

ORGANISATIONAL ASPECTS OF A FOREST WORKERS' TRAINING SYSTEM FOR GREECE

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Abstract: *Productivity, efficiency, health and safety in forest operations need a well-trained and motivated workforce. The aim of this study is to present results of a research on the organizational aspects of a forest workers' training program tailored to the needs of Greek forestry. According to the respondents, the dual system which refers to the combination of a training facility and practical exercise in an enterprise is the preferred choice. The State Forest Service is expected to contribute with various ways to such an initiative. However, such an endeavor should be supported by legislation and institutional changes, in order to safeguard the smooth operation and optimize the multiple benefits of vocational training in forestry.*

Keywords: *forest workers' training, forest operations, certification of vocational qualifications.*

1. Introduction

Forest operations are among the most physically demanding and hazardous professions in all fields of production [6]. The contribution of specialized vocational training has been often documented in literature [1], [2], [9]. Productivity, efficiency health and safety in forest operations need a well-trained and motivated workforce, which is a precondition for the implementation of the multiple aspects of sustainable forest management.

The fact that Greek forest workers rely on their on-the job-experience and they don't have certified vocational qualifications, results in forest operations

poor both in terms of quality and quantity of work [5]. Furthermore, the lack of vocational training is responsible for the lack of professionalism which often results in split-ups in the cooperatives and the establishment of new ones. A paradox prevails in Greek forest operations: in some regions the workforce is not enough match the forest harvesting needs, whereas in other areas the large numbers of forest cooperatives turn forest harvesting into a problem [10].

Another reason that underlines the need for a forest workers' training (hereafter FWTS) in Greece is the recent rise in the number of forest personnel. Although the number of forest workers steadily declined till 2010 [10], during the last years this trend has been reversed. Nowadays, young

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people return to their rural communities, in search of better career opportunities. This is due to the recession of the economy which affected many production sectors. At the same time, the demand for firewood has risen [3], a fact which initiated a new employment opportunity for these young people. However, given that firewood production is exercised in combination with various other forest works, it is obvious that there is a need for a specialized education that will help the new, as well as the existing personnel to cope with the increased difficulties of their profession. Furthermore, the job perspectives of the trained forest workers in Greece are expected to be better than today and especially for the members of forest cooperatives [10]. Efthymiou [4] estimated that a work volume of 12 hours per hectare of forest area in Greece could provide employment to 50,000-52,000 professional forest workers. Such a development would imply a significant increase of rural employment in this mountainous country.

As a result of the above mentioned facts a FWTS is expected to contribute to the development of the national forestry and the countryside. This study was conducted in order to explore the perceptions of forestry experts and forest workers on the organizational aspects of such a FWTS tailored to the needs of Greek forestry.

2. Materials and Methods

2.1 Selection of participants

The comparison of perceptions of forest workers and forestry experts was chosen as a means to explore their views on the organizational aspects of FWTS in Greece. Forestry experts were selected according to the "experts sampling method". For this reason, a list of all experts on forest operations was drawn, which consisted of

university professors, researchers, representatives of the private forest owners' union and experienced officers of the State Forest Service.

The selection of forest workers proved to be difficult, because the official data didn't provide up-to-date data on the active members of the forest workers' cooperatives. Therefore, despite the increased costs entailed, it was decided that all 13 prefectures chosen for the study would be visited and that the situation would be examined on site. This selection method was justified by our findings, since some cooperatives with especially strong presence in the past, had only few remaining members. The precondition for selection as a study participant was the membership in a forest workers cooperative and the continuous employment in forest operations during the last five years.

2.2 Questionnaire and interviews

The results originate from a mailed questionnaire to forestry experts nationwide and personal interviews held with forest workers in 13 prefectures. Data collection was based on a structured questionnaire with the majority of questions common for both participants' groups. The questionnaire was accompanied by a cover letter explaining the background and purpose of the study. In its first part, profile information was collected from all respondents. A five-point Likert scale was used to measure the perceived level of importance, where 1 = not at all important and 5= very important.

The questionnaire was pre-tested to check for biased, misleading, or confusing questions and to verify the quality and comprehensiveness of the retrieved information.

Personal interviews were conducted with the forest workers from the chosen cooperatives. Finally, informal follow-up discussions were provoked in order to assure the validity of the findings.

