

RESEARCH ON THE ATTITUDE OF HUMAN RESOURCES IN FOREST SERVICE IN GREECE TOWARDS THE DEVELOPMENT OF FORESTRY INFORMATICS

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1. INTRODUCTION

The modern society and the great socio-economic and technological changes have created an increasing need for goods and services from natural resources.

Under these circumstances it is imposed that the multiple benefits from forests and generally from the natural environment can only be achieved when we use the tools of the new technology (Papastavrou and Makris, 1986).

The regional Forest Service in Greece consists the main field where the forest policy of the country is applied.

Forestry informatics deals with the various sectors of Forest Service as it concerns the use of computers,

and one of them is the design and organization of forest service (Papastavrou, 1992; Papastavrou et al., 1999). A main result of the use of computers is the increase of productivity and the improvement of the services (Lucas, 1985; Senn, 1986; Charamis, 1992; Dimitriadis, 1996).

The term "human resources" covers the total of persons that participate in the function of an organization, no matter how big or small is this participation in their field of action. Also, human resources is a basic component for administration (Mullins, 1989). The continuous education of human resources is necessary because of the change of work conditions, the change of methods for the confrontation of problems, the huge increase of the information produced every day and because of the development of technology and the appearance of new

ABSTRACT

This paper aims to study the attitude of human resources in regional forest service in Greece towards the extended use of computer and network tools.

The comprehension of the attitude of human resources is important because their positive or negative attitude would have a great effect on the development of relative projects.

The attitude is generally positive and they believe that computers can contribute effectively in the improvement of produced services, in the increase of productivity and the elimination of bureaucracy. However, a small part is reluctant to participate in that process because of lack of knowledge and proper information about the benefits.

RÉSUMÉ

Cette étude a pour but la recherche du comportement des ressources au niveau du Service Regional Forestier Hellenique (O.N.F.) en ce qui concerne l'usage étendu des ordinateurs et de boîte d'outils en réseau. La compréhension du comportement positif ou négatif peut influencer le développement de projets relatifs. Le comportement est en général positif. On croit que les ordinateurs peuvent contribuer efficacement à l'amélioration des services dérivés, à l'augmentation de la productivité et à la diminution de la bureaucratie. Pourtant, une petite partie est peu empressée à participer en cette procédure à défaut de connaissance et de propre information sur les bénéfices dérivés de l'application d'informatique.

products-tools in computers. Consequently, the new everyday workflow – in order to increase the productivity of human resources – has to be redefined through the use of computers, and that can be achieved with special training in computers for people (Mc Cloy, 1995; Cascio, 1995).

However, the introduction of computers in an office often creates a malfunction because the employees are called to use new tools for their job, not familiar to them.

The aim of this research focus on:

- The research on the attitude of human resources, as that is formatted towards the possibility of extended

use of computer and network means in regional forest service offices in Greece,

- The registration of various advantages, difficulties and problems that have already appeared by the use of computers, and

- The registration of suggestions for the use of computers.

