanting commitments	76	12	12	18.9
Individualism	74	15	11	8.1
Not feeling any necessity	51	29	20	0.0

(*) The NPFLs were asked two refer the two most important factors

About 40 per cent of the presidents accepted the hypothesis of waiting for someone to create the association and leaving their own participation until after the organisation's creation: such an opinion is significantly linked with a lower attitude level towards organisations, therefore almost all of those holding it have a less positive attitude ($p = 0.0414$), Appendix 9.4, Table 4).

The willingness to collaborate is well represented in Figure 9.10, which shows that almost all presidents were interested in attending a first meeting to discuss issues about the creation of an organisation. One president only stated his intention not to attend a first meeting, 11 per cent of them stated that they would only attend the meeting for curiosity, the others (89%) would attend the meeting planing to attend the following meetings (Appendix 9.1 Table 5).

Figure 9.10 Disposition of the parish presidents regarding their participation in the process of creating an association (%)



In the same way PPs are willing to visit an already established association, which could be serve as a good example for them. They see such visits as an important way of learning the best ways to run an organisation, and expect that after such an experience something would change, and starting the process themselves would become easier.

9.6 The Technicians' opinion and the position of the Council Mayors

The information presented in this section results from open interviews to the main technicians of the Forestry and the Agriculture Regional Services, and to the five Council Mayors include in the Pinhal Sul region.

The technicians seem to think that the farmers' attitude towards collective action in agriculture and forestry is a negative one. However this does not mean to them that the creation of an organisation of forest landowners in the region would be impossible. On the contrary, they believe that in the medium or long term it will be possible to achieve an effective forest landowners' organisation in the region. This is partly due to the fact that some of the oldest owners will be substituted by young ones, with a different position about their own involvement in forestry. Thus, the next generation will have no choice to carry on forestry other than getting organised in well managed local and regional organisations. The first problem seems to be the starting point. There is a lot of work to be done; nothing will happen spontaneously. "There is no seed that does not produce". Thus, the main point will be to sow, what to sow, who and how have to do it. In other words, the lack of initiative seems to be the key issue.

Although the technicians recognise the obligation of all entities to participate in the organisational process, they assume that the initiative should lie with the landowners, "because they are the only ones with an interest in forestry". This is a very reductionist point of view of the forestry values, and does not involve the state as an entity potentially interested in the environmental, ecological and social values represented by private forest. Thus, even the technicians do not look at the forest management of the region under values other than the economic ones.

Regarding the social dimension of the local organisations, the technicians hold the opinion that the parish is the most adequate unit for the creation of a forestry organisation. This opinion is based on the idea that farmers usually trust the president of their parish. These leaders would be very helpful in the organisational process. Even if a local organisation would include more than one parish, it should always be smaller than the council. The structure of the organisation at council and regional level should emerge from the local organisations previously established. The technicians agree that the organisational process should start from its basis and be developed in a "bottom up" approach through a process, starting with one or two activities and enlarging its activities according to previous consolidation of its structures.

The forest fires, rather than the forestry productive aims, seem to be a strong enough factor in order to involve the owners in a collective action. According to the technicians, the main activity of the future local organisations would be the collective management of the forest. However, the technicians believe that, given the financial incentives from the EU regarding the forestry development to create organisations at a lower level, the task of designing and implementing forestry projects would be the most suitable activity to start the organisational process. This position is justified because in order to be eligible, the forestry projects have to present minimum areas which will be impossible to achieve without joining plots of several different owners. As this process has to be legally registered as a society or association, it would constitute the base for establishing an organisation at a parish level.

Considering the material conditions, the participation of the regional forestry service in promoting an organisational process will only be possible if the Forestry Institute provides them with resources, material and staff specifically trained to undertake such an action, as the staff of the regional forestry agency, is concentrated in dealing with evaluating and monitoring the forestry projects supported by the EU. In the technicians' opinion, even if the government would implement a programme to support the creation of an organisational structure among the forest landowners, the implementation of the such organisational process will be always very slow. These conclusions are based on their experience, which show them how difficult it is to achieve agreements among the farmers, and to gather an adequate staff including trained and skilled people to undertake the actions that such an organisational process involves.

The forestry technician believes that the General Forestry Law (Lei de Bases da Floresta) could bring some incentives to the forest landowners' organisational process, since it seems that the implementation of the instruments included in this law (Planos Regionais de Ordenamento Florestal; Planos de Gestão Florestal) is very unlikely if the farmers are not organised. On the other hand, if the government is planning only to support those forest landowners who are already organised, it will put some pressure on the farmers to get organised.

The information from the Council Mayors was very difficult to analyse, as it was an election year and their comments were political, agreeing with everything and being available for everything. Thus, for this reason, the bias in the information provided is probably very high. Therefore we have restricted the information from the Council Mayors to the fact that all of them are interested in the organisational process, but they can not take the initiative. The main reason to justify such a position is lack of resources. All the Council Mayors have good intentions towards forestry development. However, they do almost nothing to contribute to it. One example of this is the absence of a particular support to forestry industries giving these industries a reason to settle in the region.

The only forestry action in which they are involved is the elaboration of the Integrated Plans for Forest Intervention (Planos Municipais de Intervenção na Floresta, PMIF). However, despite the fact that elaboration of these plans started three years ago, until now none of them is finished yet. These plans are to be implemented with the single objective of protecting the forest from forest fires, and they include no action towards forestry management. Even the councils seem to be receptive to these plans, but do not offer any resources for its elaboration and implementation. Hence, all resources have to come from the central government, making things very difficult. One reason for this state of affairs is the lack of resources of the Councils. Only two councils (Proença-a-Nova e Mação) have a forest technician working in the forestry projects in which they are directly involved.

9.7 Summary

First we must underline the representativeness of the conclusions from this chapter, since a very high response rate was achieved in the questionnaire. Therefore the opinions presented and discussed present an image of the local authorities' views about forest landowners' organisation very close to their real and present framework. However, one thing must also be stated - the fact that these parish presidents could change, through elections, every four years. Even so, we believe that the potential changes resulting from each election would not be so great as to change the global image pictured in this study.

The parish presidents should, by definition, be individuals aware of their people, their problems, expectations, values and desires, and also skilled in handling bureaucratic affairs. This aspect has major importance for their potential intervention on forest development programmes. Some of them have already had this experience, which in most cases has been a positive experience. But even those who had negative experiences in dealing with forest projects do not necessarily not want to be involved in any further experiences. Perhaps, the opposite can be true - that they have learned some lessons for the future from their negative experience. Therefore, we can also expect their collaboration. Both negative and positive experiences with forest programmes together with all the other experience of the parish presidents, constitute a potential patrimony that could be useful for the development of forest landowners' organisations in their region. To add to the parish presidents' experience, we have their positive attitudes towards the problem. These two main aspects could serve as the real engine of the process if we were able to start it.

The question of the lack of landowners' interest in creating an organisation seems not to be a constraint for most of the parishes, thus their presidents are confident about the interest of their citizens, at least at the initial process. But, there seems to be a high level of inertia in starting the process, and here lies one of the main constraints presented until now - the problem of taking the initiative. To discuss such a problem we must distinguish it from other aspects closely linked to it, such as the president's availability for leadership or simply for participating in the process. Regarding these last two aspects it seems clear that almost all presidents are available to participate, even if only 38 per cent stated their availability to participate as leaders. A more or less equal group (41%) who presented a neutral position towards the possibility of becoming a leader are, in our opinion, individuals who preferred to be more careful with their answer. We think that such reserves are a defensive response advised by some presidents' experience.

Regarding the type of the organisation they think would be better for the region it appears that in their general opinion such an organisation should start by dealing with only one specific forestry operation. They have proposed the design of forest projects, its application or forest cleaning as potential starting activities. Creating the organisation by aiming only at one activity makes it possible to develop it gradually in order to involve all forestry activities. In the presidents' opinion, the organisation should have a social dimension at a parish level. However, they see that such a level would work as a first control unit of a larger organisation, which could eventually reach a regional level. For them, the important thing is to have a small area, in order to make it easier to control all the factors involved in the organisation. For the presidents, this identification and knowledge of all members at a first level of organisation seems to be major. Intermunicipality, although they agree with it, is presented as a consequence of the process of creating a small organisation at a parish level.

All of the presidents' ideas to promote forest development in the region depend on an indispensable and effective state intervention on private forest. Such intervention is desired under two forms: financial and technical support. The first, which has become the usual form of state intervention in the past years, is not seen as sufficient to solve the problem. Implementing forest projects certainly requires money, but there is also need for information and technical advice in order to make correct use of such financial support, and it is this last support that has not been provided by the state forestry services.

In the same way, as the parish presidents recognise the state's obligation to support forest development, they also recognise that those who get such support should be receptive to state control on their forest activities regarding the use of the provided funds. Furthermore, they agree that the state should also suggest or even impose some rules about forest development for the region. This does not mean that they agree with the idea of the state having any right to participate in the decision-making process of the forest landowners' organisation. These ideas could be interpreted as the presidents expecting some form of authoritarian intervention from the state. This view is however always dependent on the fact that the state is supporting the forestry intervention, otherwise they do not think of any rule as legitimate.

We can therefore conclude that the parish presidents feel able to participate in the process of creating a forest landowners' organisation. They are interested and willing to participate, but they also point to two main constraints: the lack of initiative and the lack of state support. The latter is seen as the main reason for the lack of forest landowners organisations until now. The presidents think that most of the aspects related to forest landowners' mentality, usually pointed to as the main constraints of forest organisation, have a lesser impact than the lack of state support, because they know that if the state provides the means, some of the personal or social constraints can be overcome. Another point is that their experience in dealing with people shows them that it is difficult to involve them in a similar process but also that it is possible and important to try and do as much as possible with those interested.

Regarding the lack of initiative, we believe that the problem lies in the fact that as elected individuals, the parish presidents, are sometimes afraid to be accused of acting on behalf of their own personal interests. This will always be a question for them, and because of this they attribute to the forest landowners and to the state forest services the obligation of taking the first step. We believe that it is important to start developing an organisational process in the region, and the first step could be an action involving all five councils of the region.

10 THE FANCP'S ORGANISATIONAL MODEL AND THE STRATEGY FOR SETTING UP THE FORESTRY MANAGEMENT OF PINHAL SUL

In the last three chapters we presented the results of the questionnaires, which have been discussed separately without any attempt to establish links to the model of organisation we are studying. Therefore, we have already presented the individual point of view of the resident NPFLs, the non-resident NPFLs, and the parish presidents, regarding the possibility of creating a forestry organisation in their region. We have also a clear view of their attitude towards organisation as well as their willingness to participate in such a process. This chapter will try to put all this information together and discuss it under the guidelines of the organisation model followed by Forestry Association of North and Centre of Portugal (FANCP). Moreover, after discussion of the model, we want to be able to design a strategy for the implementation of the organisational process in the region based on the local entities' points of view. Given these aims, this chapter is divided into two main parts: the first referring to the acceptance of the model by the local entities, as well as the alternatives proposed to some aspects of the model which they have no interest in accepting; the second referring to the possible strategy for the implementation of an organisation similar to that outlined in part one.

10.1 The local entities' acceptance of the FANCP's organisational model

Over the past five years Forestry Association of North and Centre of Portugal (FANCP) has been supporting the implementation of forest landowners' organisations mainly in the northern part of the country. However, at the same time, the FANCP has never made any attempt to implement any kind of forest landowners' organisation in the centre of the country - which includes our study area. Given the continuous references to the necessity of developing models for forest landowners' organisations, and looking at the model's patterns and at the strategy usually followed in the implementation of farmers' organisation in Portugal, we have some doubts about the acceptability of this model to the NPFLs of a particular forest region such as Pinhal Sul. On the other hand, we also recognise that it would not be difficult to introduce some changes to the model in order to adapt it to the Pinhal Sul Region. In our opinion, this adaptation should be based on the desires and interests of those directly affected by or involved in the organisational process - the region's NPFLs.

10.1.1 The main concerns about the model implementation in Pinhal Sul

As we have already presented in Chapter Three a complete discussion about the organisation model followed by the North and Centre Association of Forest Landowners (FANCP), in this part of the thesis we will only raise the general issues which, in our opinion, can be directly related to the acceptability of the model by the Pinhal Sul's NPFLs:

- **Formal aspects of the legalisation of the organisation**, the organisation should be registered in the National Office under the general rules for this kind of association. For such, it is only necessary to present a project document including a statement of the statutes and the commitment of the individuals who are leading the process. This involves a first meeting for discussion and approval of the statutes, to make the registration official under the National Office. On this aspect we are interested in learning how far the farmers' interest in formal organisation goes and, whether they are apprehensive regarding the official legalisation issues.

- **The technical dimension of the association**, this is mainly concerned with the sort of activities that can be developed by the organisation. It usually involves all forestry activities, education and training actions, and forestry projects designed for funding applications administered through the forestry programmes supported together by the Portuguese government and by the EU. The above referred forestry activities are, in most cases, related to the implementation of such forestry projects, as well as to educational activities. This point raises the problem of different priorities among the

NPFLs' concerns. Some of these concerns are not addressed while, on the other hand, there are some activities involving a particular aspect related to only a few of the members. This could lead to distrust or to the decreasing of the NPFLs' interest in their organisation.

- **The social dimension of the association**, has to do with the administrative regions from where its members come. According to the model, the organisation should be developed under an intermunicipal approach, which means that an association could, and should, include several municipalities. Even if we agree with the intermunicipal approach, we think that it is more important in regions where forest property is more scattered. In the Pinhal Sul region, the forest areas are almost continuous, with the exception of some agricultural lands close to settlements. In our opinion, the most important issue is to deal with the forest landowners at a lower social dimension - at the council level. However, we are aware that some NPFLs have forest plots in more than one municipality, which raises another issue that should be taken into account.

- **Type of members**, membership is accessible to all citizens, as long as they are encompassed within the social area of the organisation. Members are self selected, which means that anyone interested in becoming a member only needs to state his/her interest in forestry, and he/she does not have to be a forest landowner.

- **Starting the association**, according to the model's guidelines, the association should be involved in all forestry activities, from the very beginning of its creation. Hence, it might be engaged in different sorts of activities according to the members' concerns and needs. Within this, we have also included some aspects regarding the process of creating an association, of which the most important is the farmers' participation in the process. Concerning this point, the model seems to be implemented without the general participation of the farmers, who have no chance of contributing to the process, and who see their role as limited to becoming a member after the organisation is already constituted.

- **President of the association**, in general the president of such organisations are individuals with a high level of education, and with an important status in the community. Other characteristics they demonstrate include availability of time and interest in forest development. Sometimes, the individuals constituting the director's board are those already involved in the creation of the organisation. This means that only occasionally are these individuals seen by the NPFLs as forest landowners like themselves, and they develop a sort of judgement about such a difference. On the other hand, in our opinion, the president should be an individual well identified with the members of the association in order to increase their confidence in the organisation and to avoid barriers to their participation in the organisation's activities.

- **Members' participation in the decision-making process**, this could be looked at on two levels: the first, regarding the discussion and the acceptance of the statutes, and the second, regarding the technical decisions on which forestry activities should be undertaken under the organisation's support and supervision. If the NPFLs' participation is likely in the first case, their participation in the second is not so certain. Furthermore, it would be interesting to understand how they conceive their participation in a collective decision-making process.

- **Local authorities' role**, the model followed by the FANCP, is usually implemented, if not exclusively, at least with the strong support of the local authorities, namely the Parish Presidents and the Council Mayors. These entities, because of their skills, connections and their knowledge of the population and its problems, are in a privileged situation to contribute to the process of creating the association. However, if they should or should not take up the leadership position, depends on the members' confidence and on the members' points of view.

- **Members' financial support to the association**, a formal contribution through a quota system is assumed in the model. Besides this, the associations also has the possibility to negotiate a way to retain some of the funds involved in the forestry activities undertaken by itself. In this case, the NPFLs are paying for a service from the association, and they easily understand their obligation to pay for it. The same cannot be said about the quota system, where the NPFLs are paying to cover the expenses of an organisation, while in many cases not taking any real advantage from it.

- **Duty of initiative**, in the initiatives undertaken in the Northern region, the director members of the FANCP are the ones who, close to the individuals potentially interested in assuming the leadership and undertaking the formal constitution of the organisation, diffused the idea of creating a forest landowners' organisation. Thus, the creation of the organisation is generated by selected individuals with a higher status, as in a top-down approach. In a region like Pinhal Sul, where almost all farmers are forest landowners, if we are really interested in developing an organisational process, that involves as many people as possible, we should have perhaps a different approach, maybe involving the same individuals but working with people rather than working for them.

- **Allowance of the participation of the non-resident NPFLs,** this has been kept for last because there is no clear reference regarding this aspect, in any of the statutes of organisations that we have consulted, a fact which has a major significance. Even without any figures about the number of forest landowners living in the country but out of the region, or living abroad, we are sure that they represent a significant proportion of the forest area. Moreover, the non-resident are likely to be the ones with a stronger interest in the services of a forestry organisation. Even if the model allows for anyone to become a member, it does not give any specifications about the non-resident NPFLs' participation and the possibility of their being represented by proxy, even by the organisation itself.

Doubts about the model - regarding the aspects addressed by this study, and before we proceed to present and discuss each of the findings, we think that it is important to make a brief reference to the main reasons that have led us to undertake this study of the acceptance of the possible model by the people of Pinhal Sul. As we have been suggesting, the organisational process would be more profound and developed more quickly if it would start at a lower and single level. That is to say that the process is more likely to be successful if it were developed at a parish or council level, involving the participation of the NPFLs in general and starting by dealing only with forestry activities chosen according to the members' interests. Intermunicipality should appear later as a way to represent more of the NPFLs interests, and not as the beginning of a regional or national forestry lobby. We understand, of course, that such a lobby, at least at a regional level, would be important to the region's forestry development, but we also believe that it could develop *a posteriori* from an effective forest landowners' organisation at a lower level. Regarding one of the most important issues, the initiative to start the organisation process, which the findings show, has been one of the main constraints to the farmers' organisation, we think that, given the present conditions of the Portuguese agricultural and forestry activities, namely with regard to technical support and farmers' education about organisation, it is possible to understand the lack of such an initiative from the farmers, and also from the other local entities, with the exception of the forest services. However, once more, even if the initiative of starting a forest landowners' organisation would come from a Parish President or any other entity, it should always be grounded in the global participation of the farmers.

10.1.2 The NPFLs' acceptance of the model and alternatives presented in the case of non-acceptance

A first point, which is not included in the model, but constitutes one of its assumptions, is the forest landowners' agreement about the need to create a forest organisation in the region. After this comes the interest in learning, if they agree with the association, what characteristics the organisation should show: its type of members, its social dimension, the type of activities undertaken and the way of starting the organisation's activity.
Data regarding these issues has already been presented in Chapters 7, 8, and 9 respectively to the residents NPFLs, the non-residents NPFLs and the Parish Presidents. However, as we stated in the methodology (Chapter 4), to achieve the level of acceptance of the model we will only use the results according to the higher attitude level towards organisation presented by the individuals' answers to the questionnaires. Hence, in the following tables we present the criteria, related to each variable, selected according to the opinion of the major group of the respondents with positive attitudes towards organisations (Group A). We also present the percentage of individuals that, despite their different attitude level towards organisation, have stated a similar opinion (Group B and C). Given the differences in the content of the three questionnaires, we have only asked the parish presidents a few questions regarding the model, as only their opinions as local authorities were relevant for this study. The non-residents questionnaire, with respect to the questions regarding the acceptability of the model, was quite similar to the residents questionnaire.