2.3 Statistical analysis

The responses were analyzed with the software SPSS Version 20. The criteria of normal distribution and homogenous variance of data were not met, as a result of the non-random sampling method used. Therefore, solely non-parametric analyses were used to explore comparisons between respondents' sub-groups and the relationships between variables. Because the responses were ratings, rather than a continuous measure, these data were not suitable for analysis of variance [7].

The non-parametric alternative to a repeated measures analysis of variance is the Friedman test. The scores of each variable are ranked and the mean ranks for

the variables are compared. The maximum likelihood χ^2 test ($p \leq 0.05$) was also used to test whether statistically significant differences could be found between the answers of the two groups of participants.

3. Results and Discussion

3.1 Organization of the FWTS

The dual system was preferred by 59% of the forestry experts and 70% of the forest workers ($\chi^2= 5.211$, $df= 2$, $p= 0.074$) (Figure 1). The dual system has been already introduced in the Greek vocational training system, combining the advantages of theoretical knowledge transfer along with practical experience in the enterprise. However, 20% of the participants to the study suggested that the FWTS should be organized solely in the form of short training courses.

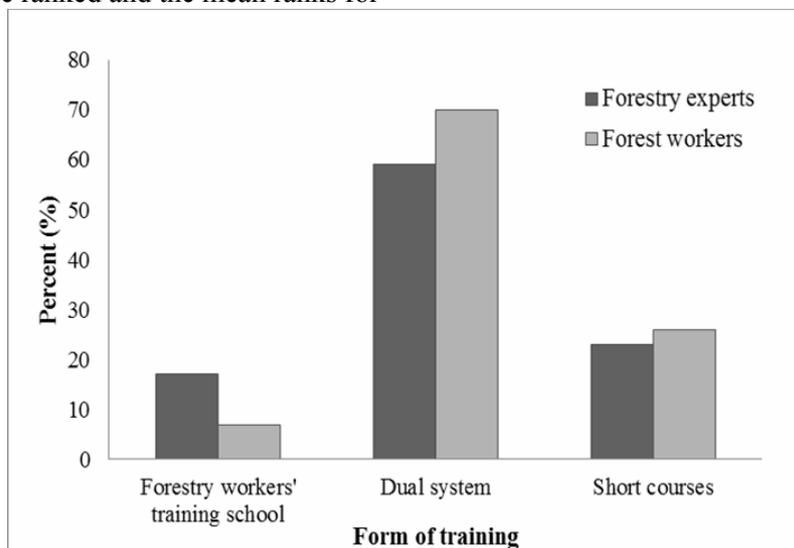


Fig. 1. Respondents' perception on the form of the training system

For the majority (percentage rates above 60%) of both participant groups one year of training is regarded as being sufficient ($\chi^2=1.391$, $df=2$, $p=0.499$). The second

choice was "two years" which followed with a big difference. The results can be characterized as unexpected, by taking into account both the duration of similar

training systems in other European countries as well as of other vocational programmes in Greece.

However, it should be noted that the job definition of a forest worker can vary significantly, from the logger of the past decades to the experienced worker whose knowledge and dexterities can transform him into a useful forest management instrument [8]. In the case of a module-based training system, the modules selection and duration can vary according to the needs of the group that will be trained, especially in the dual system, where due to the large variety of lessons, a duration of one year is a limiting factor for the transfer of the necessary knowledge and dexterities.

Short courses can be also used in informing the forestry workforce on new developments on working techniques and new machinery as well as of refreshing existing knowledge on safety and health in

forest work. Forestry experts (50%) suggested the need to organize short training courses every two years with a duration of 6-10 days. Forest workers on the other hand proposed the annual organization of training courses having longer durations. Short training courses that took place during the 80's were connected to a small reimbursement for the forest workers who participated. There probably lies the reason for proposing frequent courses of longer duration, as they are regarded as means for increasing their, otherwise reduced during the last years, income.

Forestry experts seemed to be convinced that a combination of different actors, such as the ministries, institutions and public authorities can result in the optimum organization of a FWTS for the Greek Forestry (Figure 2).