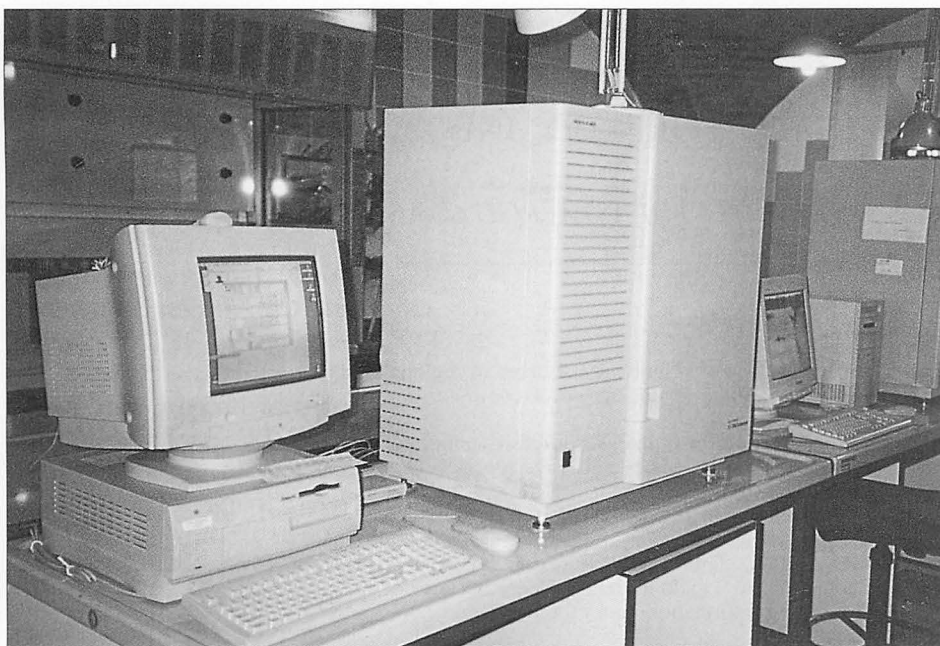
The comprehension of the attitude of human resources is important and necessary because their positive or negative attitude would have a great effect on the development of programs for the total use of computers in Forestry Administration.

2. METHODOLOGY

The research started on March 1996 with a pretest that took place in the regional forest service office in Thessaloniki. Later, there were sent questionnaires for completion to all 106 regional forest service offices in Greece. A letter was attached for the chief-forester that explained the object and the aims of the research. In order to acquire all the completed questionnaires the procedure was repeated on November 1996 and on February 1997. The data that were collected from the questionnaires, were coded in variables and then processed

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with the Statistical Package for Social Sciences-SPSS 8.0. In parallel, the basic content analysis was used in order to code two (2) questions. Content analysis is a general method to extract conclusions from texts (Weber, 1990) where phrases with the same content are classified in one category.

3. RESULTS

Finally, there were returned 100 out of the 106 questionnaires. Hence, the return percentage is up to 95%, that is practically very close to the total population. Forest administration in Greece takes place with the division in 13 administration regions. In **table 1**, the regions are presented according to the number of questionnaires that were completed and returned from each one of them. However, every region has a different

Table 1 Total of forest offices that participate with a questionnaire in the research for every region.

Region	Total of questionnaires/ forest offices
East Macedonia/Thrace	10
Central Macedonia	16
West Macedonia	5
Epirus	6
Thessaly	10
Ionian Islands	4
Western Greece	10
Stereia Greece	12
Attica	7
Peloponnisos	11
North Aegean	3
Southern Aegean	2
Crete	4
Total	100

number of regional forest offices but for every forest office only one questionnaire was completed.

As it concerns the estimation of the percentage of jobs that are executed with the use of computers, a percentage of 29% of the forest offices claims that no jobs are done with computers. There is a great variety of answers that are classified for their better comprehension (**table 2**). The maximum value 90% is found for the forest office in Kilkis in the region of Central Macedonia, that implies an almost total computerization of jobs. Another high value 80% is found in the Forest Office in Chania in Crete.

The answer for that question is subjective because there is no specific indicated method to count the percentage of executed jobs. Hence,

the subjective estimation of chief-foresters is registered, that is their opinion for the contribution of informatics in their office. However, the given percentage could be high because the chief-forester would like to suggest a positive picture for his office and, in parallel, a low estimated percentage presents a protest for not having enough infrastructure. The 0% is found in all regions except of regions of North and Southern Aegean.

As it concerns the satisfaction by the use of computers till today, almost one out of three forest offices (34%) claims that the use is satisfactory. However, 8% is not at all satisfied by computer use and 10% claims to be slightly satisfied by computers. Another 15% seems to be moderately satisfied by the use of computers. The percentage of 8% that is perfectly satisfied by the use of computers in their forest service office (**table 3**). This question is another subjective estimation of computer services which shows the acceptance of computers use by the human resources. That is also a criticism for the computer services and their effectiveness in the office. The positive attitude of human resources towards the possibility for extended computer everyday use in order

Table 2 Frequencies for the various percentages for the execution of jobs in the forest office with the use of computers.