Agreement with a formal organisation - In general, the individuals with a positive attitude towards organisation agree with the idea of creating a formal organisation. This opinion decreases slightly with the decrease in the attitude level, but this seems to have more to do with the agreement about the creation of any type of organisation, whether formal or not. It was often stated by the interviewees that they only conceive of undertaking forestry activities under organised groups if formalised within legal rules. The particularity of forestry, involving long periods of time before any revenue, is the main reason for this position of the NPFLs.

Type of organisation - The type of organisation desired by both entities, landowners and president, is one which would be able to deal with all aspects of the forestry activity. Therefore, they excluded the possibility of a specialised organisation, dealing with forestry machinery or with only one single forestry activity. However, it is interesting to realise that some forestry activities have priorit for them, and could therefore be used to start the process of organisation as will be latter discussed.

Type of members - The acceptance of anyone interested in forestry is clear and supported by the significant (p=0.0053, Appendix 7.4, Table 3) relation between attitude and the type of members. However, there are some NPFLs (18%), presenting a less positive or even a negative attitude towards association, who would rather accept exclusively forest landowners as members. In the group with negative attitudes, as can be seen in Table 10.1, the majority of them preferred that members should be only forest landowners.

A position similar to that of the resident NPFLs is shown by the non-residents, but without such a significant relationship. For the Parishe Presidents of the the choice is not so clear, and in a certain way is even opposed because of the higher percentage of respondents who prefer to accept only landowners as members. Although this question is important as a philosophical principle of any organisation, in the case of the Pinhal Sul region, where almost everyone owns forest holdings, the meaning of accepting only forest landowners seems to be linked to the wish to only have people from the organisation's intervention area as members.

Social dimension of the association - Within the three levels of the social dimension suggested in the questionnaires: parish level, council level and regional level (five councils). Even despite the significant relation between attitude and social dimension of the association (p = 0.066, Appendix 7.4, Table 4), regarding the percentage of individuals with positive attitudes preferring a parish dimension, this is not much higher than those who suggest the council dimension. If we assume that those who suggest a regional dimension would agree to with a council dimension, we could say that this dimension would be accepted by the majority of the landowners with positive attitudes. This significant relation is clearer for those individuals with less positive or negative attitudes towards organisation and preferring a parish dimension. The same analysis could be attempted in relation to the non-resident NPFLs, who present a very similar distribution of responses. Following a similar kind of analysis regarding the president of the parishes with positive attitudes they also seem to have a preference for a lower dimension level, the parish level. As a final remark, it must be emphasised that, as shown in Table 10.1, the global preference for the parish level is not in any case greater than 58 per cent.

Way of starting the association - As pointed out when discussing the type of organisation conceived by the NPFLs for their region, and according to the data in Table 10.1, the majority of the individuals, forest landowners or parish presidents are more confident if the association is started in a gradual way. They agree with an organisation dealing with all forestry activities but not from the beginning. They prefer to start the organisation by dealing with one or two forestry activities, and gradualy extend the intervention of the organisation to other activities.

Table 10.1 Local entities' (resident and non-resident NPFLs and Parishes' presidents) acceptance of the model according to their attitude towards organisation (%)

Variables	Criteria selected (*)	Entities	Group A	Group B	Group C	Total
Agreement with the creation of an association	Agreement	Residents	95	88	57	88
		Non-residents	100	63		76
Type of organisation	All forestry activities	Residents	65	64	76	66
		Non-residents	87	63		71
		Presidents	67	68		67
Type of members	Everyone interested	Residents	77	62	43	68
		Non-residents	86	67		73
		Presidents	50	62		58
Social dimension	Parish	Residents	50	60	71	55
		Non-residents	47	63		58
		Presidents	58	50		53
Way of starting the association	Gradually	Residents	70	68	62	68
		Non-residents	80	57		64
		Presidents	75	67		70

Group A, B and C represent Positive attitudes, less positive attitudes and negative attitudes, respectively
(*) Criteria were selected regarding the attitude level of group A

The farmers' participation in their organisations is one of the crucial points of the organisations' life, and lack of participation could be one of the reasons for the failure of many attempts towards farmers' organisations. As participation is a concept able to be understood under different approaches, it is necessary to make clear that in this case it concerns the following aspects: a voting system for statutory decision; decision-making process on technical forestry development issues; the representation of the non-resident NPFLs; and the best way to contribute with funds to cover the organisation's expenses. The results regarding such aspects of participation are presented in Table 10.2 showing a general consensus of the opinion around the criteria selected for each variable.

Voting system - The landowners with positive attitudes have a clear preference for the system of one member one vote. In fact, the individuals with positive attitudes have a higher percentage of agreement level and, on the other hand, the individuals with less positive or negative attitude present a slightly lower percentage but always at a high level. The individuals who agree with a voting system proportional to the forest area were mainly the same who hold less positive or negative attitudes towards organisation, but even given this difference, there was no significant statistical relation between these variables, since the majority of them prefers the system of one person one vote. The non-residents who present positive attitudes also have a clear preference for the system of one member one vote, and this value is also lower within the group of those with less positive or negative attitudes towards organisation.

Participation in the decision-making process - In this particular case we refer to decision-making about forestry issues, and in general all respondents hold the opinion that all members of the association should be able to participate in all the decisions of the association, whether or not they have an interest directly related to the subjects under consideration. Among the non-residents, such an opinion, even if it stands at a high level, decreases slightly more than in the residents' opinion comparing the attitude level groups. Individuals with a lower level of attitude towards organisation hold the opposite opinion, agreeing that only those individuals directly involved in the issue under discussion should participate in decision-making.

Acceptance of a proxy - Understandably this question was only put to the resident NPFLs, since it made no sense to put it to the non-residents. Therefore, the results shown in Table 10.2 only refer to the residents NPFLs. The non-residents were asked about this issue but not about their participation in the decision-making process; this will be discussed in the following section of this chapter. Regarding the NPFLs' agreement about the non-residents' participation in the organisation, it is clear for almost all respondents that any landowner should have the right to become a member and to have another person to stand proxy for him, in order to represent the landowner's interests in the association's activities. However, some doubts were raised about the possibility of a single individual becoming the proxy of many landowners and in such a way becoming too powerful in the decision-making process. Others, a similar way, pointed out that there could be some individuals interested in becoming proxies of several non-resident NPFLs in order to strengthen their position in the organisation.

Agreement to pay services to the association - The landowners with positive attitudes agree with the payment of services provided by the association. The landowners with a less positive attitude, also have, in general, a similar opinion, despite the fact that those who do not agree with such payment belong to this group. One aspect that could be influencing the lack of agreement in the group of individuals holding a lower level of attitude towards organisation could be the fact that they were asked about the possibility of the organisation retaining an amount, and seems possible that individuals belonging to this group prefer to have a clear control of the situation. In other words, they prefer to pay the amount at the beginning and make a decision based on their financial capacity at the moment. The non-resident landowners have a similar position but the relation between variables is not significant.

Agreement about paying a quota - The agreement about paying a quota presents a similar distribution as the former variable (Table 10.2). Hence, it could be said that in the majority of cases, landowners agree to pay quotas, although some of them who have a less positive attitude said they did not agree with such a payment. Some NPFLs, with lower financial capacity, pointed out that they would only agree if they could afford it, if not they would have to give up or to find a different way of participation.

Table 10.2 Local entities' (resident and non-resident NPFLs) acceptance of the model according to their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entities	Group A	Group B	Group C	Total
Voting system	each member a vote	Residents	77	70	62	73
		Non-residents	73	57		62
Participation in the decision making	all members in general	Residents	85	80	71	82
		Non-residents	93	70		77
Non-resident's representation	agreement	Residents	93	88	91	91
Agreement to pay the association's expenses	agreement	Residents	83	72	56	77
		Non-residents	87	96		73
Agreement with an annual quota	agreement	Residents	73	72	48	69
		Non-residents	67	60		62

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

Considering the fact that the FANCP's model is basically grounded in the participation of the local authorities, it becomes important to find out how far the forest landowners' agreement goes in relation to this intervention and the local authorities' opinion and willingness to participate in the process of creating an organisation in the region. The local authorities' participation can be understood under two different aspects. The first has to do with the duty of initiative regarding the starting of the process and with assuming leadership. The second has to do with the articulation between the different potential levels of organisation in order to have the forest landowners organised at a regional level.

The duty of initiative - Regarding this point, there is a diversity of opinions. In a general way the entity who reached the higher percentage was the state. However, the non-resident NPFLs with positive attitudes felt that they themselves should start the process of creating the association. The presidents have a different opinion about responsibility for taking the initiative, and there is a significant relation between this variable and the attitude towards association (p=0.02562, Appendix 9.4, Table 3). This means that the presidents with positive attitudes have recognised that it should be either the state or themselves to take the initiative, and those with less positive attitudes attributed such responsibility to the state and to the forest landowners. Moreover, besides the cross analysis between the variable attitude and the model's variables, we also proceeded to a cross analysis by councils in the same terms, and this shows a significant relation between the NPFLs' residence council and their agreement to attribute a directive role to the Parish Presidents ($p = 0.0004$, Appendix 7.5, Table 3). This relation could be explained by the fact that the respondents of the councils (Vila de Rei and Mação) are less interested in delegating such responsibility to their Parish President.

Role of the parish as leader in the association - About 74 per cent of the landowners, whatever their attitude, recognise the parish as a possible entity to assume the leadership of the association. In the case of emigrants the results are lower, only one half supporting this idea. The Parish Presidents prefer to be neutral about such a matter. Moreover, Table 10.3 shows that the Parish Presidents with a less positive attitude towards organisation and agreeing with the idea of parish leadership are twice as many as those that think the opposite. The Parish Presidents with positive attitude prefer to be neutral on this, or even disagree with it. This explains the fact that in a general way the majority of them do not agree with the attribution of such a responsibility to the Parish.

Role of the council in trying to get all parishes to work together - The NPFLs in general agree with the idea that the council should undertake actions in order to improve relations between parishes. There is a significant relation between the attitudes and this variable, which could be explained by the fact that landowners with positive attitudes clearly agree with the idea, and most of the disagreement is constituted by the ones with less positive attitudes ($p=0.0079$, Appendix 7.4, Table 13). The non-residents opinion is similar, but at a lower level (Table 10.3). A similar equal conclusion can be reached from the opinions expressed by the Parish Presidents.

Intermunicipality - The links between councils are generally well accepted by the majority of the interviewees (Table 10.3). There is a significant relation between attitude and the agreement about such relations among councils (p=0.0177, Appendix 7.4, Table 16). This relation is due to the high percentage of landowners with positive attitudes who clearly agree with intermunicipality. On the other hand, those with less positive attitudes are responsible for most of the disagreement. Both non-resident landowners and presidents have the same opinion expressed by the above referred landowners.

Table 10.3 Local entities' (resident and non-resident NPFLs and Parishes' Presidents) acceptance of the model according to their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entities	Group A	Group B	Group C	Total
Who should take de initiative	State	Residents	35	40	43	38
		Non-residents	27	23		24
		Presidents	42	48		46
The parish's role	Agree with parish leadership	Residents	76	74	67	74
		Non-residents	53	43		47
		Presidents	27	44		38
The council's role	To work with all parishes	Residents	81	56	67	72
		Non-residents	60	57		57
		Presidents	83	71		75
Intermunicipality	Agree	Residents	83	70	57	76
		Non-residents	60	70		67
		Presidents	50	66		64

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

A final variable included in our study of the resident NPFLs' acceptance of the model was the characteristics of a potential leader for the organisation. The aim was to know to what extent the NPFLs could agree to have an unknown person as president and which skills would determine his choice. In Table 10.4 we present the results of such variables according to the level of attitude towards organisation.

Table 10.4 NPFLs' opinion about the profile of the potential leader for their organisation accordingly their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entities	Group A	Group B	Group C	Total
Skills of the president	Landowner	Residents	46	52	57	49
Origin of the president	agreement with an unknown person	Residents	40	34	38	38

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

Profile of the potential president of the association - About one half of forest landowners, independent of their attitude towards association, think that the association's president should be a forestry technician. Whether such a president should be an unknown or known individual divides the respondents' opinions: while those with positive attitudes do not mind accepting an unknown individual as president, those with less positive or negative attitudes would not accept such situation.

10.1.3 General conclusions about the acceptance of the Model

To close the discussion it would be interesting to make a global analysis of the relations between the model's variables and other variables such as: NPFLs' attitudes towards organisations, NPFLs' age, NPFLs' level of education and NPFLs' place of residence. Table 10.5 shows only the significant relations found between the above mentioned variables. There is no significant relation between the acceptance of the model and either the age or the education level of the NPFLs. The few relations found were mainly to do with attitude towards organisation and the place of residence. As these relations were already discussed in Chapter Seven, we will proceed with some general comments on the model. The table shows the crucial points to address in the case of the implementation of an organisation in the region. Issues related to the type of members and the task of taking the initiative will be approached independently, but, on the other hand, the other three issues should be approached together. This means that the social dimension of the organisation and its articulation within a higher level of organisation should be discussed in a consecutive way. To support this opinion, we will point out the significant relation found between intermunicipality and the attitude of the Parish Presidents towards organisation. This, however, does not give a clear picture about what would happen to the evolution of the organisational process at a regional level.

Regarding the relation between the place of residence and the model (Table 10.5), the results bring to the discussion the idea that the NPFLs organisation process could present some different features according to the councils where it isdeveloped. However, such differences would not be so deep, and it seems reasonable to say that the key issue would be the intervention and the role of the local authorities in the process.

Table 10.5 Significant relations between the model's variables and the NPFLs' attitude towards organisation, local of residence

Model's variables	Attitude towards organisation	Local of residence
Type of members	p = 0.0053 (*)	p = 0.0028 (**)
Geographic dimension	p = 0.0666 (*)	
Way of starting the association		p = 0.00079 (**)
Duty of initiative	p = 0.0256 (***)	
The parish's role		p = 0.00075 (**)
The council's role	p = 0.0079 (*)	
Intermunicpality	p = 0.0177 (*)	

(*) - Appendix 7.4; (**) - Appendix 7.5; (***) Appendix 9.4

Hereinafter, we will summarise the global position of the three entities involved in the study - residents and non-resident NPFLs and the Parish Presidents - regarding the guidelines suggested by the FANCP for the organisation. From these it can be concluded that those entities want the creation of a formal organisation dealing with all issues related to forestry activities and that everyone interested in forestry development within a region can be accepted as a member. Given the hesitancy expressed by the non-residents and the Parish Presidents about this last issue, we believe that, in opposition to the model, the alternative of accepting exclusively forest landowners as members would also be accepted in certain circumstances. The organisation's intervention area should be limited to the administrative borders of the parish (Table 10.6). In this point lies the main discordance between the model and the local entities' views, since the model suggests a large area of intervention, involving two or more councils.

Table 10.6 Local entities' general position regarding the model's variables related to the organisation' dimensions

Variables	Entities	Positive attitude	Less positive attitude	Negative attitude
Agreement with the creation of an association	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	
	Presidents	Agree	Agree	
Type of organisation	Residents	All activities	All activities	All activities
	Non-residents	All activities	All activities	
	Presidents	All activities	All activities	
Type of members	Residents	Everybody	Everybody	**Only NPFL**
	Non-residents	Everybody	Everybody	
	Presidents	Everybody - **Only NPFL**	**Only NPFL**	
Social dimension	Residents	Parish	Parish	Parish
	Non-residents	Parish	Parish	
	Presidents	Parish	Parish	
Way of starting the association	Residents	Gradually	Gradually	Gradually
	Non-residents	Gradually	Gradually	
	Presidents	Gradually	Gradually	

In what concerns to the members' participation in the organisation, there are two different approaches to participation based only in the forest landowners' opinion: the participation in the organisation's decision-making process and the contribution with resources to cover the organisations' expenses (Table 10.7). The table shows complete agreement between the forest landowners' opinion and the suggestions of the model. This means that, at least in the participation aspects studied, participating in an organisation will not constitute a constraint to the forestry organisational process.

Table 10.7 Local entities' general position regarding the model's variables related to their participation in the organisation's decision-making process

Variables	Entities	Positive attitude	Less positive attitude	Negative attitude
Voting system	Residents	One/member	One/member	One/member
	Non-residents	One/member	One/member	One/member
Participation in the decision making	Residents	All decide for all	All decide for all	All decide for all
	Non-residents	All decide for all	All decide for all	All decide for all
Non-resident's representation	Residents	Agree	Agree	Agree
Agreement to pay the association expenses	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	Agree
Agreement with an annual quota	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	Agree

In the next group of variables we summarised the three entities' opinion about the local authorities' role towards their involvement in the forest landowners' organisation process. As Table 10.8 shows, some opinions can be understood as opposed to the model's suggestions. Some divergence was found regarding the duty of initiative. It is only possible to identify a partial agreement with the model, since part of the opinion does not attribute the duty of initiative to the parish. However, in a different way, leadership of the parish is generally accepted. Regarding the involvement of the councils in making the parishes work together, and in establishing links between councils, the forest landowners accept the model's suggestion. Even so, somewhat paradoxically, the local authorities are not as clear in agreeing with these aspects of the model. This leads to the conclusion that the development of the organisation from local to regional level, if based on the local authorities' intervention, could face constraints which were identified in the current research.

Table 10.8 Local entities' general position regarding the model's variables related to the local authorities' role in the process of forest landowners' organisation

Variables	Entities	Positive attitude	Less positive attitude	Negative attitude
Who should have the initiative	Residents	**Parish / state**	**State**	**State**
	Non-residents	**Landowners**	**Parish**	
	Presidents	**Parish**	**Landowners**	
Parish's role as leader	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	
	Presidents	**Neutral**	Agree	
The council's role	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	
	Presidents	**Neutral**	**Neutral**	
Intermunicpality	Residents	Agree	Agree	Agree
	Non-residents	Agree	Agree	
	Presidents	**Agree/disagree**	Agree	

The last reference regards to the kind of person most suitable to become the organisation's director. The general opinion was that the person should be a forest landowner rather than a technician, and if possible a known person. In this issue the model does not suggest any particular type of president. However, in the few associations currently functioning, the directors can be identified with the interviewees opinions, but at the same time are also persons with high social status and, therefore, could not be the kind of landowners that the interviewees had in mind when they answered the question, when in their responses they conceive of the director as being a common landowner and not a person of high status.

10.2 The local entities' point of view regarding the strategic aspects of the landowners' organisation process

The implementation of any model of organisation should be backed by a set of conditions which can influence the adoption of the model or explain its failure. For that reason it seems indispensable to complement the study of the acceptance of FANCP's model, undertaken in the previous section, with another study of the NPFLs' interests and their willingness towards becoming associated, as well as their participation in such a process. In order to clarify the points presented in this thesis, and to make more understandable the difference between the model's variables and the variables related to its implementation, we have called these last variables "strategic variables". Thus the study of these variables, together with the previous study on the model's variables, will allow us to design an organisational strategy for the region's NPFLs.