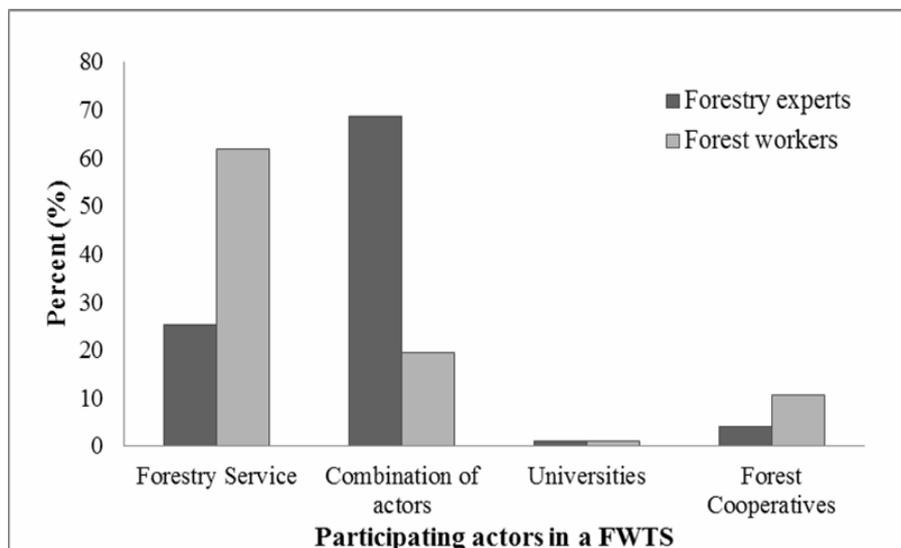


Fig. 2. *Public authorities, institutions and organizations that could participate in a forest workers' training system*

Forest workers would prefer a FWTS solely organized by the State Forest Service, while a combination of different

authorities was preferred by only 19.4% of them.

The answers given by the forest workers depict their close relationship to the State Forest Service. Almost all of the questioned forest workers have participated in short courses organized by the Forest Service and they had a year-long cooperation with the Forest Service regarding the forest management works. However, the forestry experts proposed “a

combination of participating bodies”, which, according to their opinions, would facilitate a better organization of a FWTS.

Forestry experts were also asked to assess the specific fields where the above participating authorities, institutions and organizations would contribute the most (Table 1).

Field of contribution of various actors

Table 1

<i>Field of contribution</i>	<i>Participating actor</i>
<i>Provision of training facilities</i>	<i>Local government, Ministry of Education</i>
<i>Provision of trainers</i>	<i>State Forest Service, Universities</i>
<i>Provision of training material</i>	<i>State Forest Service</i>
<i>Organization of short courses</i>	<i>State Forest Service, Universities</i>
<i>Education control</i>	<i>State Forest Service, Universities</i>
<i>Certification</i>	<i>State Forest Service, Universities</i>

3.2 Financing of the FWTS

In the vision of both respondent groups, the prevailing options for financing a forest workers' training system were the “State” (67.7% and 76.2% respectively) and “European funds” (76.3% and 59% respectively). The option “personal costs” was chosen by only 7% of the forestry experts and 4% of the forest workers mainly due to the free access to all levels of education in Greece.

3.3 Training content

The training distribution between practical and theoretical activities is one of the most important considerations during

the formation of vocational courses. The distributions of “30/70” and “40/60” (theoretical put first) were the most popular among forestry experts, recognizing the need for a basic theoretical background ($\chi^2= 23.916$, $df=5$, $p<0.001$) (Figure 3). Forest workers proposed ratios of “20/80” and “30/70”, obviously because of their own way of learning – the on-the-job experience where the theoretical knowledge is embedded but not directly traceable. As they have stated during the personal discussions, participating to theoretical classes would probably entail learning difficulties for them.

Forestry experts were asked to assess the importance of various training subjects. The results are included in Table 2.