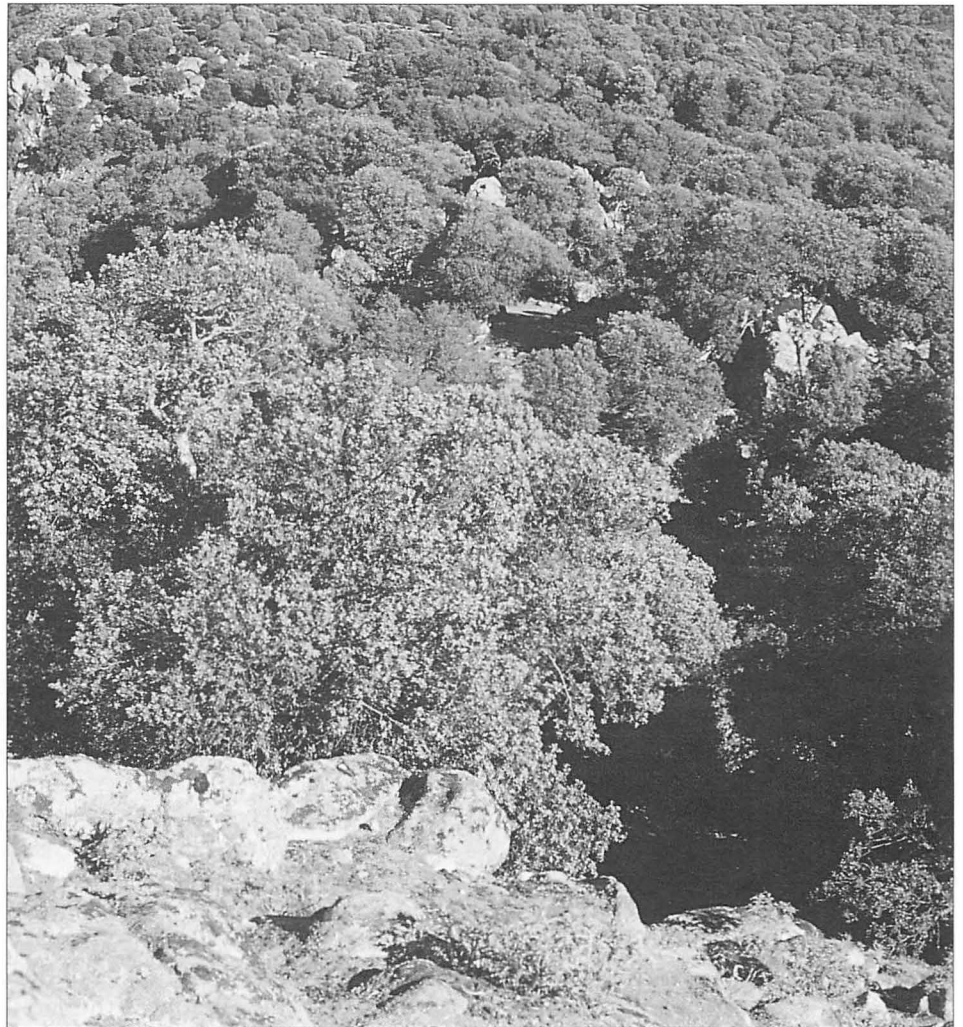
Percentage of jobs execution with computers	Frequency
0	29
1-9	17
10-29	34
30-59	13
60-90	7
Total	100

to cover the everyday needs in the forest service and eliminate bureaucracy, is insured because only three forest offices answer that they do not want the extension of use. On the contrary, 93% answers that they are positive to an extension in everyday use and 4% do not answer at all.

The positive percentage is really high and also expected in our society where computers are considered to be the best treatment for every problem. The three negative answers are found in regions of Thessaly, Sterea Greece and Peloponnisos and probably show a lack in comprehension of the benefits of computers.