The study of the strategic issues is also based in the data collected through the questionnaires, involving resident and non-resident NPFLs and Parish Presidents, even if the information on some of these issues is based on the opinion of one or two of these entities. In global terms, the issues approached can be summarised under three main topics:

- the willingness to get associated and to participate in the organisational process;
- the NPFLs' interests in the organisation;
- the state's and local authorities' participation in the process of creating an association, and their points of view about the intermunicipal approach.

Furthermore, this section presents the NPFLs' perspectives for forest development in the future, that could be in some way be linked with the organisation process. Given that, some of the following issues have already been discussed in the previous chapter, a summarised presentation of the data and a final and global conclusion will provide a clear image of the interviewees' contribution to strategy design.

10.2.1 Disposition to create an organisation

As it became clear throughout this study, there is general agreement about the importance of implementing an organisation in the region. As a main condition for such a system to be successful, it seems necessary to take into account the values and beliefs of the addressed individuals. From Table 10.9 we can see that the NPFLs put a lot of importance on the familiarity and the confidence they need to have towards the other members of the organisation. The table also shows that the NPFLs are in some ways already aware of what it means to be a member of an organisation.

Table 10.9 Local entities' points of view related to the strategic questions according to their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
Disposition to became member	Likely	Residents	62	64	24	58
		Non-residents	73	75		62
		Presidents	92	62		72
Disposition to be associated with unknown people	Likely	Residents	52	18	40	40
Disposition to become associated only with trustful people	Likely	Residents	44	30	20 *	37
Disposition to assume commitments	Likely	Residents	66	62	45	62
Disposition to accept an idea from de association	Likely	Residents	62	58	50	59
Disposition to attend meetings	Likely	Residents	69	66	75	69

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

Several points have already been discussed, and show that the lack of initiative has been causing difficulties to the implementation of any organisational process. However, besides this problem, the participation of all entities is not likely to become a constraint in itself. As the NPFLs, the Parish Presidents are disposed to help in the creation of an organisation and even in assuming leadership roles, although understandably such willingness is higher from the Presidents (Table 10.10). In the same way, both the NPFLs and the president hold the opinion that it would not be difficult to find leaders who would easily be accepted by the population.

Table 10.10 Local entities availability to help in the creation of an organisation accordingly their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
Disposition to become a director member	Unlikely	Residents	44	58	65	50
Disposition to help in the process	Likely	Residents	69	56	38	61
		Presidents	92	64		73
Acceptance of responsible roles	Unlikely	Residents	46	66	71	55
		Presidents	33	49		43
Existence of local leaders	Likely	Residents	59	48	38	53
Confidence on local leaders	Likely	Residents	75	64	57	69
Probability of leaders starting the process	Unlikely	Residents	49	54	43	49

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

10.2.2 The state's participation

In Table 10.11 it is clearly shown to what extent the state's support and contribution to the farmers' organisation is desired and expected by the local entities. Here lies a crucial point in the strategic issues approach: the indispensability of the state's intervention is generally recognised by almost all the interviewees. Given this, it appears that without such an intervention, any attempt to implement a forest landowners' organisation will likely end in failure. This intervention is seen as important not only because it provides financial and technical help, but also because of the potential role to be played by the state in what concerns the control of the organisations' work. There seems to be an agreement about the state's participation in the organisation's decision-making process, mainly in what regards the use of the provided funds, the technical forestry guidelines and the monitoring of the forestry projects' implementation.

Table 10.11 Local entities' (resident NPFLs and parish presidents) point of view about the strategic questions according to their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
Agreement with the state' support	Agreement	Residents	97	92	85	94
		Presidents	83	83		83
Dependence on state support	Agreement	Residents	67	62	71	66
		Presidents	83	71		75
State's right to vote		Residents	66	54	71	63
	agreement	Non-residents	73	50		58
		Presidents	42	38		39

Group A, B and C represents Positive attitudes, less positive attitudes and negative attitudes respectively
(*) Criteria were selected regarding the attitude level of group A

10.2.3 The NPFLs' interests and the local entities' participation in the organisational process

The development of the forest in the Pinhal Sul region depends on the afforestation of both the new and the burned areas, and on a forestry management system which should imply the cleaning of the forest in order to improve its quality and to decrease the risk of forest fires. Thus the NPFLs' interest in organisation is mainly related to the possibility of receiving support in order to undertake their forestry activities. However, they recognise that such activities could be planned together by landowners of the parish. Therefore, even if working or planning in common does not mean joining plots or losing the boundaries of such plots, the hypothesis of planting and cleaning the forest in common is widely accepted (Table 10.12). However, trading and cutting trees are not likely to be undertaken in common, at least at the present. These could be issues to be considered after the forest landowners become confident in the organisation's work.

Table 10.12 Local entities' (resident and non-resident NPFLs and parish presidents) points of view towards the strategic questions according to their attitude level regarding organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
NPFLs' interest in using common machinery	Likely	Residents	65	58	40	60
		Non-residents	87	67		74
		Presidents	56	32		53
NPFLs' interest in cleaning the forest in common	Likely	Residents	77	70	65	73
		Non-residents	100	67		78
		Presidents	100	95		97
NPFLs' interest in trading forest products in common	Unlikely	Residents	61	48	55	47
		Non-residents	60	43		49
		Presidents	56	50		52
NPFLs' interest in common forest projects	Likely	Residents	87	70	85	82
		Non-residents	93	67		76
		Presidents	100	100		100

Group A, B and C represents respectively Positive attitudes, less positive attitudes and negative attitudes
(*) Criteria were selected regarding the attitude level of group A

We can conclude that to join plots would be possible in some particular situations, given the results shown in Table 10.13. There is a fact that always raises a controversy: despite the NPFLs' recognition of the need to work in large areas, some of them prefer not to try it. They are not confident about their land tenure rights. In the same way, most of them are not interested in having any kind of deal with the state involving their commitment for the future. This position derives from several misunderstandings, and from a lack of information about the methods used to undertake these tasks.

Table 10.13 Local entities' (resident and non-resident NPFLs) points of view towards to the strategic questions according to their attitude level regarding the organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
Recognition of the importance of joining plots	Agreement	Residents	78	45	24	61
Agreement in joining plots	Disagreement	Residents	48	16	33	37
		Non-residents	0	13		91
Agreement in dealing with the state	Disagreement	Residents	58	50	67	55

Group A, B and C represents respectively: Positive attitudes, less positive attitudes and negative attitudes
(*) Criteria were selected regarding the attitude level of group A

Given the NPFLs' interest in becoming organised and their willingness to participate in the process of creating an organisation, it is easier to understand their preference to create their own organisation rather than accept membership in one already created by individuals outside their social circle. Thus, according to Table 10.14, the way to follow should be the promotion of meetings at a parish level. It would also be useful to involve the Parish President in the discussion about how to become organised; another important step would be put the NPFLs in touch with forestry associations.

Table 10.14 Local entities' (resident and non-resident NPFLs and parish presidents) points of view regarding aspects related to starting an organisation according to their attitude level towards organisation (%)

Variables	Criteria selected (*)	Entity	Group A	Group B	Group C	Total
Prefer to wait for others to create the organisation	Unlikely	Residents	65	46	53	57
		Non-residents	67	40		49
		Presidents	75	30		45
Participate in a first meeting	Likely	Residents	92	78	91	88
		Presidents	100	100		100
Profitability of a visit to an organisation	Likely	Residents	87	88	86	87
		Presidents	100	100		100
Interest in seeing a good example of an organisation	Likely	Residents	69	74	62	69
		Presidents	100	100		100

Group A, B and C represents respectively: Positive attitudes, less positive attitudes and negative attitudes
(*) Criteria were selected regarding the attitude level of group A

To end the discussion of the local entities' position towards the strategic questions we should have in mind the relations between the strategic variables and the NPFLs' attitude towards organisations, the NPFLs' age and educational level as well as their place of residence (Table 10.15). A first point is the presence of a significant relation between the strategic variables and NPFLs' age and place of residence. This implies that in some councils the strategy should be different with regard to the main objective of the organisation. In other words, the organisational process should start based in different activities according to the NPFLs' interest shown in each parish. Concerning the relation between attitude towards organisation and the members' familiarity, those individuals with a lower level of attitude seem hesitant to deal with unknown persons: however, such a problem would not appear if the process were to run at a local level.

Table 10.15 Significant relations between the strategic variables and the NPFLs' attitude towards organisations, its age and educational level and their place of residence

Variables	Attitude	Age	Parish
Attitude towards association		p = 0.014726 (*)	
Disposition to be associated with unknown people	p = 0.000001 (*)		
Disposition to become associated only with trustful people	p = 0.026653 (*)		
Disposition to become a director member		p = 0.007860 (**)	
NPFLs' interest in cleaning the forest in common			p = 0.004470 (**)
NPFLs' interest in trading forest products in common	p = 0.000313 (*)		
Agreement to join plots	p = 0.002037 (*)		
Disposition to help in the organisational process	p = 0.029296 (*)		
Prefer to wait for others to create the organisation	p = 0.038715 (*)		

(*) - Appendix 7.4; (**) - Appendix 7.5

A last conclusion to be drawn from the table is that there are individuals with a less positive attitude who could be more resistant to working their plots together. They are also those who prefer to wait and see the forest organisation working, eventually applying for membership after their own evaluation of the way it works. This means, that in this case, as in any other developmental process, there will be individuals who will be the earlier adopters and who participate in the change, and others who prefer to be later adopters and accept the change as a fact.

10.3 Summary

After discussing the model and the strategic issues, and having underlined the most representative preferences of the local entities, we are now able to discuss the implications of their opinions regarding the forestry organisation as they think it could be conceived. Therefore, and taking their points of view into account, we can suggest some ideas in order to organise them according to this model. Thus, we will try to contribute to the design of an hypothetical organisation having in mind the actions needed for its implementation. To do so, we should start from the assumption that, as our study shows, the NPFLs and the Parish Presidents understand the need for the organisational process, agree and want to encourage it. The study's findings about the

NPFLs' and the Presidents' willingness to participate in the creation of an organisation; and about the availability of potential leaders for the process, allows us to assume that at least those aspects might not become excuses for not starting the organisational process. Given this, we have reached the crucial point, which once solved could act as a catalyst to the organisational process: to whom belongs the duty of initiative? After the data analysis and the field work experience, and not saying that the initiative is an obligation of the state, we are able to present the expectation regarding the state's initiative by all entities studied. It would therefore be difficult to undertake an organisation process without such state intervention. In other words, if the state took such an initiative, as the study findings illustrate, it would be very advantageous to the organisation process.

These views are based on the fact that those responsible for the forestry services are the first to recognise that without organised farmers, forestry development and the problem of forest fires will never be solved. At same time, paradoxically, without doing anything to help the forest landowners to become organised, the state offers them the possibility to get funds which will be spent according to well designed forestry projects, which are implemented within a context of a global disorganised forest management. The state's participation would not necessarily involve a huge investment, since the main task to be accomplished would basically be related to the promotion of the landowners' organisation, possibly involving meetings at a parish level. Moreover, given the willingness of the local authorities, the forestry services could use some help from the Parish Presidents, which could at least benefit the promotion of such meetings. Therefore, it seems important to think about two points: try to reach an agreement between both before proposing the meetings; and to follow a flexible action programme, since the differences among the parishes would raise different timings. This means that some parishes will need more time in order for the forest landowners to agree about whom to elect as representative. However, as the findings of the study show, the idea that the representatives should be someone close to the landowners can not be overlooked.

Thereafter the NPFLs' representatives, local representatives, should assume the leadership of the organisational process, playing their role between the NPFLs' interests and desires and the state's support, in order to formalise the organisation and start its activities. As a complement to these actions, it would be useful to provide farmers with the possibility of getting in touch with a forest landowners' organisation already implemented. This means that effective extension work in the region would be necessary. Still, regarding the state's intervention, the findings lead us to believe that it would be better to keep a facilitating role, providing the local representatives with the necessary elements in order to develop and proceed with the organisation, whether this happens through financial support, information regarding formal procedures, or technical information about forestry programmes.

According to these ideas, it would be possible, at least in hypothesis, to create about 43 local forest landowners' organisations. However, in some cases, because of particular reasons, there could be a situation in which two or more parishes could happen to get organised within the same local organisation. On the other hand, there could be some parishes where the process would fail. Hence, we think that if half of the parishes become organised at a local level this would be very favourable to go one step further in the development of the organisational process, therefore reaching the second stage of the strategy.

There does not seem to be a strong opposition from the NPFLs to get organised at a level other than the local one, provided that they do not lose control of their interest at the local level. The emphasis placed by the NPFLs on the local dimension (at a parish level) of their organisation, raises the idea that the present and future forestry programmes will be better understood and more efficiently adopted if presented or discussed at this level. This means that the conditions for implementing a forestry programme or developing forestry actions would be set at a regional level. In doing this, the forest policy guidelines for the region could become more appropriate and easy to be reported and adopted by the local organisations. The existence of a regional forestry policy could itself be an incentive to the NPFLs' organisational process, since it could entail the participation of the local organisation. In this way, the discussion among the local organisation members would be promoted in order for them to understand and accept the evolution of their organisation towards a higher level, where the decision can be reached with their participation.

The landowners' organisation at a council level, despite some doubts expressed throughout the study, could be expected to be achieved at least with the participation of some parishes, since each parish would be represented at such an organisational level.

Once the second organisational level is created, at a council level, it would be easier to reach the regional level (five councils) by following the same approach. Therefore, we must keep in mind that the key issue for this strategy, whose guidelines are provided by the data, resides in the fact that most of the interviewees prefer to create their own organisation. As such, all indications suggested that it would be advantageous to start the organisational process from the parish level. Moreover, as they have also recognised the importance of a higher level organisation, the only point to be highlighted is the need for such a higher level to be developed according to factual and accurate issues which might be understood, discussed and approved by the members at a local level. If this were not the case, they would not feel the need to become organised at a higher level.

In what concerns the organisation itself, our findings about the model encourage good expectations. It would not be difficult for the leader of the NPFLs groups to conduct the meetings in order to reach an agreement about the main statutory issues, enabling the formalisation of such a process by the elected representatives. Membership must be discussed and decided by the landowners, even if the results of the research show a tendency to restrict membership to local people. According to the opinion of all entities, we believe that they are able and interested to follow elementary democratic rules in their participation. The tenets would have to be: one person one vote; and the minority respecting the decision of the majority.

A conclusion to retain from the study is the important role to be played by the local authorities in such organisation process. However, it seems to be preferable for the Parish President to assume, from the start, a neutral position regarding leadership. Hence, the leadership of Parish President would only be preferable if required or elected by the forest landowners under such way. If not, the President could also contribute by helping in the meeting's promotion, or by participating as an ordinary member. Furthermore, even if the Parish President does not become a leader in the process, the Parish facilities are in most cases expected to be available to the organisation whenever required by its members.

The findings suggest a gradual approach to the forestry organisational process. In the first stage of its existence the local organisation if concerned with dealing with only one or two specific forestry activities, will work better. One of the first decisions to make by the members would be to choose what sort of activities to undertake, for instance, afforestation of burned areas, forest cleaning, or the design of forestry projects. The evolution of the organisation can be dependent on the experience in dealing with those activities, since the goal's attainment would constitute a good indicator of whether or when the organisation could be extended to other forestry activities. In addition to this, such a diversity of activities among the parishes would constitute an example to follow in the later development of the organisational system. However, there is a point that raises some questions about this strategy: we are referring to a situation where the higher levels (Council and Regional) will be representing a diverse spectrum of activities regarding to a few local organisations. This means that the council and regional organisations must be able to articulate all these different situations, and not only deal with the main, wider questions. It is important for the local organisations to realise that their problems or their interests are really being dealt with at a higher level, otherwise they could distrust the organisation. Such distrust could eventually lead to the failure of the NPFLs' regional representation. The practical implications of such council and regional representation presupposes the availability of technical and administrative staff able to answer to the solicitations of local organisations and not only to resuming its activity to a representative role.

Despite the availability of the NPFLs to participate in the organisation's expenses, this is likely to be insufficient to cover all the expenses incurred with the technical and administrative board as well as with all the activities meant to be developed. Therefore, once more a unanimous point between all entities seems to be the recognition of the necessity of the state's intervention with funds to enable the day to day work and the development of the organisational process in the region. However, at this stage, a state intervention aiming only control to the funds' application through a monitoring action could be accepted if allowing all decisions to be made by the representatives of each organisational level. Thus, according to this strategy, the forestry services main role would be promoting and guiding the first meetings at a local level. An extremely important contribution of the forestry service could be facilitating making the formal issues of the legalisation of the organisational process, and last but not least to provide financial support according to the organisation's needs.

As a final remark on this strategy, the importance attributed by the interviewees to their participation in an organisation created by themselves has to be underlined: an organisation in which they know the members and which is independent from the higher organisational levels. So, from a theoretical perspective, and assuming that the study is representative sufficiently of the Pinhal Sul region, the structure of the organisation could be as follows: 43 local organisations, with one, two or more director members, as agreed by its members. This number might be lower should some parishes prefer to belong to the same local organisation; 5 council organisations, with a number of members equal to the number of parishes represented; 1 regional organisation, including a representative of each of the five Pinhal Sul's councils. Once such an organisational structure is achieved, the regional representation could become an effective member of the FANCP.

11 FINAL CONCLUSIONS

This chapter includes a brief summary of the results from the research, a global conclusion and a reference to the implications of this research in contributing to the empirical approach of the issues studied as well as its contribution to the theory on farmers' organisation. It also includes a discussion about the limitations found throughout the research and finally some suggestions regarding further research.

11.1 Global summary

Forest landowners' organisations are an indispensable element in any approach to Portuguese forestry development. Given the similarities between Portuguese forestry and the forests of other EU countries, mainly those of Southern Europe (Spain, Italy, Greece and part of France) the forest landowners' organisational process is a common issue frequently discussed by foresters. Those usually conclude about the need to study new forms of organisation among the small forest landowners. In the particular case of Portugal, despite the existence of a reasonable amount of farmers' organisations dealing with agricultural activities (production, processing and commercialisation), a lack of such organisation is visible almost all over the country in forestry. The main reasons for this lack of organisation are often linked to the lack of interest of the landowners, their traditional and individualist mentality and the lack of a forestry culture among them. The diversity of the situations in the different regions of Portugal leads to different types of forestry. In the area of our study, forest is characterised by the continuous coverage of large areas of land with one species only - Maritime Pine -, areas which are wholly in private ownership and mostly belonging to small landowners. This species is present in almost all the country, but not constituting such continuous areas, and sometimes being only partly private and partly public forests. However, some efforts have been made to motivate the forest landowners to get organised. The structural and technical problems are similar in both kinds of forestry, the main differences lying in the fact that in Pinhal

Sul almost all farmers have forestry plots, and the forestry area per farm is higher than in any other place in the country. Such characteristics of the properties in Pinhal Sul raised suspicions that the usual reasons for the lack of organisation (the lack of value of the forests leading to the lack of interest of its owners and the lack of forestry mentality) would not apply to the forest landowners of Pinhal Sul. Expecting to clarify some of these issues, we proceeded with our research work in order to examine and describe some relevant characteristics of the small forest landowners' mentality, and their positions towards future activities in their forests. Moreover, we also studied the landowners' perceptions of the problems involved in their forestry activities, the role played by the governmental forestry services in the region, and the perspectives and expectations about the potential solutions suggested by the landowners. Once we had learned about the features of the forest landowners' mentality, their attitudes, and their expectations, we were able to focus on the overall issue of this thesis - the forest landowners' organisation.