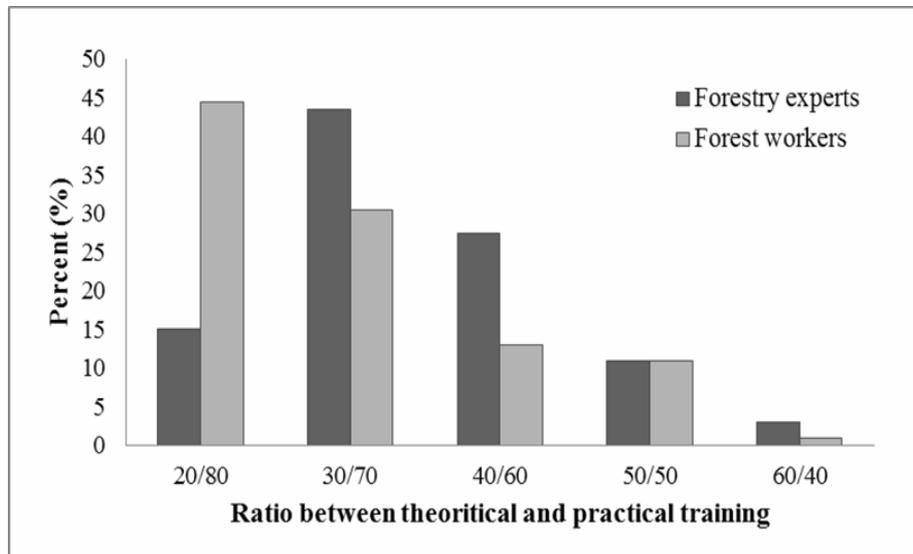


Fig. 3. *Distribution between practical and theoretical training*

Table 2
Importance of training subjects as assessed by the participants in the study

<i>Subject</i>	<i>Mean rank</i>	
	<i>Forestry experts</i>	<i>Forest workers</i>
<i>Ergonomics</i>	3.67	7.72
<i>Harvesting of forest products</i>	4.49	7.37
<i>Cultivating and tending of forests</i>	5.83	7.60
<i>Management of forest workers' cooperatives</i>	6.85	7.88
<i>Combating of forest fires</i>	6.87	7.04
<i>Forest machinery</i>	7.05	7.50
<i>Reforestation</i>	7.37	7.71
<i>Ecology</i>	9.86	11.46
<i>Trading of forest products</i>	10.01	8.15
<i>Forest works' techniques</i>	10.11	9.16
<i>Building and maintaining of recreational facilities</i>	10.18	10.12
<i>Game management</i>	10.80	10.92
<i>Forest Law</i>	10.81	7.72
<i>Sociology</i>	11.90	10.91
<i>Use of computers</i>	13.06	14.88
<i>Management basics</i>	13.18	8.30
<i>Forest plant diseases</i>	13.33	10.17
<i>Foreign language</i>	15.62	16.40
Friedman test statistic	569.27	656.82
Significance level p	<0.001	<0.001

Subjects directly related to production techniques and safety such as “Ergonomics”, “Harvesting of forest products”, “Cultivating and tending of forests”, “Management of forest workers’ cooperatives”, “Combating of forest fires”, “Forest machinery” and “Reforestation” came first. Subjects of more theoretical content followed.

The high frequency of forest fires in Greece has probably influenced the forest workers to choose it as the most important training subject. It is very important for the forest worker to be able to control and extinguish a fire, without risking his life. It should be noted, that the forest workers assessed as being more important, than the forestry experts did, subjects not directly related to the “core” of the forest professions such as “Forest Law”, and “Management basics”.

4. Conclusions

The study provides interesting information on the organizational outline of a future FWTS for Greece. The discrepancies observed between the forestry experts and the forest workers can be explained by the different overview on the forest operations sector that the two groups of respondents have, and this should be taken into consideration. Different perceptions and attitudes are depicted in the answers of the respondents and basic guidelines for the future can be drawn. One of them is that the State Forest is expected to play a central role in the organization of a forest workers’ training system. Furthermore, both groups agree on the implementation of a dual system of vocational training in the examined FWTS.

However, a FWTS will not deliver its outcomes to the full extent unless it is supported by institutional changes. The introduction of new institutions, such as of the trained forestry worker and the

certification of vocational qualifications of the forest workers are expected to substantially improve the level of work quality and safety. Changes are also necessary at the legislation level. Improvements in the operational status of the forest worker cooperatives along with stricter controls are necessary measures for the rationalization of the Greek forest operations. In this direction, stricter work inspection control should also include permanent or temporary disqualification of forest cooperatives and forest companies that don’t comply with the national legislation.

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