The attitude towards the possibility of training in using computers is positive in a percentage of 86% and that is very important because it shows, that the human resources are interested in having computers in their office. The 12% that answers in a negative way, shows that when some people can be afraid of new technologies and/or the employees that already use the computers monopolize their use so that the rest show no interest at all. That is a phenomenon called "two speed development" in the same area. It is then possible that all persons interested with computers already deal with them and the rest find it unnecessary to deal with informatics. In some cases some employees take the initiative and use computers for everyday jobs successfully. The lack in infrastructure, the lack in technical knowledge and the lack of help from colleagues discourage the rest to even get a proper training.

Regions of E. Macedonia/Thrace, Ionian Islands, Attica, Sterea Greece, Northern and Southern Aegean answer



Are you satisfied by the use of computers in your Forest Office till today?	Frequency
Not at all	8
Slightly	10
Moderately	15
Satisfactory	34
Perfectly	8
No answer	25
Total	100

100% positively (**table 4**). Especially for the region of Attica, where the total of human resources is positive, the comprehension of the importance of computer training is very important because that region confronts

Table 4 The distribution of forest offices in regions as it concerns the positive or negative attitude of human resources for computer training.

Region	Yes	N°
East Macedonia/Thrace	10	0
Central Macedonia	14	2
West Macedonia	3	2
Epirus	5	1
Thessaly	8	2
Ionian Islands	4	0
Western Greece	9	1
Sterea Greece	11	0
Attica	7	0
Peloponnisos	7	3
North Aegean	3	0
Southern Aegean	2	0
Crete	3	1
Total	86	12

serious problems, especially in ownership matters, that can be successfully confronted with the contribution of informatics and generally of new technology.

The next question searches whether appears in some cases the need to have access in files with data in other forest offices, usually neighbouring ones. Only 30% answers in a positive way. The percentage is low but that is a first approach for the forester to the idea for creation of a network inbetween several service in the country and about the possibility of using network means through forest offices.

Hence, the idea to use files from neighbouring forest offices and use their information seems to be not applicable for the moment and only 30% answers in a positive way. However, they register the objects, where would be theoretically useful and practically effective the access through computers in files.

These objects can be classified with content analysis in 7 categories, as following:

- 1) ownership problems about land use, illegal acquisitions, deforestations, reforested forest lands,
- 2) cuttings, transportation and commerce of forest products,
- 3) auctions,
- 4) forest-technical works, studies, projects,
- 5) administrative prosecution for legal violations in forest laws,
- 6) hunting,
- 7) fires as it concerns protection, prevention and their frequency.

The attitude of human resources towards the possibility for the connection of their service in a national computer network, with other forest offices, the central Forestry Administration and other relative administrative units, in order to increase productivity and decision-making quality, is found positive in a percentage of 96%. Only 2% answer negatively and 2% do not answer at all.

That question directly deals with the idea of connecting the different units in Forest Service and Central Forest Administration in Greece in a network. The previous question about the potential objects of common use among forest offices has suggested some ideas to the questioned foresters about the productive use of computers in resolving local problems and decision-making. The high positive percentage in the second 'network' question is explained because computers tend to be generally considered as very dynamic tools.

The general opinion of the questioned chief-foresters about the above technique was finally asked. Practically, that was the opportunity for every chief-forester to present some general suggestions and negative factors in the introduction of informatics in forest administration. The basic content analysis of the texts resulted in two groups of indications, positive and negative ones. The positive are the advantages of computer use as can

be apprehended by the employees and the negative ones are the difficulties and problems that already appeared.

The employees consider informatics to be the tool that will help them to accelerate manage all daily administrative jobs. They also believe computers can help them eliminate bureaucracy and increase their productivity.

The establishment of a direct communication with The Central Forest Service and other relative services can contribute in a better information, both in quality and quantity, in the clarification and explanation of various matters, in the faster dispatch of advices and in the direct management of public records to and from regional forest service offices. Hence, the existence of a network can help in the materialization of projects and programmes. The protection of forests can be more effective and there is a better control in the whole of forest lands.

They believe that the use of computers and the network can support both safely and successfully the keeping of data files about the various subjects in Forest service and also about statistics.

In detail, the advantages and their frequencies are presented in **table 5**.