The Forestry Association of the North and Centre of Portugal (FANCP), with financial support from the Portuguese government and the EU programmes regarding forestry development, have been making efforts to promote the organisational process among small forest landowners. However, this action has been more focused in the Northern than in the Central region of the country, where the study area is included. This led us to examine to what extent would the suggested organisation model and its implementation strategy be accepted by the forest landowners of Pinhal Sul. The study of the landowners' organisation, given the non existence of any forest organisation in the region, was centered on landowners' experiences, their perceptions and attitudes, rather than around the objective factors usually used in studies of farmers' organisations. Hence, three main lines of enquiry were followed in the research by studying the NPFLs' attitudes towards forestry organisation, the position of the NPFLs regarding the features of the organisational process suggested by the FANCP, and by examining the relations that could be established between the attitudes towards organisation and the acceptability of the model. Complementary to these three lines, and given that the final objective of this study was to contribute some suggestions to a strategy meant to implement an organisational process in the region, some strategic issues based on the

points of view of the three entities more closely related with the forestry development at a regional level (landowners, technicians and local authorities) were also studied.
The first part of the study was based in a survey conducted by face to face interviews with all forest landowners available in one parish - Estreito. It assumed characteristics of in-depth research to explore, describe and explain the forest landowners' involvement in forestry, their problems in carrying out such activity and the role of the governmental forestry services in promoting the development of forestry in the region. The second part of the research involved different sources of information: NPFLs residents and non-residents in the region were assessed by face to face interviews and mail questionnaires respectively; the Parish Presidents were also assessed by mail questionnaire and the technicians and the Council Mayors were interviewed using non-structured interviews. This information allowed us to answer some of the specific research questions as presented in the Chapters 7, 8 and 9 (respectively to the different sources of information). A final chapter was then drawn up, encompassing all the information in order to provide the general point of view of the local entities about forestry development in the region.

11.2 Achieved objectives and limitations

Generally speaking, the main objectives of this research were satisfactorily achieved, since Chapters 5 and 6 provide a global description and an explanation about the role of forestry in Pinhal Sul region, and present a picture of the main socio-economic characteristics of the forest landowners, and of their mentality towards forestry. In their turn, Chapters 7, 8, and 9 present the level of acceptance regarding the organisational model under study, as well as a clear image about the attitude and the opinions of the entities contacted regarding their potential involvement in an organisational process. These chapters also provide information allowing us to summarise all opinions, and the individuals' willingness and disposition. This allowed us to produce a global analysis and discussion suggesting some strategic issues about the organisational process in the region as presented in Chapter 10. Despite the specific summaries included in each of these chapters, it will be helpful to make a brief reference to each of those parts according to the objectives, questions and hypotheses formulated in each of them. Considering the descriptive nature of most of this research, it was still possible to make a general analysis and discuss the results in order to enable us to refute or accept the research's hypothesis as formulated at the beginning of the study.

11.2.1 The region and its forestry

Pinhal Sul is a forest region mainly constituted by family farms (92% of its total area, with total areas up to 5 ha, where the forestry area represents less than 4 ha and the agricultural area less than 1 hectare). The farms are worked by the families, usually by a couple, since the children usually have to leave the region to study or to get jobs in activities other than agriculture. Agriculture is limited to horticulture for household supply. Farmers also grow some fruit trees such as olive, citrus and cherry trees, in order to sell their products. Raising animals, mainly goats, is a complementary activity characteristic of many family farms. Forestry is the most important activity in terms of the occupied area (about 70% of the overall area of the region) and is characterised by large continuous areas of Maritime pine. Its main products are timber wood, resin, fire wood and brush. The contribution of forestry to the Gross Production Value (GPV) assumes an important role for the economy of the region. However, comparing it with agriculture, the forestry's GPV is lower than that of agriculture, particularly in the small farms of up to 4 hectares, or even 8 hectares of forest. Only in farms with more than 8 hectares of forest is the forestry GPV higher than the agricultural one.

Despite the large percentage of land covered by forest, and the particular characteristics of the soils and climate, the potential of the region's natural resources is not completely and efficiently used in respect of forestry. Hence the possibility of setting a policy for forestry development based on both aspects: the enlargement of the forest area, and the improvement of some of the already existent woodlots. In the same way, also the burned areas, which in some councils are very representative, constitute a potential resource that should be taken into consideration. Looking at its social potential, Pinhal Sul has been losing part of its population (about 40%) over the last thirty years, with particular incidence in the younger individuals. The actual population, with a density of 27 hab/km^2, is mainly made up of aged people. The majority of the active population is employed (93%) and about one third of them deals with agricultural activities and forestry. Emigration, a phenomenon affecting all the Portuguese rural areas, is visible there in two forms: those who still work and live abroad and the ex-emigrants who have already returned to their village and are now taking care of their properties. The population's educational level has been increasing in the last years, but it is still characterised by a high percentage of illiterate people, although about one third of the individuals do already possess an educational level above the primary school level. Furthermore, educational infrastructure provides the region with three educational levels and seems to be pointing to an increase of the region's educational level in the next years.

11.2.2 The NPFLs' mentality and their involvement in forestry

The study of the Estreito parish already constitutes a picture of the region as close to reality as possible and the information collected in the study of Estreito enables us to describe the forest landowners' involvement in forestry. Therefore, according to the referred study, the NPFLs are, most of them, people over fifty, living in nuclear family households. Their educational level is very low, since half of them are not able to write. The majority of them spend all their working time in agriculture and forestry, usually helped by their wife. Agriculture appears as their main source of subsistence, followed by forestry. However, these means of subsistence contribute in two different and complementary ways to the economic life of the families: agriculture ensures their self-sufficiency in terms of supplying the household with products, and forestry, despite the fire-wood and the brush collected for the farm's consumption, is viewed as a "net" source of income, given its easy conversion to cash. The commercialisation of the trees is made easier by the existence of dealers available to buy trees, even if only half a dozen of them. The income derived from forestry, more than that derived from new activities or from retirement pensions, is seen as the main contribution to the improvement of families' life conditions in the past twenty years. Such improvement can be shown in several ways: today in the region, all NPFLs' families have electricity, television, radio and most of them also have a telephone. The access conditions by road has improved as well as all means of transports. Nowadays all children have access to secondary school by being transported daily by a school bus. In the same way, most farmers now also have their own transport, enabling them to move at least within the region. Given such a picture of the economic life of the families of Pinhal Sul we tend to accept the hypothesis about the role of forestry in families' economy according to which the NPFLs' family is financially more dependent on forestry than on agriculture. In the same way, the study also presents strong indications to the validation of the hypothesis that the agricultural outputs have a larger role in the rural families' subsistence than those resulting from forestry. However, we should retain that such an hypothesis is more easily verifiable among very small landowners rather than among those with a considerable forest area (considering the region characteristics, over 5 hectares, and dependent on the number of the resin trees).

The property is characterised by its several small plots, quite often exceeding 50 or 100 plots. Most properties are inherited, and this seems to play an important role when looking at the property rights. However, the landowners do not distinguish between the properties bought by themselves and the inherited ones. Therefore one of the main objectives of the NPFLs' intention to buy forestry plots was to join plots in order to enlarge the properties in order to encompass them within a single large area.

Because of the nature of its tasks, the nature of its products, and the objectives according to which it is conducted, agriculture is an activity that consumes most of the farmers' working time. Therefore, it can be said that in most cases the calendar of the forest activities is dependent on the agricultural needs of labour and on the weather conditions. Given the fact that forestry in Pinhal Sul is based in only one species, the main activities in forestry are the collection of brush and fire wood, resin extraction, thinnings and cleanings. Since these activities are in a global sense extractive, not involving much time consumption, farmers refer to forestry as being more profitable than agriculture, and needing less work and investment to get much profit. However, in the NPFLs' opinion the main reasons to work in forestry are personal ones, having to do with the self satisfaction derived from working in the forests, having the forest well cared for and, the landowners' self-consciousness about their role. The economic reasons are secondary ones: the landowners know that by improving the quality of their forests they can get much profit, but since the period of time between the investment and its returns is so large that such a consideration does not affect their decisions very much. Only in the cases where the plots are to have resin extracted do they pay particular attention to the conditions of the forest from an economic point of view. This particular interest in resin has been affected by the decrease in the resin price. Such decrease in the interest on resin extraction and the problem of the forest fires has been affecting the commitment of the landowners to work in their forestry plots. Nowadays, more than half the landowners work less in their forests than they used to in the past, although some of them have increased or at least maintained the amount of forestry work. From this, the formulated hypothesis that although living in a forest region the NPFLs are more committed to the agricultural activity than to forest, becomes valid whenever forestry was affected by fires and regarding those NPFLs to whom, given the small number of "bicas" - trees to be resined - resin extraction is not profitable. However, the hypothesis could be rejected by taking into account those NPFLs who said they are limiting agricultural activity to the strict supply of the household and who look to forestry as a main activity in the future.

11.2.2.1 The NPFLs' mentality towards forestry

Although farmers feel themselves more dependent on agriculture, they recognise that forestry properties constitute their real wealth. A possible indicator of the NPFLs' relationship with their forests, could be their self-designation as farmers or as forest producers. Their satisfaction from working in agriculture or forestry can be another indicator. The self-designation of one quarter of the farmers as forest producers and the satisfaction showed by almost one half of them for working in forestry, provided us a sufficient basis to conclude that they are not indifferent to forestry issues. This suggests that there is a particular forestry culture in this region. To enhance such an idea, the NPFLs assumed, in general, a commitment to themselves, like an obligation imposed by their conscience, to take care of their forest. Therefore, it seems reasonable to reject the

hypothesis according to which the NPFLs are not interested in their forests and see themselves more as agricultural producers than as forest producers.
Moreover, generally landowners make use of their property rights upon their forests. Among these rights, the right to sell the property is seen as an ultimate solution for the family's economic problems, or as a way to get money to buy another plot. The intentions of the NPFLs are based in the idea that they should at least keep the property and its quality, if they can see that it is impossible to increase the area and its quality. Here, the tradition of the inheritance system plays a very important role: the farmers take pride in leaving their children a better inheritance than the one they received, or at least one as good as possible. Therefore, to achieve this purpose, the NPFLs are not pursuing short term economic forest management, but, on the contrary, they look at their investment in forestry as an increase in the value of the patrimony that they are planning to leave to their children. The only short term economic objective they have in forestry is resin extraction, since, in our opinion, the sporadic felling of two or three trees in order to get money in an emergency is not realy a forestry objective. In general, the attitude of the forest landowners can be described by saying that they are interested in pursuing such an activity, and aiming to maintain and if possible to improve their forest areas and its quality through technical interventions. Thus, according to our hypothesis, the NPFLs' forest mentality has more to do with the forest's economic value than with its social value. Forestry appears as a profitable activity but with the inconvenience of being affected by forest fires. Apart from the economic value of the forest, the owners also recognise its personal and social value, materialised in the satisfaction they feel in working their plots, of owning a good forest, and in collecting forest products (fire-wood and brush). Most of them do not have any perception of aesthetic or ecological values: when they look to a burned landscape they only feel sorry because of the economic damage associated with the lost of the forest. According to this last observation, we can claim validation for the hypothesis according to which the NPFLs do not perceive the relationship between forestry and its environmental value. Burned forests constitute only a particular case of the overall situation. Farmers with the whole or a major part of their forest area burned, recognise the forest's value with some restrictions, since their experience with fire has made them become unmotivated.

11.2.2.2 Forestry Management

The NPFLs usually give priority to agricultural over forestry tasks. This does not mean any kind of disregard towards forestry. The kind of tasks to be undertaken in agriculture forces such priority: because of its nature and because of the purposes of the activity. Thus, although they work their forests, landowners only do so when they are able to spare some time from the agricultural activity, or whenever the weather conditions are favourable to forestry tasks. In their opinion, they work on forest as much as they can. However, recognising their limitations, they also understand that much more must be done, even if because of their physical and financial limitations, they do not feel obliged to do more than they actually do. Therefore, forests are not as well cared for as they would like them to be, but are far from being abandoned. The abandonment of the forest, when referred to, is assumed to be a result of the limitations of their activity, and never as a result of a lack of interest of the landowners or of the lack of perception of the forest's values. Also in this particular issue have the forest fires affected the owners' position. The abandonment of the activity is an easy way for those whose forest was burned, even if they keep interested in resuming it if supported by the state. In general, landowners are still interested in forestry, but despite this, they have reduced their work in the forest. This decrease is justified by several reasons: first, by the effect of the forest fires and some technical forest management problems, second, by the properties' structural problems as well as some social changes that occurred in the region in the last years. Given this preponderance attributed to the forest fires, we were led to accept the hypothesis according to which forest fires are the main forestry problem faced by the NPFLs.

In the NPFLs' opinion, to maintain the activity, and to enlarge the areas and improve the quality of the woodlots, they will require the state's support (financial and technical). They also believe that the future of the forest in the region would be dependent on an organisational process among them. This expectation of governmental support presupposes a set of radically different policies from the forestry services. All information collected about the role of these services led to the validation of both the hypotheses which were formulated - governmental activities have been a weak influence on the improvement of NPFLs' forest management and they do not provide them with any support to solve the problems related to forestry. However, the NPFLs hope and expect that in the near future a close relationship between technicians and them would be developed in order to help and guide them according to the conditions of the programmes (technical training and advice, project design, creation of organisations) to be implemented within a new forestry policy. Otherwise, they think that it will be impossible to improve forest quality and forestry conditions in the region.

11.2.3 NPFLs' forest organisation in the Pinhal Sul region

In Chapter 10 we have included an in-depth approach to the research questions and hypothesis formulated to study the organisational process of the forest landowners in Pinhal Sul region. Given that we have already discussed and summarised the acceptability of the model and the NPFLs' perceptions towards the strategic actions, as well as their willingness to be involved in an organisational process, we will restrict this section to a discussion about the hypothesis. With the exception of the technicians, all other entities based their opinions about the hypothetical solutions for the forestry problems on an effective intervention of the state in the private sector. This indicates that the hypothesis according to which the NPFLs' solutions for forestry problems are exclusively based on state intervention in forest activity, may globally be valid with the exception of the government technicians' opinions. In their opinion, the organisational process should be started by those with a real interest in forestry - the owners - and the state could then manage the programmes for forest development. However, the technicians have noted that such opinion emerges from the present state of affairs in the Ministry of Agriculture.

In spite of the weak representativeness of the information from the non-resident forest landowners, it was possible to learn that, generally, they are particularly interested in the implementation of forestry organisations, as can be seen from their willingness to get a proxy in order to assume the proper management of their forests, as well as from their clear preference for an organisation to play such role. These indicators are strong enough to suggest the acceptability of the hypothesis according to which the non-resident NPFLs will not be a hindrance to the process of organising the forest owners.

Furthermore, enhancing this position, all the other indicators collected were clearly favourable to the forest landowners' organisational process.

Even if the main features of the model of organisation suggested by the FANCP would be accepted, there are some aspects that seem unlikely to be accepted or implemented in Pinhal Sul region, mainly because of the social dimension of the associations to be created. In the Pinhal Sul's entities' point of view the best way to organise the forest landowners would be for a process to be developed gradually at a local level and based on the close participation of the landowners. Therefore, in order for the FANCP to carry on with its purpose of promoting the forestry organisation in the central region it would have to take into account that the NPFLs find it difficult to accept the model in its entirety, as it was hypothesised. However, and to conclude this approach into the objectives of this research, we must say that, according to the experience that we have gained during these three years, we are able to assume that, in general, the indicators referring to the NPFLs' beliefs and attitudes regarding the role to be played by an organisation and their willingness to act were enough to validate the last hypothesis: NPFLs' attitudes towards organisations are favourable to the organisational process.

11.2.4 Limitations of the study

According to Shipman (1981), the aim of social research should be to influence current beliefs and practices, by only producing systematically collected evidence. Its results must be analysed taking into account the typical limitations of social research. Apart from these typical limitations, and given that our study is based on the farmers' attitudes, we must consider that, as Smith (1961) states, human beings are so complex that no list of attitudes can ever be exhaustive or mutually exclusive. Hence, we think that it is important to highlight that the attitudes examined in this study cannot encompass all attitudes that could potentially derive from the research design preferences. This means that, despite the overall accomplishment of its objectives, this study involves some constraints and limitations which should be taken into account, in order not to reach the wrong conclusions.

The most substantial limitations were at the methodological level, and in two different dimensions. On one hand, we had limitations related to the material resources and time. Although these kinds of limitations do not prevent us from undertaking research, the level of representativeness could be increased in statistical terms if more material resources were available at the time. Also the construction of attitude scales could have been improved with more time and resources, even though we reached a level of reliability and validity which we consider reasonable and suitable to the purposes of the study.

Difficulties in contacting the non-resident NPFLs was the most significant limitation in our research. Despite the collaboration of the Parish Presidents, the response rate was not as good as expected. Thus, those individuals' contribution was analysed taking this limitation into account. A final limitation in terms of methodology was the fact that we tried to collect some information from individuals in the industrial sector, but they were not willing to collaborate. Therefore, we gave up the idea of including their points of view in this research.

Other limitations had to do with the difficulties in getting correct lists and information about the figures and characteristics of the industries related to the forestry sector. Some of them which exist on paper have already closed down. Others are working but without a correct identification and legalisation of their activities. Therefore, given the sensitive nature of this kind of information, this study does not present a clear approach to this important factor. However, we were able to learn that the sector's industry is not a constraint to forestry development in the region, even if it is a sector in need of restructuring in order to become more competitive and to correspond to the objectives of forestry development. In a general way we can say that the actual situation of the forestry industry in the region is adapted to the forestry activity undertaken by the forest landowners and forest dealers.

The diversity of the situations and characteristics of the forestry plots, the high number of plots, the lack of clear and real registration of the properties, and the lack of knowledge about the real characteristics of the properties (mainly about their areas) became an empirical limitation to our study, first because of the difficulties of using the property areas for the typification of the farmers, and secondly because of the aspects that sometimes emerged during the interviews, showing some confusion or different opinions in the same respondent. This means that their perspectives are affected by the area and the quality of their forest. Nevertheless, this remains a suspicion, and it can be a limitation of our study and, at the same time, it outlines a suggestion for further research about the relations between the properties' area, their quality and the forest landowners' involvement in forestry.

11.3 Overall conclusions of the study, implications and suggestions

The first general conclusion reached in this work results from the literature reviewed, and suggests that in regions where the forest belongs to small forest owners, forestry development is dependent on those landowners' organisational process. Pinhal Sul region, because of its specific characteristics, appears as a privileged region of Maritime Pine forest which has potentially been under utilised. Therefore a forestry development plan is needed in order to pursue the forest values according both to private and public perspectives. In the region, the forest landowners show clear economic and social interests regarding forestry. Because of this importance, past and present, forestry has gained a relevant role in the farmers' household economy, and forestry operations have gained a place in the farmers' working plan. We concluded that the farmers in Pinhal Sul have a forestry culture which encompasses their technical perceptions, their beliefs, values and attitudes. Economic and social values are the ones used by the farmers as guidelines for forest management and decision-making process regarding their forests. Recognising some problems (lack of capacity to operate a correct forest management, occurrence of forest fires) in undertaking effective forest management, farmers suggest state support on private forestry through technical, financial and training support. They also recognise the advantages of getting together, in order to minimise the effect of these problems. Therefore, absence of forestry organisations in the region turns out to be a fundamental issue that must be considered by all entities related to the forestry sector. In this perspective, our research appears as a contribution towards understanding what is going on regarding the organisational process in the region, the local actors' views regarding some specific factors related to an organisational model, and strategic factors related to the creation of an organisation, as well as their disposition to participate.

The information provided by the study suggests that the forest landowners, in general, are interested in participating in an organisational process leading to the creation of forest owners' associations at a local level. Their attitude towards organisations seems to be favourable to their involvement in such a process. Social factors such as the farmers' age, or their educational level, even if they could affect farmers' participation, do not appear as effective constraints to the creation of landowners' organisations. The perspective of the non-resident forest landowners does not differ from the resident ones, moreover, they recognise the hypothetical forestry organisations as potential representatives of their interests in forestry, since from this point of view, they have higher expectations regarding an hypothetical organisation than the other landowners who live in the region.
Even if few experiences in the past have succeeded, it is not clear that the reasons for the failures have been based on the farmers' mentality factors. Moreover, now, given the evolution of the sources of information, and considering that the rural people's knowledge is not static, but built through the socio-economic and cultural histories of the regions within which people live, much has changed in Pinhal Sul in the last few years, because of the changes in the migration process, changes due to the roads structure, access to television, telephone and other facilities. These changes have brought changes in the people's mentalities and may have brought them new knowledge regarding an hypothetical organisational process.

In the opinion of Arnaiz (1995), citing Schneider and Hartmut (1988), there are three main conditions favouring the foundation and the continued viability of farmers' organisations: members' perception that group action will lead to the fulfilment of personal objectives; a political environment favouring associations; and an homogeneous membership. Considering the case of Pinhal Sul, we believe that the region almost fulfils such conditions. In other words, we might say that everything seems to be there in order to develop an organisational process in the region.

Despite the favourable conditions, there are also some constraints that have to do with starting the process and the lack of initiative. Theoretically, such a fact could be a sign that the reasons or the motives to develop an organisation are not strong enough to induce the organisational process. From this impasse we are led to conclude that if the Portuguese government wants to implement a forestry policy based on the existence of organisational structures in the sector, it is reasonable to suppose that something has to be done in order to break the inertia. The organisational process seems to be dependent on the state's initiative and on the Parish Presidents' participation or involvement in it. But the latter does not constitute a real constraint, given the interest shown by most of the presidents and council Mayors about co-operating in the process. Adding to their availability it is important to enhance the willingness of the NPFLs to work together with the Parish Presidents. This could result in a synergetic situation able to make organisational process successful in some parishes.

The FANCP can also play an important role in promoting the forestry organisational process in the Pinhal Sul region in terms of motivation of NPFLs' initiative. The actions to be implemented by the FANCP aiming to start the process must be as close as possible to the NPFLs and to the local authorities as well. However, the strategy to use in starting the organisational process, would be slightly different from the one which used in the Northern region. Thus it seems better to try to achieve a pyramidal structure, built through a bottom up approach and having local organisations at a parish or multi-parish level as its basis. Furthermore, it is indispensable for any organisational model to be developed in the region to be flexible and adaptable to a diversity of parishes as well as to respect the rights of the landowners. If it does not allow a suitable management of these rights, success is very unlikely.

11.3.1 Implications and suggestions

The implementation of a strategy, as described in Chapter 10, for the promotion of the organisational process among the NPFLs starting from a local level (Parishes) to a

regional level, would raise some difficulties. One of these expected difficulties has to do with the creation of a large number of associations, and the problem of landowners with plots in different parishes. Moreover, the implementation of the organisational project at a local level would lead to the establishment of many local organisations which will not be possible without the involvement of the Local Authorities. Correia (1996) describes a similar situation in Auvergne, France, where the programme to implement the forestry associations and co-operatives was only possible because of the intervention of the Council Mayors. The diversity and the huge number of organisations created in the department d'Auvergne, brought some difficulties to the management of the local organisations, because of the multiplicity of situations and activities involved. Hence the importance of starting gradually as our strategy suggests. In this way, Kinnon (1993) agrees that structuring farmers' organisations from grassroots to a national level can be a long and meticulous task, which should be started at the local level; he also advises that any attempts to speed up the process often only lead to superficial groupings without solid foundations, which disaggregate once external support is withdrawn.
From the above discussion it seems, as well as from the whole study in general, that the role of the local authorities is indispensable in such process. Even if most of them have shown great enthusiasm, some of them were slightly reserved about the success of their involvement. This hesitancy of the local authorities towards their participation in the development of the organisational process from a local to a regional level, seems to be linked with other administrative issues, and it depends on the presidents' experience in dealing problems among the other parishes and councils. It can probably be seen as a political problem rather than a forestry, or a forest landowners', problem.

The study of the NPFLs' attitudes towards collective action in forestry gives us the idea that despite their favourable position regarding the creation of an organisation among them, in order to make them plan and undertake common forestry operations it will be necessary to provide the landowners with clear information about the way to do it. For instance, to cut and to commercialise trees in a collective way is technically possible, but given the lack of experience it raises the need for information and education of the farmers. These operations have to do with the farmers' independence in making their own decisions about their properties. Therefore, to change this individualistic point of view to a collective one is something that needs to be very carefully explained to the farmers and has to be developed gradually, in order to assure the farmers that they are not losing their rights and their capacity of intervention. In agreement with such an idea, Jean and Pierre (1987) point out that the creation of farmers' organisations per se does not guarantee that these organisations will be actually developed if they are not viable because of the lack of identification with the interest and needs of local farmers, and if they respond more to the leaders' particular or politic interests. The risk is even higher if a top down strategy is followed in the organisational process.

During the field work, two practical implications emerged from the discussion of the issues related to the availability of labour and to forestry as an alternative in order to preserve their properties. At first sight, the changes in the population seem to be a factor affecting the forest landowners' organisational process. However, we think that once an organisational structure is created the problem of involving the landowners in forest development activities will become easier. On the other hand, it does not seem problematic to find people to run the organisation's activities and the forestry actions. Hence, the lack of people or a decrease of the population is not a real constraint to forest development. Forestry, due to its natural characteristics, does not involve much labour. If well organised and under correct management actions within a large area, forestry would not have problems to find workers in the region.

The possibility of having a forestry organisation able to take care of the interests of non-resident forest owners could be an important factor for the establishment of new forest areas. Forestry, because of its technical characteristics, seems to be the best way for non-resident landowners to maintain their properties in a non-abandoned way. Therefore, all landowners interested in the use of forestry as an alternative might be interested in an organisational process in order to support them with their forest management.

Most of the implications of this study have to do with the state's policy for intervention in the private forestry sector. Carneiro (1962) points out that if the state wants to promote, to preserve, to protect and to improve environmental conditions, there has to be a direct support to private forestry, in order to enable the private sector to behave in a way favourable to the state's environmental concerns. Moreover, adding to this idea, Gregersen (1984) identified three main types of public policy instruments available to affect the afforestation activity in a country. The first has to do with the public investment, the second with the regulation of private and/or public action, and third with incentives of various kinds to encourage private action. Both of these opinions would be more effectively implemented through an organised sector. Hence, the interest of the state in promoting such organisation among private forest landowners. Following this idea, and also enhancing the importance of the states' support to the farmers' organisational process, OCDE (1971) states that in as much as they contribute to the creation of a better agrarian structure, groups maybe considered eligible for state aid under selective investment support policy, wherever such aid seems necessary to help them to get started. However, the author advises that once established, groups should be viable and should not require any prolonged assistance.

The strategy suggested in this study involves implications at two levels of the Agricultural Ministry: defining a clear policy in order to promote the organisation of the sector and at a practical level the implementation of such measures, namely the changes to occur in the governmental forestry services. As we have suggested, according to our strategy, the forest services would only be involved in the promotion and the guidance of the first meeting at a local level, to facilitate the formal issues for the process of legalisation of the organisations. But this participation requires an extension work for which the forestry services are not presently prepared. Hence, we foresee the training of some forestry technicians for the extension work as a potential solution, since it would not be difficult to contract forestry technicians, and then start the promotion of the first meeting under a co-ordinated way in the five councils. In the future, some of these technicians could be employed in the organisation being elements of its technical board. The implementation of an organisational process according to the strategy discussed in the previous chapter requires personal skills ranging from leadership, negotiation, planning, and administration to communication. Implementation is not only dependent on design, since day-to-day operational snags can lead to new plans being proposed. Besides this, the staff involved in the organisational process might be prepared to undertake social engineering work. In this work, skills in dealing with group formation, leadership, participation in decision making, and communication, will play a fundamental role. These aspects should have the same importance as the technical issues in the programme (Cernea, 1992; Dalton, 1982).

Adding to the above mentioned issues, our study suggests that technicians, in their interventions, should consider the landowners' views about farming and forest resources management. Their attention should be drawn to the fact that landowners do not simply see themselves as forest producers, but also as managers of a set of resources which they use in an integrated way, according to family needs and particular socio-economic objectives, as well as taking into account that despite the weak perception of the landowners about the forest's ecological and environmental values, they seem to follow a specific forestry culture which should be considered by forest policy planners.

Although we recognise that the Agriculture Ministry and its forestry services have an important role, in our opinion it is important to highlight the Ministry's role in defining the forestry policy as well as the instruments for its implementation. Regarding this point we think that it should make efforts to provide conditions in order to enable the participation of the small forest landowners in the policy making process. Such need became clear and urgent with the publication of the General Law of Forestry (Lei de Bases da Floresta - (LBF), (Lei nº 33/96 de 17 de Agosto). This law introduces two new instruments in the forestry policy: the Regional Plans for Forestry Planning (Planos Regionais de Ordenamento Florestal - PROF) and the Plans for Forestry Management (Planos de Gestão Florestal - PGF): the first depend on public initiative and will affect the forestry activity in the region; the second depend on private initiative and are compulsory in properties larger than a certain forest area. (Ferreira and Pinho, 1996; IF, 1996). However, before enforcing the law its regulation will be a huge and difficult task. Thus the rules for action, objectives and limits, duties and obligations involved in the implementation of these instruments, should result from negotiation among all entities directly interested in the forestry issues. This increases the urgency to organise the forest landowners in order to allow them through their representatives to become participative in such process, giving them an opportunity to defend their rights involved in this new Forestry legislation.

According to Silva (1996) the present Minister of Agriculture, thus the minister responsible for the forestry policy, one of the purposes of the new LBF is the reinforcement of the participation of the private entities in the definition of forestry policy. Such participation is particularly important in defining the regulation of the LBF, which is expected to be finished by the end of 1997. Therefore, and given the absence of a forestry organisation representing a significant percentage of the small forest landowners, those interested will hardly be heard during the negotiations. Regarding this, we hope that the organisational process in a region like Pinhal Sul becomes a reality as soon as possible, in order to get the forest landowners organised so that they can participate in the definition and regulation of PROF for their region.

Gomes da Silva also foresees that all supports to the private forestry will be dependent on the organisation of the forest landowners. In the event of a lack of organisation, the landowners will see access to financial support denied.

Given the above discussion about the present issues of forest policy in Portugal, it is clear that a lot of pressure and expectations are put on the organisational process of the forest landowners. Before the publication of the LBF the Portuguese government requested a large study about the perspectives for the forest sector in the next 10 years. According to Carvalho (1996), such a study proposes the afforestation of 700 000 hectares. This afforestation plan considers a high participation of the private owners and includes a reference to the necessary participation of the state through the fiscal benefits to the land-consolidation actions and to the creation of small forest landowners' organisations. In the same way, Oliveira (1996) points out that throughout the LBF there are frequent references to the forest landowners' association and to collective actions, but as the author suggests, the organisation of the forest landowners cannot be achieved only by publishing legislation; it is necessary to promote actions in order to implement such organisations. We in turn hope to have contributed with some knowledge and suggestions to these actions, and in complete agreement with Gibb and Miller (1959) we would like to finish this work stating that **"Group members are made, not born"**.

11.4 Contribution to the body of knowledge about forestry organisations

Throughout this research, forestry, besides its implicit value, has always been seen as an important factor in promoting the rural development of the Pinhal Sul region. However, the articulation of forestry with rural development usually involves, according to Forestis (1994), a methodology based in three dimensions: first, the insertion of forestry property in the landownership structure (the land, the man, their interests, their attitudes and their organisation forms); second, the insertion of the forest in the system of land exploration (soil's physical conditions, climate, flora, fauna, and the use of the forest, its defence and protection); and third, the insertion of forestry in the free market (profit maximisation). It was mainly taking the first dimensions into account that we tried to contribute to the knowledge about the Portuguese forestry, and in particular about the Pinhal Sul region, in order to enable the efficient implementation of a forestry development policy respecting the overall interest regarding the private forest. This contribution specifically relies on the discovery and discussion of the factors involved in the forest landowners' organisational process, assuming the indispensability of the implementation of the landowners' organisations as a potential means of forestry development. Regarding the organisational process, our main concern has to do with the creation of forest landowners' organisations capable of being successful in the defence of the small landowners interests. About such objectives Broderick *et al.*, (1985) notice that if an effort to organise a local association is to be effective, certain conditions must be met: among these is the need for sufficient resources to be available to conduct a thorough analysis of the local economy for forest-products, including existent level of management and marketing services available to private landowners. The analysis must answer two key questions: what are the needs of local woodland owners? Could a local owners' association realistically do anything to meet those needs? We believe that our results are partly a modest answer to some of the issues embodied by these questions and contribute to the discussion and clarification of some of the issues implicit in them.

Comparatively to the organisational model and strategy for its implementation followed by the FANCP, the results of our research can be considered as an alternative. Despite the similarities of the model, a substantial difference lies in the fact that the local associations have not an intermunicipal base, but are based at a village level. Our study also seems favourable to an organisational process starting at a local level, which could be gradually developed to the higher level, resulting in an intermediary organisation at a regional level in order to represent the Pinhal Sul region.

In general sense our study constitutes a contribution to the field of farmers' organisations or specifically to the forestry organisations. However, besides this, its results assume particular importance for Portuguese forestry. Farmers and forest producers, as Estrada (1988) states, have been under pressure of a new agricultural policy in the EU, with the creation of the (CMO) offices for each product, sectorisation of the activity. This leads to the reduction of the farmers' organisational protagonism, and an increase in the importance of economic associations. According to Estrada, the support provided by the EU for the promotion of economic associations is a clear evidence of such fact. From this policy, and given the importance of the maritime pine, as well as all forestry products in general, it would be reasonable to expect the emergence of a specific organisation dealing with these products. Due to this situation, studies contributing to the knowledge of the farmers' organisational process are opportune (Silva *et al.*, 1994; Oliveira, 1993).

This research also contributes to the description of the forestry culture of the small forest owners. According to Cordovil (1993), who states that culture is assumed by some researchers as a combination of norms, values, feelings, thinking, roles, rules, behaviour, beliefs, attitudes expectations, meanings and so on, we think that it is reasonable to conclude that the findings about the landowners' involvement in forestry, in any stage of this research, are a clear contribution to the identification and description of the forestry culture of Portuguese small forest landowners.

Another contribution of this research has to do with the theory of farmers' organisations, where it reinforces the need to rely on pyramidal structure, as well as the strategy to implement it through the gradual development of its components from the basis to the top as suggested by Westoby (1989) and Martins (1993). For these authors an organisation with a pyramidal structure is the best way to organise farmers. This structure allows an easy communication between the members and the director boards.

But it also requires the leaders to be really interested in carrying on the organisation's work. The importance of a gradual start to the organisational process is pointed out by Newiger (1983) who argues that small farmers cannot identify themselves with a big organisation which is far away from their homes and which is run by people they cannot trust.

In the same way, our research also contributes to the understanding of some pre-requisites of a strategy for the implementation of the organisational process. As happened in Galicia, the organisational model was underlined in a previous study about the forest owners' motivations towards the implementation of alternative ways in order to allow neighbours to join their forests. According to Valle (1990) these alternatives must encompass the respect of property rights, and should be flexible in order to adapt themselves to the diversity of the local situation in the region.

The research methodology used in this study can also be seen as a small contribution, since it provides an attitude scale that can be improved in order to be used in similar situations. The approach based in the respondents' attitudes towards one object in order to typify them and then to design a strategy according to the opinion of respondents included in a specific category, also seems to be useful for research projects with the same nature and aims.

11.5 Proposal for further research

The main constraints to the process of organisation are the ideological-political factors and the physical constraints. Given the difficulty of solving or handling the last group, it is reasonable to think about trying a strong intervention on the first one. The ideological-political factors involve a wide sort of issues related to the education and training of the farmers and technicians, and the previous farmers' experience of association process or collective action in agriculture. Given the assumed dependency of the implementation of the organisations among forest owners in variables related to these factors, as Vilariño has shown in Spain, a **"research and action"** project would be the next step of this study. Such a research and action project can be seen as a continuation of the present work, and it would allow us, at the same time, to understand and to act, acting with the awareness of the factors involved. As a result of the research and action project, besides the creation of an embryo of forest landowners' organisation in the region, we can expect to develop new forms of collective action in forestry management.

Recognising that the forest landowners would have no problems participating in the organisation, it is a simple and optimistic conclusion, because different approaches to the participation issues may raise opposite opinions. But, as part of our study was conducted in hypothetical terms, and as the forest landowners did not have the opportunity to participate, we did not approach participation issues. Therefore, we think that a research about the members' (forest landowners) participation in the organisations could be a complement to our study. However, such research can only take place in a different region, or has alternatively to wait for the creation of some forest organisations in Pinhal Sul.

The continual absence of forest cleaning will present problems in the future, unless some action is implemented in order to reverse this trend. Research is needed to find ways to encourage the forest landowners to participate in actions which could improve forest management and hence both the productivity of their trees and the quality of the region's forest. Most of them have only small forest areas and therefore some form of co-operative or collective action may be the best way forward.

There are some parishes around the Pinhal Sul, as well as in distant regions, with similar characteristics to the ones included in the Pinhal Sul region. Regarding these areas, we believe that it would be interesting to study their position regarding the issues studied in this research. In this case, a particular attention would have to be paid to the extent to which the differences of the forest would affect the involvement of the owners and their attitude about getting organised.