On the contrary, there are also registered several difficulties for the application of extended computer and network services in the forest service (**table 6**). These difficulties express the fear of employees for the new procedures new technologies that tend to substitute the old ones.

The main difficulty that is registered and the most common, is the lack of Knowledge in computers, especially as it concerns the computers usage and the exploitation of software. In parallel, there is a certain lack in training programmes about computers for the forest service.

There is a lack in technical knowledge to help confront technical problems and there is no organised unit for technical support. That situation is discouraging.

Another important problem for the employees is the lack of proper subsidies in order to buy the necessary software and hardware. The implementation of Forest service in computers is a huge project in cost that is very difficult to cover, unless the state is really determined.

They also think that there is a general problem with the small number of employees in the forest service that makes it even more difficult to apply new technologies and methods. The extension of use of computers presupposes the assignment of professional foresters with perfect knowledge of computers, so that they would be able to make the best out of computers.

The activities of forest service are various and cover many different fields, so they consider that the creation of a common file system could be very difficult. There are also various records, such as documents, maps, pic-

Table 5 Advantages of computer and network use and their frequencies.

Advantage	Frequency
Acceleration in execution of administrative jobs	15
Direct and similar information for daily matters for all employees	12
Direct communication with central administration/other units	13
Elimination of bureaucracy/increase of productivity	7
Clarification of rules/direct orders from central administration	8
Effective protection and surveillance of forest areas	7
Use of e-mail/elimination of functional cost for the office	3
Easy materialization of EE projects/ absorption of subsidies	3
Easy keeping of statistic records	3
Application of computer aided design software	3
File Data transparency	1

Table 6 Difficulties in extended computer and network use and their frequencies.

Difficulty	Frequency
Lack of Know-how in computers	25
Lack of training programs in computers	16
Lack of subsidies for the necessary infrastructure	17
Lack of common forest software for all the Offices	16
Lack of employees in Forest service	9
Great variety in forest service objects/difficulty in classification	7
Lack of technical support system(software/hardware problems)	6
Initiative of colleagues to use specific software	5
Lack of foresters well-trained in forestry informatics	4
Lack of motivation and bonus for computer use	3
Bad condition of telephone wiring network (e.g. in the islands)	3
Reluctancy to work with new technologies (aged colleagues)	3
Difficulty in filing data other than texts (maps, designs, pictures)	1
Lack of strong willingness from the state	1

tures, deeds, etc., that make it even worse. In order to motivate the employees to use computers, they believe that the service should establish special bonus in their salaries or to give more days for vacation. They describe that in most of the cases a small team of foresters or administrative clerks only use computers with their own initiative, without any real support, usually in an environment that feel fear for computers.

Employees that are close to retirement years are reluctant to learn how to use computers and that is common in all subjects in the service. Finally, there are organizational problems, such as the transfers of the employees in regional offices that have a different implementation in computers.

These suggestions were often registered with the attached petition on behalf of the chief-foresters to inform the proper administration units and to motivate the proper actions for their materialization, especially in the field of training.

4. CONCLUSIONS

The research on the attitude towards the extended use of computers and the development of the existing ser-

vices to the theoretically potential computer and network services, shows that it is *generally positive*. The total of human resources believe that computers can contribute effectively in the improvement of produced services, in the increase of productivity and the elimination of bureaucracy that is a great problem in all modern societies.

However, a small part of the human resources is reluctant to participate in that process because of lack of knowledge and proper information about the benefits. The problem of lack of adequate computer Knowledge consists the problem of lack of *computer literacy*. In our society a huge amount of activities is executed everyday through computers and networks, however there are employees that cannot use a computer. That problem is increased from their negative attitude to attend the proper training, in order to increase their productivity and quality of services.

The disadvantages for the use of computer and networks, that are mentioned, are at the same time suggestions.

They are really indications for critical points that should be properly arranged, in a way that informatics and new technology will really contribute in the administration of forest service.

Forestry informatics can help to confront effectively the difficulties of the given system in Forest Administration, based on adequate human resources, well trained in computers and also with the creation of a national forest service network among forest services, so that is achieved their harmonic cooperation. ●

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