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Appendices

Appendix 2.1

Distribution of forest areas in EU countries

Countries	Total area (1000ha)	Forest area (1000ha)	forested area (%)
Sweden	40800	23700	58
Norway	30686	13700	47
Austria	8385	3857	46
Portugal (*)	**8 893**	**3 085**	**35**
Luxembourg	259	88	34
Germany	35562	10189	29
Italy	30126	8675	29
France	54919	14440	26
Spain	50471	11792	23
Belgium	3057	602	20
Greece	13204	2034	15
Denmark	4300	466	11
United Kingdom	24100	2200	9
Low countries	4147	311	7
Ireland	6889	380	6

Source: CCE and CEENU, 1993; and (*) DGF, 1993))

Appendix 2.2

Forest fires in mainland Portugal

Years	Number of fires	Burned area (ha)
1983	2697	49380
1984	3958	52713
1985	3908	146265
1986	2545	99522
1987	2543	76268
1988	2254	22435
1989	16791	103908
1990	17395	125234
1991	22003	161817
1992	23251	54055
1993	15105	43055
1994(*)	21432	39146

Source: Martins 1994; and (*): IF, 1995

Forest fires in Pinhal Sul Region

	1995		1996	
Councils	Nº	Burned area	Nº	Burned area
Sertã	116	1590.8	83	54.8
Oleiros	31	12.1	33	5.2
Vila de Rei	14	18.6	10	4.1
Proença a Nova	21	7.8	39	2658.3
Mação	42	4427.8	15	5.4
Total	**224**	**6057.1**	**180**	**2727.8**

Source: Unpublished data - "Administração Florestal da Zona do Pinhal Sul" - Local Forestry Services

Appendix 4

RELIABILITY ANALYSIS - SCALE (ALPHA)
29 Sep 96 SPSS for MS WINDOWS Release 6.0

Reliability Coefficients

N of Cases = 56.0 N of Items = 16
Alpha = .9329

N of Cases = 170.0 N of Items = 16
Alpha = .7809

Selection of the scale items

Scale internal consistency according suggested by

- Spearman Rank Correlations of the satements (*)

Statement	Correlation coefficient	Evaluation
AT1	.6557	Selected
AT2	.6829	Selected
AT3	.4393	Rejected
AT4	.7186	Selected
AT5	.8633	Selected
AT6	.7361	Selected
AT7	.6551	Selected
AT8	.5981	Selected
AT9	.4517	Rejected
AT10	.6128	Selected
AT11	.6407	Selected
AT12	.5171	Rejected
AT13	.6750	Selected
AT14	.5822	Selected
AT15	.7168	Selected
AT16	.5863	Selected
AT17	.5814	Selected
AT18	.5672	Selected
AT19	.7627	Selected
AT20	.5590	Rejected

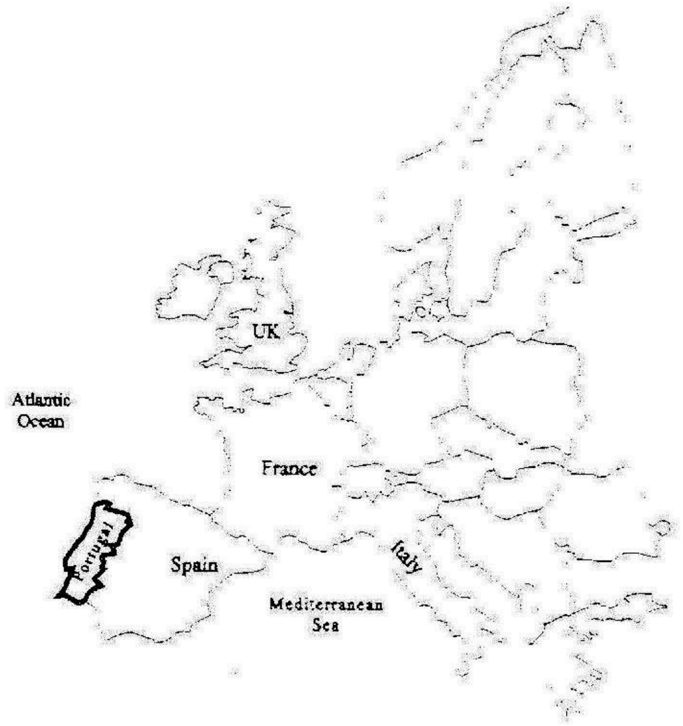
(*) Calculated by using the Software Excel, version 4.0 Microsoft Windows

Appendix 5.1

Map 1 Mainland Portugal, Territorial Units - Pinhal Sul localisation

Map 2 Parishes included in the Pinhal Sul region

Geographic location of Portugal (Mainland)



Appendix 5.2

Table 1 - Population trends in Pinhal Sul region

Councils	1940	1950	1960	1970	1981	1991	### % (60/91)
Proença	18183	18927	17552	13825	11953	11088	-51
Sertã	27183	28623	27997	23050	21503	18199	-50
Mação	20659	21714	19054	15190	12234	10060	-47
Oleiros	14020	15137	15553	13130	10183	7767	-37
Vila de Rei	8818	8407	7568	6150	4654	3687	-35
Pinhal Sul	**88 863**	**92 908**	**87 715**	**71 345**	**60 527**	**50801**	**-42**
Variation		+ 4.6%	-5.6%	-18.7%	-15.2%	-16.1%	

Source: INE Recenseamentos Gerais da População (X; XI; XII e XIII)

Table 2 - Population distribution Pinhal Sul by classes of age

	groups of age						
	0 - 14		15 - 64		>64		Total
Year	Total	(%)	Total	(%)	Total	(%)	
1960	2505 0	29	5293 3	60	9732	11	87715
1970	1738 5	24	4330 0	61	1066 0	15	71345
1981	1194 9	20	3645 6	60	1212 2	20	60527
1991	7895	16	2991 7	59	1298 9	25	50801

Source: INE Recenseamentos Gerais da População (X, XI, XII e XIII)

Table 3 - Active population by sectors in 1991

	Employed Population	Primary		Secondary		Third	
		N°	(%)	N°	(%)	°N	(%)
Mação	3 381	889	26	1 223	36	1 269	38
Oleiros	2 294	967	42	492	21	835	37
Proença	3 493	857	25	1 383	39	1 253	36
Sertã	5 598	2 526	38	1 804	27	2 268	35
Vila de Rei	1 175	478	41	316	27	381	32
Pinhal Sul	**16 941**	**5 717**	**34**	**5 218**	**31**	**6 006**	**35**
Região Centro	**677 502**	**115 515**	**17**	**262 869**	**39**	**299 118**	**45**

Source: INE - XIII Recenseamento Geral da População 1991

Table 4 - Land tenure and land use in Zona do Pinhal

Councils	No Total of farms	Types of land use: their own area	(%)	other types area	(%)	type of farming Single	Mist
Mação	4 369	19 225	88	2 641	12	-	-
Oleiros	3 184	17 010	99	146	1	16 902	254
Proença	3 756	16 083	99	207	1	15 911	379
Sertã	4 964	19 522	98	490	2	18 469	1 543
Vila de Rei	1 574	5 176	98	85	2	4 831	430
Pinhal Sul	17 847	77 016	96.4	3 569	3.6		

Source PDM of all Councils, accordingly RAC 1979

Table 5 - Distribution of forest and agricultural areas in Zona do Pinhal Sul

Councils	Total area (ha)	Forested area (ha)	(%)	Agricultural area Total	(%)
Mação	40 160	24 049	59.9	8547	10.7
Oleiros	46 552	37 381	80.3	3372	7.2
Sertã	45 313	31 493	69.5	6097	13.5
Vila de Rei	19 126	14 805	77.4	1189	6.2
Proença-a-Nova	39 526	24 940	63.1	6015	15.2
Total	190 679	132 668	69.5	25 220	13.2

Sources: PDAR (1990); Inventário Florestal DGF, (1980); RAC 1979

Table 6 - Description of the properties' structure

Type of farm	Nº of farms Total	(%) ZP	Area (ha) Total	(%) ZP	X farm.	Nº of plots Total	Area by plot, X (ha)	Agric. (%)	Forest. (%)
O	14 264	80	37 707	30	1.9	116 000	033	28	72
I	2 170	12	24 843	20	11.4	38 614	0.64	22	78
II	1 307	7.3	43 053	34	32.9	33 118	1.3	15	85
III	95	0.7	20 222	16	213	3 548	5.7	13	87

Source: Pereira (1986)

Appendix 5.3

Note - Typology that dived farms in four categories (O, I, II and III). Farms of group (O) are the ones that only presents the minimum conditions for the subsistence of the farmer's family . The other groups (I; II and III) includes farms managed under economic rules as a common enterprise.

Criteria	Type O	Type I	Type II	Type III
Total area (ha)	Up to 5	5 to 10	10 to 50	more than 50
Forestry area (ha)	Less than 4	4 to 8	8 to 40	more than 40
Agricultural area (ha)	Less than 1	1 to 2	2 to 10	more than 10

Source: (Pereira 1986)

Appendix 5.4

Comparative characterisation between farmers from the Estreito Parish and the remain farmers of the council Oleiros and the Zona do Pinhal region (ZP). These data were provided by the Regional Agricultural Ministry Office, according the RAC 1989.

Table 1 - Number of farmer according cultivated area

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
1 or more ha UAS	147	69.67	955	73	8164	73.85
0.5 ha of cultivated species	59	27.96	283	21.82	2377	21.50
area min. cultivated species	1	.47	1	.08	128	1.00
Animal production			58	4047	386	3.49
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 2 - Juridical entity of the farmers

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
Independent producer	205	97.16	1271	98	10945	99.00
Agricultural entrepreneur	6	2.84	24	1.85	98	.89
Agricultural association	0	.	0	.00	5	.05
agricultural Co-operative	0	.00	0	.00	0	.00
Commons	0	.00	0	.00	0	.00
Agreement with sate	0	.00	1	.08	3	.03
Other entity	0	.00	1	.08	4	.04
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 3 - Farmers' agricultural professional training

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
Empirical experience	211	100.00	1283	98.92	11003	99.53
Elementary training	0	.00	13	1.00	33	.30
Complete agricultural education	0	.00	1	.08	19	.17
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 4 - Existence of Agricultural Account

Criteria	Parish No	Parish (%)	Council No	Council (%)	(ZP) Region No	(ZP) Region (%)
Organised Account	2	.95	9	.69	67	.61
Only revenues records	1	.47	16	1.23	76	.69
Nothing	208	98.58	1272	98.07	10912	98.71
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 5 - Farms characterisation according the utilisable agricultural surface (UAS)

Class of UAS	Parish No	Parish (%)	Council No	Council (%)	(ZP) Region No	(ZP) Region (%)
Less than 1 ha of UAS	65	30.81	375	28.91	3050	27.59
1 to 2 ha of UAS	126	59.72	669	51.00	4816	43.56
2 to 5 ha of UAS	15	7.11	227	17.50	2468	22.32
5 to 10 ha of UAS	4	1.90	18	1.39	549	4.97
10 to 50 ha of UAS	1	.47	8	.62	148	1.34
more than 50 ha of UAS	0	.00	0	.00	2	.02
Landless	0	.00	0	.00	22	.20
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 6 - Farms characterisation according the forestland area

Class of forestland area	Parish No	Parish (%)	Council No	Council (%)	(ZP) Region No	(ZP) Region (%)
< 1 ha of forestland	5	2.37	175	13.49	2711	24.52
1 < 2 ha of forestland	33	15.64	196	15.11	2143	19.38
2 < 5 ha of forestland	68	32.23	369	28.30	2986	27.01
5 <10 ha of forestland	53	25.12	262	20.20	1410	12.75
10<50 ha of forestland	44	20.85	212	16.35	1013	9.16
> 50 ha of forestland	7	3.32	28	2.16	94	.85
Without forestland	1	.47	57	4.39	698	6.31
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 7 - The existence of Agricultural Tractors in each farm

Criteria	Parish No	Parish (%)	Council No	Council (%)	(ZP) Region No	(ZP) Region (%)
One Tractor	36	17.06	139	14.88	1131	10.23
Two Tractors	0	.00	9	.69	51	.85
Three Tractors	0	.00	0	.00	3	6.31
Without Tractor	175	82.94	1096	84.43	9870	89.28
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 8 - The use of to rent Agricultural Tractors

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
Use to rent tractor	163	77.25	614	47.34	3685	33.33
Not use to rent tractor	48	22.75	683	52.66	7370	66.67
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 9 - The existence of small tractors

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
One small tractor	5	2.37	144	11.00	1267	11.46
Two small tractor	0	.00	2	.15	25	.23
Without small tractor	206	97.63	1151	88.74	9763	88.31
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 10 - Sources of the farmers' family incomes

	Parish		Council		(ZP) Region	
	No	(%)	No	(%)	No	(%)
Only from the farm	79	37.44	361	27.83	1701	15.39
Mainly from the farm	73	34.60	418	32.23	2495	22.50
Mainly from other sources	59	27.96	516	39.78	6847	63.00
No answer	0	.00	2	.15	12	.11
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 11 - Farmers' working time in their farms

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
0 to < 25 % of the working time	32	15.17	253	19.51	2606	23.57
25 to < 50 % of the working time	17	8.06	141	10.87	1649	14.92
50 to < 75 % of the working time	17	8.06	219	16.89	1058	9.59
75 to <100 % of the working time	40	18.96	422	32.54	1194	10.80
Full time	105	49.76	262	20.20	4548	41.14
Without activity	0	.00	0	.00	0	.00
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 12 - Other principal profitable activities of the farmers

	Parish		Council		(ZP) Region	
	No	(%)	No	(%)	No	(%)
Agricultural	1	.47	63	4.86	198	1.79
Hunting and forestry	13	6.16	47	3.62	326	2.95
Fishing	0	.00	0	.00	3	.03
Extractive industry	2	.95	3	.23	51	.46
Other industry	1	.47	25	1.93	233	2.11
Community services	0	.00	4	.31	29	.26
Building construction	7	3.32	27	2.08	443	4.01
Shops and restaurant	9	4.27	37	2.85	363	3.28
Other activity	15	7.11	119	9.18	1633	14.77
Without activity	163	77.25	972	74.94	7776	70.34
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 13 - Other secondary profitable activities of the farmers

	Parish		Council		(ZP) Region	
	No	(%)	No	(%)	No	(%)
Agricultural	3	1.42	7	.45	79	.71
Hunting and forestry	0	0	6	.46	77	.70
Fishing	0	0	0	.00	0	.00
Extractive industry	0	0	0	.00	6	.05
Other industry	0	0	1	.08	2	.02
Community services	0	0	0	.00	0	.00
Building construction	0	0	3	.23	21	.19
Shops and restaurant	0	0	2	.15	22	.20
Other activity	1	.47	6	.46	114	1.03
Without activity	207	98.10	1272	98.07	10734	97.10
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 14 - Working time of the other member of the couple in the farm

	Parish		Council		(ZP) Region	
Criteria	No	(%)	No	(%)	No	(%)
0 to < 25 % of the working time	12	5.69	151	11.64	968	8.76
25 to < 50 % of the working time	7	3.32	188	14.49	983	8.89
50 to < 75 % of the working time	3	1.42	205	15.81	985	8.91
75 to <100 % of the working time	51	24.17	273	21.05	1154	10.44
Full time	99	46.92	227	17.50	4334	39.20
Without activity	5	2.37	41	3.16	2631	23.80
No answer	34	16.11	212	16.35	-	-
Total	**211**	**100.00**	**1297**	**100.00**	**11055**	**100.00**

Table 15 - Existence of other profitable activity in the family

	Parish		Council		(ZP) Region	
Activity	**No**	**(%)**	**No**	**(%)**	**No**	**(%)**
With other activity	126	60.00	838	64.61		
without other activity	84	40.00	448	34.54		
Total	**210**	**100.00**	**1286**	**100.00**		

Table 16 - Distribution of farmers by their age

	Parish		Council		(ZP) Region	
Class of Age	**No**	**(%)**	**No**	**(%)**	**No**	**(%)**
45 years old or less	36	17.06	175	13.49		
from 45 to 65 years old	120	56.87	633	48.80		
more than 65 years old	55	26.07	489	37.70		
Total	**211**	**100.00**	**1297**	**100.00**		

Table 17 - Distribution of the number of elements in the family

	Parish		Council		(ZP) Region	
Number of persons	**No**	**(%)**	**No**	**(%)**	**No**	**(%)**
One person	8	3.79	100	7.71		
Two persons	86	40.76	539	41.56		
Three persons	53	25.12	251	19.35		
Four persons	31	14.69	203	15.65		
Five persons	19	9.00	123	9.48		
Six or more persons	14	6.64	79	6.09		
Total	**211**	**100.00**	**1295**	**99.85**		

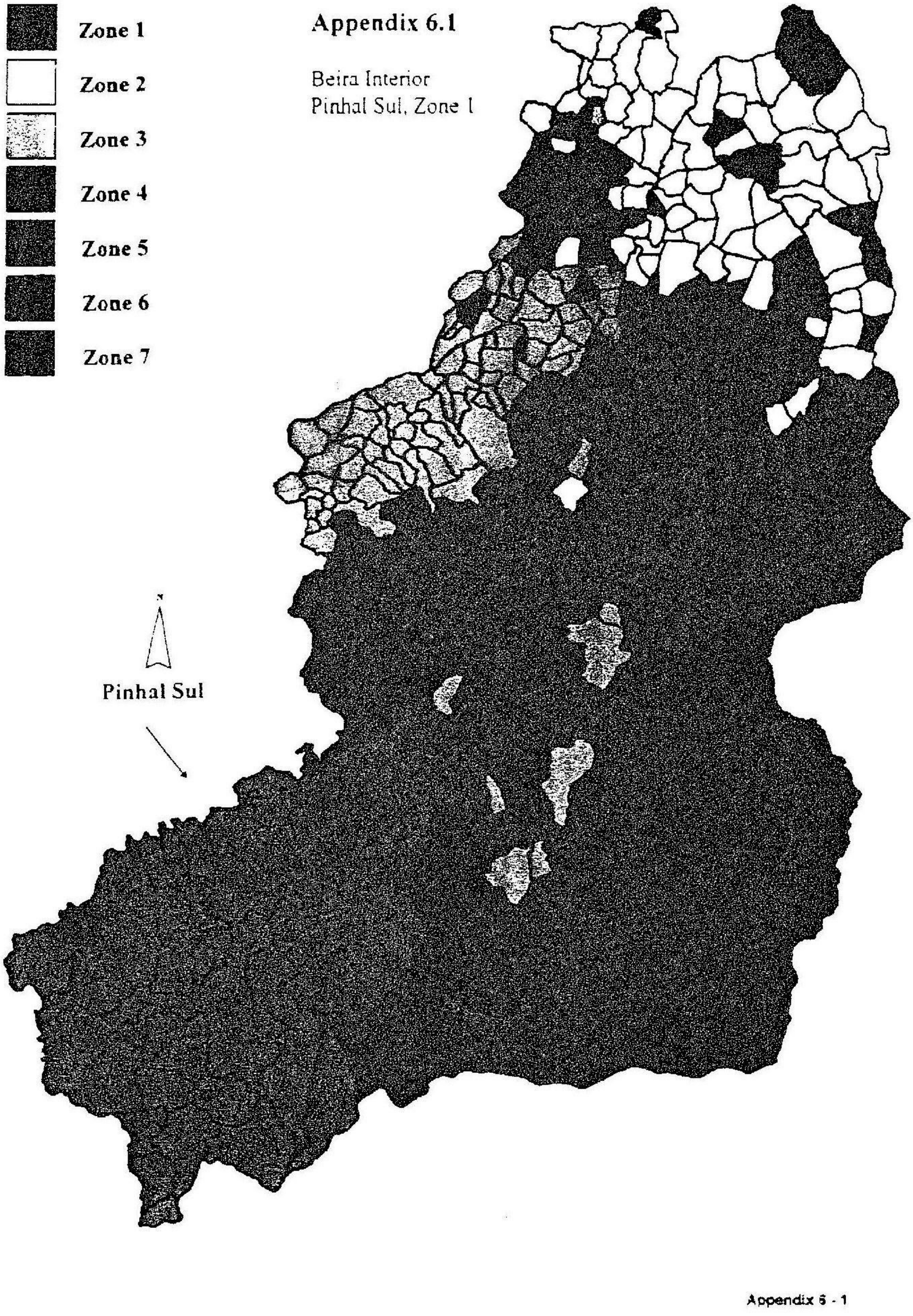
Table 18 - Average values of continuous variables

	Parish	Council	(ZP) Region
Variables	**average (N=211)**	**average (N=1297)**	**average (N=11055)**
farmers' age	57.11	59.98	60.40
Number of persons in the family	3.09	2.98	2.79
Forestland are	11.14	8.59	4.99
USA	1.39	1.63	2.04
Total farm area	12.81	10.44	7.41
Number of plots per farm	6.28	5.62	6.85
Number of adult goats per farm	4.39	3.87	2.51

Appendix 6.1

Appendix 6.1

Beira Interior
Pinhal Sul, Zone 1



Appendix 6.2

Table 1

(C) Education level / (L) Landowner age

	2	3	Total
1	5	15	20
2	24	13	37
Total	29	28	57

	Chi-Squares	P-values
Yates corrected:	6.74	0.00944210 <—

Table 2

(C) Landowners age as a constraint to investement /
(L) Frequence of working in forest

	N	S	Total
I	8	2	10
N	8	25	33
S	5	5	10
Total	21	32	53

Chi square = 10.53
Degrees of freedom = 2
p value = 0.00517440 <—

Table 3

(C) Landowner age / (L) Frequence of working in forest

	1	2	Total
I	5	5	10
N	8	27	35
S	7	3	10
Total	20	35	55

Chi square = 8.45
Degrees of freedom = 2
p value = 0.01461042 <—

Table 4

Obligation landowners feel in improving forest quality /
(C) Frequence of visiting forest

	N	S	Total
High	6	25	31
Low	15	6	21
Total	21	31	52

	Chi-Squares	P-values
Yates corrected:	12.02	0.00052613 <---

Appendix 6.3

Table 1 - Changes in quality of life

Life conditions	Resp	(%)
Better	10	18
Little better	21	37
Same	4	7
Worst	22	38

Table 2 - Characterisation of labour availability

	Forest		Agricultural	
Difficulty in finding employers	Resp	(%)	Resp	(%)
Great difficulty	27	47	25	44
Some difficulty	22	39	22	38
Little difficulty	1	2	8	14
No difficulty	7	12	2	4

Table 3 - Attitudes of NPFL' children toward their parents' forest activities

Children's attitudes	Resp	(%)32
Positive attitudes	10	31
Negative attitudes	4	13
Indifference	18	56

Table 4 - Frequency of NPFL participation on fire fighting

Fires attack	Resp	(%)
Always	50	88
Some times	3	5
Never	4	7

Table 5 - Distribution of the kinds of help NPFL think necessary

Kinds of helps	**Resp**	**(%)**
Financial support	13	26
Not interested	7	17
Support in planting	5	10
Support in cleaning	5	10
Technical support	5	10
Open forest roads	4	8
Labour force	4	8
Open fire breaks	3	6
Support with forest machines	3	6
Creation of an association	1	2
Total	**50**	**100**

Non Resp 15

Table 6 - The investment of money in forest activities, and the reasons why not

	Yes		**No**		**NR**	
	Resp	**(%)**	**Resp**	**(%)**	**Resp**	**(%)**
Accustomed to spend money on forestry	16	28	35	61	6	11

Reasons why not		**(%)35**
Do not want	13	37
Are not able to	11	32
Others reason	5	14
Are afraid - risk	6	17

Appendix 6.4

Table 1

(C) Expectation of forest future (+ / -) / (L) Interest in investement in forestry

	1	3	Total
N	20	11	31
S	20	1	21
Total	40	12	52

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0092996 <—
An expected value is less than 5; recommend Fisher exact results.

Table 2

(C) Landowners' skills as constraint to investement / (L) Interest in investement in forestry

	N	S	Total
N	30	2	32
S	15	7	22
Total	45	9	54

Chi-Squares P-values
Fisher exact: 1-tailed P-value: 0.0179242 <—
An expected value is less than 5; recommend Fisher exact results.

Table 3

(C) Landowners age as a constraint to investement / (L) Interest in investement in forestry

	N	S	Total
N	8	24	32
S	15	7	22
Total	23	31	54

Chi-Squares P-values

Yates corrected: 8.25 0.00406510 <—

Table 4

(C) Obligation landowners feel in improving forest quality / (L) Interest in investement in forestry

	N	S	Total
N	21	9	30
S	0	21	21
Total	21	30	51

Chi-Squares P-values

Yates corrected: 22.18 0.00000248 <—

Table 5

(L) Landowners' Interest in maintain their forest / (C) Interest in investement in forestry

	N	S	Total
N	8	18	26
S	0	20	20
Total	8	38	46

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0059873 <—
An expected value is less than 5; recommend Fisher exact results.

Table 6

(C) Profit as main forestry objective / (L) Interest in investement in forestry

	N	S	Total
N	26	7	33
S	6	16	22
Total	32	23	55

Chi-Squares P-values

Yates corrected: 12.36 0.00043906 <—

Appendix 6.4

Table 1

(C) Expectation of forest future (+ / -) / (L) Interest in investement in forestry

	1	3	Total
N	20	11	31
S	20	1	21
Total	40	12	52

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0092996 <—
An expected value is less than 5; recommend Fisher exact results.

Table 2

(C) Landowners' skills as constraint to investement / (L) Interest in investement in forestry

	N	S	Total
N	30	2	32
S	15	7	22
Total	45	9	54

Chi-Squares P-values
Fisher exact: 1-tailed P-value: 0.0179242 <—
An expected value is less than 5; recommend Fisher exact results.

Table 3

(C) Landowners age as a constraint to investement / (L) Interest in investement in forestry

	N	S	Total
N	8	24	32
S	15	7	22
Total	23	31	54

Chi-Squares P-values

Yates corrected: 8.25 0.00406510 <—

Table 4

(C) Obligation landowners feel in improving forest quality / (L) Interest in investement in forestry

	N	S	Total
N	21	9	30
S	0	21	21
Total	21	30	51

Chi-Squares P-values

Yates corrected: 22.18 0.00000248 <—

Table 5

(L) Landowners' interest in maintain their forest / (C) Interest in investement in forestry

	N	S	Total
N	8	18	26
S	0	20	20
Total	8	38	46

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0059873 <—
An expected value is less than 5; recommend Fisher exact results.

Table 6

(C) Profit as main forestry objective / (L) Interest in investement in forestry

	N	S	Total
N	26	7	33
S	6	16	22
Total	32	23	55

Chi-Squares P-values

Yates corrected: 12.36 0.00043906 <—

Appendix 6.5

Table 1

Care for of forest / Age

	1	2	Total
Well 1	16	18	34
Badly 3	4	18	22
Total	20	36	56

	Chi-Squares	P-values	
Yates corrected:	3.68	0.047308	<---

Table 2

(L) Care for of forest/ (C) Compelled to abandon

	N	S	Total
1	34	0	34
3	14	4	18
Total	48	4	52

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0113030 <---
An expected value is less than 5; recommend Fisher exact results.

Table 3

(L) Care for of forest / (C) interested in abandoning

	N	S	Total
1	31	3	34
3	11	11	22
Total	42	14	56

	Chi-Squares	P-values	
Yates corrected:	9.98	0.00158063	<---

Table 4

L -Care for of forest / (C) interested in maintaining

	N	S	Total
1	2	30	32
3	6	9	15
Total	8	39	47

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0085698 <---
An expected value is less than 5; recommend Fisher exact results.

Table 5

(L) Care for of forest / (C) visits to the forest

	M	N	Total
1	25	9	34
3	6	15	21
Total	31	24	55

	Chi-Squares	P-values	
Yates corrected:	8.92	0.00282246	<---

Appendix 6.6

Table 1

(C) Expectation of forest future / (L) Frequence of visit to the forest

	1	3	Total
Often	27	4	31
Never	12	9	21
Total	39	13	52

	Chi-Squares	P-values
Yates corrected:	4.50	0.03389993 <—

Table 2

Forest management / (C) Expectation of forest future

		1	3	Total
Well	1	30	4	34
Badly	3	10	9	19
	Total	40	13	53

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0058012 <—
An expected value is less than 5: recommend Fisher exact results.

Table 3

(L) Age as constraint to investement in forest / (C) Expectation of forest future

	1	3	Total
N	20	1	21
Y	20	11	31
Total	40	12	52

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0092996 <—
An expected value is less than 5; recommend Fisher exact results.

Appendix 6.7

Table 1

Disposition to become associated / Expectation of forest future

	1	3	Total
N	6	7	13
Y	33	6	39
Total	39	13	52

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0100803 <—

An expected value is less than 5; recommend Fisher exact results.

Table 2

** Beginning Stratified Analysis **

Obligation in improving forest quality = y

Disposition to become associated / Expectation of forest future

	1	3	Total
N	3	3	6
Y	23	1	24
Total	26	4	30

Stratum 2

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0180624 <—

An expected value is less than 5; recommend Fisher exact results.

Table 3

Interest in forest investement = N

Disposition to become associated / Expectation of forest future

	1	3	Total
N	3	6	9
y	17	5	22
Total	20	11	31

Stratum 1

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0294014 <—

An expected value is less than 5; recommend Fisher exact results.

Table 4

Landowners age = 3 older

Disposition to become associated / Expectation of forest future

	1	3	Total
N	3	5	8
y	20	4	24
Total	23	9	32

Stratum 2

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0233151 <—

An expected value is less than 5; recommend Fisher exact results.

Table 5

Burned area = larger

Disposition to become associated / Expectation of forest future

	1	3	Total
N	0	5	5
y	8	2	10
Total	8	7	15

Stratum 1

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0069930 <—

An expected value is less than 5; recommend Fisher exact results.

Appendix 6.8

Table 1

C - Expectation of the forest future (+ / -) / C - Burned area (+ / -)

(C)		1	3	Total
(L) +	1	8	7	15
-	3	27	4	31
Total		35	11	46

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0175270 <---
An expected value is less than 5; recommend Fisher exact results.

Table 2

(L) Obligation landowners feel to improving the forest quality /C - Burned area (+ / -)

		N	S	Total
+	1	8	4	12
-	3	8	24	32
Total		16	28	44

Chi-Squares P-values

Fisher exact: 1-tailed P-value: 0.0144207 <---
An expected value is less than 5; recommend Fisher exact results.

Table 3

(L) Burned area (+ / -) / C - Interest in investement in forestry

	1	3	Total
N	13	15	28
S	2	16	18
Total	15	31	46

Chi-Squares P-values

Yates corrected: 4.72 0.02988999 <---

Appendix 7.1

Table 1

Age

Total	Sum	Mean	Variance	Std Dev	Std Err
170	9436	55.558	215.312	14.674	1.119

Age	Freq	Percent	Cum.
1	35	20.6%	20.6%
2	94	55.3%	75.9%
3	41	24.1%	100.0%
Total	170	100.0%	

Table 2

SEX	Freq	Percent	Cum.
F	15	8.8%	8.8%
M	155	91.2%	100.0%
Total	170	100.0%	

Table 3

	Age			
Education	1	2	3	Total
0	1	10	10	21
1	15	67	24	106
2	16	14	4	34
3	3	3	3	9
Total	35	94	41	170

Chi square = 13.21
Degrees of freedom = 6
p value = 0.000103 <—

Table 4

	Subcistence		
Age	+	-	Total
1	29	6	35
2	47	47	94
3	1	40	41
Total	77	93	170

Chi square = 51.16
Degrees of freedom = 2
p value = 0.00000000 <—

Table 5

	Subsistence		
Age	+	-	Total
1	2	33	35
2	36	58	94
3	35	6	41
Total	73	97	170

Chi square = 50.74
Degrees of freedom = 2
p value = 0.00000000 <—

Table 6

	Indispensability			
Age	A	C	D	Total
1	12	18	5	35
2	42	31	21	94
3	30	7	4	41
Total	84	56	30	170

Chi square = 16.34
Degrees of freedom = 4
p value = 0.00259542 <—

Table 7

	Subsistence		
Burned are	+	-	Total
A	44	28	72
C	13	6	19
D	64	15	79
Total	121	49	170

Chi square = 7.35
Degrees of freedom = 2
p value = 0.02533069 <—

Table 8

	forestry projects		
Education	N	Y	Total
0	18	3	21
1	84	22	106
3	21	13	34
4	4	5	9
Total	127	43	170

Chi square = 9.88
Degrees of freedom = 3
p value = 0.01963508 <—

Appendix 7.2

Results of the attitude scale

Statement	1(%)	2(%)	3(%)	4(%)	5(%)	Total	Attitude Level
+ AT1 The NPFL would solve better their problems if they become organised	50.6	38.8	6.5	2.4	1.8	282	1
+ AT2 The NPFL's voice would be stronger if they become organised	48.2	44.1	6.5	0.6	0.6	274	1
+ AT7 Some plots would be profitable to working them if they were joint in a large plot only	31.8	31.8	10.6	12.4	2.9	361	2
+ AT11 The forest cleaning should be organised among all NPFL in a group	58.8	30.6	2.4	5.9	2.4	276	1
+ AT12 Fire surveillance should be done by all NPFL in a group	60.0	25.9	4.7	7.1	2.4	282	1
+ AT15 Trading in groups the NPFL would arrange better prices	25.3	38.2	17.1	10.6	8.8	407	2
+AT17 One organisation would be better informed about state supports	53.5	41.2	4.1	4.1	1.2	262	1
+ AT18 For the state it would be easier to help the NPFL if they were organised	60.6	35.3	3.5	0.0	0.6	246	1
- AT4 An NPFL organisation would fail in a short period of time after its creation	7.1	12.9	23.5	27.6	28.8	609	2
- AT5* Each NPFL should solve his problems by himself	10.0	14.1	12.4	38.8	24.7	602	2
- AT6 The one who become associated would loose the control of the ownership rights	5.9	11.8	9.4	28.8	44.1	669	2
- AT10 Cutting trees is a task that would not be done by NPFL in a group	24.1	30.6	11.2	17.6	16.5	462	3
- AT13* Each landowner should make the surveillance only in his plots	10.0	9.4	3.5	32.9	44.1	666	2
- AT14 The plots of your neighbours which are not clean constitute a problem only to them	10.7	7.7	4.7	30.8	46.2	666	2
- AT16 Trading in groups would be very difficult to control	23.7	33.1	13.6	14.2	15.4	447	3
- AT19 Supporting the NPFL individually would be the best way for the state to help them	11.2	20.0	10.0	25.3	33.5	595	2

170 - 850 = 680
680 / 5 = 136
170 + 136 = First level (First level + 36 = Second level, ...)

Positive statements

	Level of attitude	Total score
Very positive	1	170 - 306
Positive	2	307 - 442
Neural	3	443 - 578
Negative	4	579 - 714
Very negative	5	715 - 850

Negative Statements

	Level of attitude	Total score
Very positive	1	850 - 714
Positive	2	715 - 579
Neural	3	578 - 443
Negative	4	442 - 307
Very negative	5	306 - 170

Appendix 7.3

Table 1

Association of the frequencies in five levels

16 ---- (16x5) = 80

80-16 = 64

64/5 = 12.8

16+12.8= 29----Level 1 (....)
30 - 42 Level 2
43 - 54 Level 3
55 - 67 Level 4
67 - 80 Level 5

	N	(%)
LEVEL 1	99	58.2
LEVEL 2	50	29.4
LEVEL 3	17	10.0
LEVEL 4	4	2.4
LEVEL 5	0	0.0

TOTAL16	Freq	Percent	Cum.
1	99	58.2%	58.2%
2	50	29.4%	87.6%
3	17	10.0%	97.6%
4	4	2.4%	100.0%
Total	170	100.0%	

TOTAL16

Sum	1	2	3	Total
16	1	0	0	1
17	2	0	0	2
18	1	0	0	1
19	12	0	0	12
20	9	0	0	9
21	5	0	0	5
22	6	0	0	6
23	5	0	0	5
24	13	0	0	13
25	10	0	0	10
26	7	0	0	7
27	8	0	0	8
28	12	0	0	12
29	8	0	0	8
30	0	6	0	6
31	0	3	0	3
32	0	4	0	4
33	0	5	0	5
34	0	1	0	1
35	0	3	0	3
36	0	9	0	9
37	0	5	0	5
38	0	2	0	2
39	0	3	0	3
40	0	6	0	6
41	0	2	0	2
42	0	1	0	1
43	0	0	5	5
44	0	0	1	1
45	0	0	2	2
46	0	0	2	2
47	0	0	2	2
48	0	0	2	2
49	0	0	1	1
52	0	0	2	2
55	0	0	1	1
56	0	0	1	1
58	0	0	1	1
60	0	0	1	1
Total	99	50	21	170

TOTAL16	Freq	Percent	Cum.	
1	99	58.2%	58.2%	**Group A**
2	50	29.4%	87.6%	**Group B**
3	21	12.4%	100.0%	**Group C**
Total	170	100.0%		

Sum = 262.00
Mean = 1.54
Standard deviation = 0.71

TOTAL16	Freq	Percent	Cum.
1	99	58.2%	58.2%
2	71	41.8%	100.0%
Total	170	100.0%	

Appendix 7.4

Table 1

Age

ATTITUDE	1	2	3	Total
1	25	55	19	99
2	8	31	11	50
3	2	8	11	21
Total	35	94	41	170

Chi square = 12.38
Degrees of freedom = 4
p value = 0.01472668 <--

Table 2

Agreement with the creation of an association

ATTITUDE	1	3	5	Total
1	93	4	1	98
2	44	5	1	50
3	12	6	3	21
Total	149	15	5	169

An expected value is < 5. Chi square not valid.
Chi square = 25.09
Degrees of freedom = 4
p value = 0.00004826 <--

Table 3

Type of members

ATTITUDE	A	B	Total
1	23	76	99
2	19	31	50
3	12	9	21
Total	54	116	170

Chi square = 10.46
Degrees of freedom = 2
p value = 0.00534787 <--

Table 4

Social dimension

ATTITUDE	A	B	C	Total
1	49	29	21	99
2	45	23	3	71
Total	94	52	24	170

Chi square = 10.02
Degrees of freedom = 2
p value = 0.00666207 <--

Table 5

Association with unknown people

ATTITUDE	1	3	5	Total
1	51	26	22	99
2	9	9	32	50
3	8	0	12	20
Total	68	35	66	169

Chi square = 32.46
Degrees of freedom = 4
p value = 0.00000154 <--

Table 6

Association with confident people

ATTITUDE	1	3	5	Total
1	38	17	44	99
2	28	7	15	50
3	15	1	4	20
Total	81	25	63	169

Chi square = 10.99
Degrees of freedom = 4
p value = 0.02665341 <--

Table 7

Interest in cuting and trading in common

ATTITUDE	1	3	5	Total
1	60	17	22	99
2	13	13	24	50
3	6	3	11	20
Total	79	33	57	169

Chi square = 21.02
Degrees of freedom = 4
p value = 0.00031315 <--

Table 8

Agreement about the need of joint plots

ATTITUDE	1	3	5	Total
1	77	13	9	99
2	27	13	30	70
Total	104	26	39	169

Chi square = 31.29
Degrees of freedom = 2
p value = 0.00000016 <--

Table 9

Disposition to join plots

ATTITUDE	1	3	5	Total
1	34	18	47	99
2	27	15	8	50
3	12	2	7	21
Total	73	35	62	170

Chi square = 16.88
Degrees of freedom = 4
p value = 0.00203797 <---

Table 10

Ty of presidende

ATTITUDE	1	3	5	Total
1	40	26	33	99
2	17	7	26	50
3	8	6	7	21
Total	65	39	66	170

Chi square = 6.03
Degrees of freedom = 4
p value = 0.19671431

23.5	10.0	4.7	38.2
15.3	4.1	3.5	22.9
19.4	15.3	4.1	38.8

Table 11

Concorda com APOIOESTAD

ATTITUDE	1	2	3	4	5	Total
1	63	33	2	1	0	99
2	31	15	3	1	0	50
3	14	4	0	1	2	21
Total	106	52	5	3	2	168

An expected value is < 5. Chi square not valid.
Chi square = 19.76
Degrees of freedom = 8
p value = 0.01129766 <---

56.2	27.2	10.1	93.5
1.2	1.8	0.0	3.0
1.2	0.6	1.8	3.6

Indispensibility of state support

ATTITUDE	1	2	3	5	Total
1	44	22	9	24	99
2	16	15	10	9	50
3	13	2	3	3	21
Total	73	39	22	36	170

An expected value is < 5. Chi square not valid.
Chi square = 10.20
Degrees of freedom = 6
p value = 0.11655905

38.8	18.2	8.8	65.9
5.3	5.9	1.8	12.9
14.1	5.3	1.8	21.2

Table 12

State participation in the cedicion-making

ATTITUDE	1	3	5	Total
1	65	15	19	99
2	27	8	15	50
3	15	2	4	21
Total	107	25	38	170

An expected value is < 5. Chi square not valid.
Chi square = 3.30
Degrees of freedom = 4
p value = 0.50918448

38.2	15.9	8.8	62.9
8.8	4.7	1.2	14.7
11.2	8.8	2.4	22.4

Table 13

Role of the council

ATTITUDE	1	3	5	Total
1	80	7	12	99
2	42	12	17	71
Total	122	19	29	170

Chi square = 9.66
Degrees of freedom = 2
p value = 0.00796923 <---

Table 14

Preference by assoc.iastion already created

ATTITUDE	1	3	5	Total
1	21	14	64	99
2	23	6	21	50
3	7	3	11	21
Total	51	23	96	170

Chi square = 10.10
Degrees of freedom = 4
p value = 0.03871540 <—

Table 15

Disposition in participate in the organisation proces

ATTITUDE	1	3	5	Total
1	68	16	15	99
2	36	13	22	71
Total	104	29	37	170

Chi square = 7.06
Degrees of freedom = 2
p value = 0.02929615 <—

Table 16

Intermunicipality

ATTITUDE	1	3	5	Total
1	82	10	7	99
2	47	9	15	71
Total	129	19	22	170

Chi square = 8.06
Degrees of freedom = 2
p value = 0.01773114 <—

Table 14

Preference by assoc.iastion already created

ATTITUDE	1	3	5	Total
1	21	14	64	99
2	23	6	21	50
3	7	3	11	21
Total	51	23	96	170

Chi square = 10.10
Degrees of freedom = 4
p value = 0.03871540 <---

Table 15

Disposition in participate in the organisation proces

ATTITUDE	1	3	5	Total
1	68	16	15	99
2	36	13	22	71
Total	104	29	37	170

Chi square = 7.06
Degrees of freedom = 2
p value = 0.02929615 <---

Table 16

Intermunicipality

ATTITUDE	1	3	5	Total
1	82	10	7	99
2	47	9	15	71
Total	129	19	22	170

Chi square = 8.06
Degrees of freedom = 2
p value = 0.01773114 <---

Appendix 7.5

Table 1

Ddisposition to assume commitments

Education Level	1	3	5	Total
0	10	4	7	21
1	68	15	22	105
4	5	4	0	9
3	22	12	0	34
Total	105	35	29	169

Chi square = 20.45
Degrees of freedom = 6
p value = 0.00230375 <---

Table 2

Decision-making

Forest area	A	B	Total
A	12	75	87
C	8	54	62
E	11	10	21
Total	31	139	170

Chi square = 18.76
Degrees of freedom = 2
p value = 0.00008460 <---

Table 3

Duty of initiative

Council	A	B	C	Total
M	13	2	19	34
O	8	19	7	34
P	7	14	13	34
S	11	16	7	34
V	7	9	18	34
Total	46	60	64	170

Chi square = 28.34
Degrees of freedom = 8
p value = 0.00041394 <---

Table 4

Ddisposition to becmoe director member

IDADE	1	3	5	Total
1	13	10	12	35
2	38	10	45	93
3	9	4	28	41
Total	60	24	85	169

Chi square = 13.83
Degrees of freedom = 4
p value = 0.00786066 <---

Table 5

Type of members

Councils	A	B	Total
M	6	28	34
O	9	25	34
P	20	14	34
S	11	23	34
V	8	26	34
Total	54	116	170

Chi square = 16.12
Degrees of freedom = 4
p value = 0.00286142 <---

Table 6

Way of starting

Coucils	A	B	Total
M	7	27	34
O	6	27	33
P	20	14	34
S	13	21	34
V	7	27	34
Total	53	116	169

Chi square = 18.99
Degrees of freedom = 4
p value = 0.00079035 <---

Table 7

Councils	Parish assuming a leader role 1	3	5	Total
M	21	0	13	34
O	29	4	1	34
P	25	5	4	34
S	30	1	3	34
V	21	6	7	34
Total	126	16	28	170

Chi square = 26.84
Degrees of freedom = 8
p value = 0.00075479 <—

Table 8

Councils	Iinterest in forest cleaning 1	3	4	5	Total
M	22	8	0	4	34
O	25	1	0	8	34
P	21	4	3	6	34
S	26	1	1	6	34
V	30	0	0	3	33
Total	124	14	4	27	169

Chi square = 28.63
Degrees of freedom = 12
p value = 0.00447018 <---

Appendix 7.6

Calculation of the importance level
of the state support factors.

Kind of support from state
302 (1.95/3 = 65%),
341 - (2.2/3 = 73%),
280 (1.81/3 = 60%),
N = 155

Total	average	percentage reached by each factor
302	1.95	65%
341	2.2	73%
280	1.81	60%

Appendix 8.1

Table 1

Proxy	Freq	Percent	Cum.
Y	17	37.8%	37.8%
N	28	62.2%	100.0%
Total	45	100.0%	

Proxy Contract	Freq	Percent	Cum.
Y	3	6.7%	6.7%
N	42	93.3%	100.0%
Total	45	100.0%	

Table 2

Members of any farmers' organisation	Freq	Percent	Cum.
Y	4	8.9%	8.9%
N	41	91.1%	100.0%
Total	45	100.0%	

Table 3

Experience in forestry projects	Freq	Percent	Cum.
N	34	75.6%	75.6%
Y	11	24.4%	100.0%
Total	45	100.0%	

Table 4

Type of projects	Freq	Percent	Cum.
Individual	2	16.7%	16.7%
Group	10	83.3%	100.0%
Total	12	100.0%	

Table 5

Treatment of the association to its members	Freq	Percent	Cum.
Collective	35	77.8%	77.8%
Individual	10	22.2%	100.0%
Total	45	100.0%	

Sum = 55.00
Mean = 1.22
Standard deviation = 0.42

Table 6

Vote system	Freq	Percent	Cum.
One vote per person	28	62.2%	62.2%
Proportional	17	37.8%	100.0%
Total	45	100.0%	

Sum = 62.00
Mean = 1.38
Standard deviation = 0.49

Appendix 8.2

Attitude scale: results from the NPFL non-residents in the region

Statements	1 (%)	2(%)	3(%)	4(%)	5(%)	Total	Mean.	Attitude level
The NPFL would solve their problems better if they become organised	53	38	7	0	2	72	1.6	1
The NPFL's voice would be stronger if they become organised	56	35	7	0	2	71	1.6	1
An NPFL organisation would fail in a short period of time after its creation	31	42	20	2	4	93	2.7	2
Each NPFL should solve his problems by himself	22	49	24	2	2	96	2.1	2
The owner who becomes associated would lose the control of the ownership rights	24	51	18	4	2	94	2.0	2
Some plots would be profitable to work only if they were joined in a large plot	29	44	13	9	4	97	2.1	2
Cutting trees is a task that would not be done by NPFL in a group	13	44	31	9	2	109	2.4	2
The forest cleaning should be organised among all NPFL in a group	42	51	2	4	0	76	1.69	1
Fire surveillance should be done by all NPFL in a group	38	51	7	2	2	81	1.8	1
Each landowner should make fire surveillance only in his own plots	31	53	9	4	2	87	1.9	2
The plots of your neighbours which are not cleaned constitute a problem only to them	27	62	7	4	0	35	1.9	2
The NPFL would arrange better prices trading in groups	29	49	13	4	4	93	2.1	2
Trading in groups would be very difficult to control	11	42	24	20	2	117	1.0	2
One organisation would be better informed about possible sources of state support	40	53	4	2	0	76	1.69	1
For the state it would be easier to help the NPFL if they were organised	31	53	13	0	2	85	1.9	2
Supporting the NPFL individually would be the best way for the state to help them	22	29	33	13	2	110	2.4	2

45 - 225 = 180

180 / 5 = 36

45 + 36 = First level (First level + 36 = Second level, ...)

	Level of attitude	Total score
Very positive	1	45 - 81
Positive	2	82 - 117
Neural	3	118 - 136
Negative	4	137 - 189
Very negative	5	190 - 225

Appendix 8.3

Table 1

Summation of the individuals attitude scores.

Cum	Freq	Percent	
20	3	6.7%	6.7%
22	1	2.2%	8.9%
24	2	4.4%	13.3%
25	3	6.7%	20.0%
26	1	2.2%	22.2%
28	2	4.4%	26.7%
29	3	6.7%	33.3%
30	3	6.7%	40.0%
31	2	4.4%	44.4%
32	2	4.4%	48.9%
34	2	4.4%	53.3%
35	2	4.4%	57.8%
36	10	22.2%	80.0%
37	2	4.4%	84.4%
38	1	2.2%	86.7%
39	2	4.4%	91.1%
41	1	2.2%	93.3%
42	1	2.2%	95.6%
46	1	2.2%	97.8%
71	1	2.2%	100.0%
Total	45	100.0%	

Sum = 1478.00
Mean = 32.84
Standard deviation = 8.46

Attitude level calculation

16 —— (16x5) = 80

80-16 = 64

64/5 = 12.8

16+12.8 = 29—Level 1
30 ----- 42-------Level 2
43 ---- 54——-Level 3
55 ——67——-Level 4
67 --- 80—— Level 5

Table with attitude variable associated in four levels.

TOTAL16	Freq	Percent	Cum.
1	15	33.3%	33.3%
2	28	62.2%	95.6%
3	1	2.2%	97.8%
4	1	2.2%	100.0%
Total	45	100.0%	

Table with attitude variable associated in two levels.

TOTAL16	Freq	Percent	Cum.
1	15	33.3%	33.3%
2	30	67.7%	100%
Total	45	100.0%	

Appendix 9.1

Table 1

Councils	Freq	Percent	Cum.
M	6	16.2%	16.2%
O	10	27.0%	43.2%
P	8	21.6%	64.9%
S	10	27.0%	91.9%
V	3	8.1%	100.0%
Total	37	100.0%	

Councils as forest owners	Freq	Percent	Cum.
Yes	10	27.8%	27.8%
No	26	72.2%	100.0%
Total	36	100.0%	

Table 2

Involvement in forestry projects	Freq	Percent	Cum.
Yes	13	36.1%	36.1%
No	23	63.9%	100.0%
Total	36	100.0%	

Initiative	Freq	Percent	Cum.
PP	12	92.3%	92.3%
NPFL	1	7.7%	100.0%
Total	13	100.0%	

Evaluation of the experience	Freq	Percent	Cum.
Positive	7	53.8%	53.8%
Neutral	5	38.5%	92.3%
Negative	1	7.7%	100.0%
Total	13	100.0%	

Table 3

Type of members	Freq	Percent	Cum.
Only NPFL	21	58.3%	58.3%
All people	15	41.7%	100.0%
Total	36	100.0%	

Sum = 51.00
Mean = 1.42
Standard deviation = 0.50

Table 4

Starting	Freq	Percent	Cum.
All activities	11	30.6%	30.6%
Gradually	25	69.4%	100.0%
Total	36	100.0%	

Sum = 61.00
Mean = 1.69
Standard deviation = 0.47

Table 5

Intention towards the first meeting	Freq	Percent	Cum.
Curiosity	4	11.4%	11.4%
To pursue	31	88.6%	100.0%
Total	35	100.0%	

Sum = 66.00
Mean = 1.89
Standard deviation = 0.32

Appendix 9.2

Results of the attitude scale regarding the PP attitudes towards organisations

	Statements	1 (%)	2(%)	3(%)	4(%)	5(%)	Total	Mean.	Attitude level
5.1	Forest development is dependent on the forest landowners becoming organised	16	76	5	3	0	72	1.95	2
5.2	The forest landowners will never become organised in the future	13	35	35	5.4	10.8	98	2.65	3
5.3	The parish is the best local authority to help the forest land owners become organised	32	51	11	3	3	71	1.9	2
5.4	The parish would never be concerned with problems of the private forest	19	60	8	11	3	81	2.1	2
5.5	The parish would be very well seen by the citizens if it takes the initiative to create a forest landowners organisation	11	62	16	11	0	84	2.3	2
5.6	Even in the case of the parish create an organisation the forest landowners would never be interested in becoming members of it	0	49	38	11	2	99	2.7	3
5.7	The parish does not help the forest land owners to become organised because its staff would not known how to do it.	3	52	13	30	3	103	2.8	4
5.8	The parish, due to its knowledge about the people and about the region, should be principal actors in the process of forest landowners organisation	22	57	16	5	0	76	2.0	2

Calculation of the attitude level

37 - 185 = 148

148 / 5 = 29.6

37 + 29.6 = First level (First level + 29.6 = Second level, ...)

	Level of attitude	Total score
Very positive	1	37 - 66
Positive	2	67 - 96
Neural	3	97 - 125
Negative	4	126 - 155
Very negative	5	156 - 185

Appendix 9.3

TOTAL	Freq	Percent	Cum.
11	1	2.7%	2.7%
12	1	2.7%	5.4%
13	2	5.4%	10.8%
14	3	8.1%	18.9%
15	3	8.1%	27.0%
16	2	5.4%	32.4%
17	4	10.8%	43.2%
18	3	8.1%	51.4%
19	4	10.8%	62.2%
20	1	2.7%	64.9%
21	2	5.4%	70.3%
22	3	8.1%	78.4%
23	5	13.5%	91.9%
24	1	2.7%	94.6%
25	1	2.7%	97.3%
26	1	2.7%	100.0%
Total	37	100.0%	

Sum = 684.00
Mean = 18.49
Standard deviation = 3.95

8 - 40 = 32
32 / 5 = 6.4

Scores

8 - 14	Attitude level 1
15 - 21	Attitude level 2
22 - 27	Attitude level 3
28 - 34	Attitude level 4
34 - 40	Attitude level 5

TOTAL2	Freq	Percent	Cum.
1	7	18.9%	18.9%
2	22	59.5%	78.4%
3	8	21.6%	100.0%
Total	37	100.0%	

Sum = 64.00
Mean = 1.73
Standard deviation = 0.56

Considering only four levels,
the third has only 2 cases, so
it can be associated in the second

32 / 4 = 8

8 + 8 = 16, 16 + 8 = 24 ....

TOTAL	Freq	Percent	Cum.
11	1	2.7%	2.7%
12	1	2.7%	5.4%
13	2	5.4%	10.8%
14	3	8.1%	18.9%
15	3	8.1%	27.0%
16	2	5.4%	32.4%
17	4	10.8%	43.2%
18	3	8.1%	51.4%
19	4	10.8%	62.2%
20	1	2.7%	64.9%
21	2	5.4%	70.3%
22	3	8.1%	78.4%
23	5	13.5%	91.9%
24	1	2.7%	94.6%
25	1	2.7%	97.3%
26	1	2.7%	100.0%
Total	37	100.0%	

Sum = 684.00
Mean = 18.49
Standard deviation = 3.95

TOTAL2	Freq	Percent	Cum.
1	12	32.4%	32.4%
2	25	67.6%	100.0%
Total	37	100.0%	

Sum = 62.00
Mean = 1.68
Standard deviation = 0.47

Appendix 9.4

Table 1

Thinking about creating an association			
TOTAL2	+	-	Total
1	8	4	12
2	6	19	25
Total	14	23	37

Chi-Squares P-values
Fisher exact: 1-tailed P-value: 0.0164098 <—
An expected value is less than 5; recommend Fisher exact results.

Table 2

Parish as forestry owners	PP as leader 1	3	5	Total
Yes	7	2	0	9
No	6	11	7	24
Total	13	13	7	33

Chi square = 8.18
Degrees of freedom = 2
p value = 0.01674353 <---

Table 3

Duty of Initiative					
TOTAL2	1	2	3	4	Total
1	2	5	1	4	12
2	12	1	2	10	25
Total	14	6	3	14	37

Chi square = 9.29
Degrees of freedom = 3
p value = 0.02562636 <---

1 - NPFL
2 - PP
3 - Forest Services
4 - Councils

Table 4

Preference for waiting to see the association already created				
TOTAL2	A	B	C	Total
1	2	1	9	12
2	12	4	7	23
Total	14	5	16	35

Chi square = 6.36
Degrees of freedom = 2
p value = 0.04149516 <—

A - Agree
B - Neutral
C - Disagree