



## The Forest Management Certification Awareness and Recognition among General Directorate of Forestry Personnel

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### Abstract

This study is carried out with the aim of determining the awareness and recognition of the forest management certificate at the level of managers and employees of the General Directorate of Forestry. The scope of this research consists of the field service units of the General Directorate of Forestry. A questionnaire based on face to face interview technique was utilized as the data collection tool. In the study, 71 of all 243 forest managements located in the nation have been contacted and a survey has been applied to 146 managers and employees. In this context, a scale, in which 34 proposals are used under 5 main factors, was formed. The obtained data were analyzed in SPSS program by using non-parametric tests. The research results have shown that the FSC certification system has the highest recognition level. On the other hand, GDF managers and employees were determined to have low awareness for forest management certification. In addition, the geographical region where the forest management is situated, the certificate usage status of the management and the method utilized in the forest products sales were identified as variables with statistically significant differences ( $p<0.05$ ).

**Keywords:** Certification, awareness, sustainable forest management, General Directorate of Forestry.

## Orman Yönetimi Sertifikasyonunun Orman Genel Müdürlüğü Çalışanları Arasındaki Tanınırlığı ve Farkındalığı

### Öz

Bu çalışma, orman yönetim sertifikasının Orman Genel Müdürlüğü yönetici ve çalışanları düzeyinde farkındalık ve tanınırlığını belirlemeyi amaçlamıştır. Bu çalışmanın kapsamını Orman Genel Müdürlüğü taşra teşkilatı birimleri oluşturmuştur. Veri toplama aracı olarak yüz yüze görüşme tekniğine dayalı anket kullanılmıştır. Çalışmada, ülke genelinde yer alan toplam 243 orman işletmesinden 71'ine ulaşılmış olup, 146 yönetici ve çalışana anket uygulanmıştır. Bu bağlamda, toplam 34 önermenin 5 ana faktör altında kullanıldığı ölçek geliştirilmiştir. Elde edilen veriler SPSS programında non-parametrik testler kullanılarak analiz edilmiştir. Araştırma sonuçları, FSC sertifikasyon sisteminin en yüksek tanınırlık düzeyine sahip olduğunu göstermiştir. Diğer yandan, OGM yönetici ve çalışanlarının orman yönetim sertifikasyonu farkındalığının düşük düzeyde olduğu belirlenmiştir. Ayrıca, orman işletmenin yerleşmiş olduğu coğrafi bölge, işletmenin sertifika kullanma durumu ve orman ürünleri satışında kullanılan yöntem istatistiksel düzeyde anlamlı görüş farklılıklarının ( $p<0.05$ ) bulunduğu değişkenler olarak tespit edilmiştir.

**Anahtar Kelimeler:** Sertifikasyon, farkındalık, sürdürülebilir orman yönetimi, Orman Genel Müdürlüğü.

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## 1. Introduction

Since the mankind's existence, the activities, which adversely affect forest ecological systems along with other natural resources, have been nonstop (Durusoy et al., 2002; Öztunç, 2006). More rapid and high quantity sense of manufacturing, which has developed as a result of the Industrial Revolution, has led to a huge pressure on the forests which are the source of the raw material supplies of forest products industry. Environmental damage emerging from this process has reached to a point where it threatens the existence of the necessary natural resources and sustainability of these resources for future generations (Yaylı, 2007; United Nations, 2015).

After the years following 1980s, economic progresses and environmental problems, which have reached to a global extent, have triggered a understanding of global social responsibility (İlter and Ok, 2004). The United Nations (UN) Environmental Conference, which took place in 1992 with this kind of understanding, has formed a frame for the new policies which is going to help to improve in terms of sustainability of forest resources management (Elliot and Schlaepfer, 2001; Türker, 2013; Akyol and Tolunay, 2014). In this context, forest certification systems began to be developed for the purpose of encouraging sustainable management of forest resources at the international level (Kiker and Putz, 1997). These certification systems are intended to provide stimulating better administration of forests and appreciating forestry activities with appropriation to sustainable recovery principles in the forest management direction (SFM-Sustainable Forest Management) through a strong relationship between producers and consumers with high environment consciousness (Chen and Innes, 2013). These systems prevent illegal usage of forest resources as well as forcing different parts of the community into collaboration in order to provide forest sustainability.

Certification, which is defined generally as the approval of sustainability of any product or service according to some certain standards, refers to the process of improving, practicing and maintaining the politics and strategies towards protecting nature in all aspects of environmental sciences (Bass, 1998; Mouritsen et al., 2000; Durusoy, 2002). On the other hand, certification takes the lead in the formations of collaboration which focuses on ensuring the sustainability of forest resources by gathering forestry organizations, non-profit organizations with environmental sensitivity and occupational organizations together (Türker et al., 2001).

Two of the world's most notable certification systems in terms of forest management: Sustainable Forest Initiative (SFI) and Canadian Standards Association (CSA) license only the forest management certification, while Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) certify both forest management certification and product supply chain certification. Globally, the biggest certification institutions are FSC and PEFC, and the total ratio of certificated forest lands to world forests is 10.9% (UNECE/FAO, 2015).

Nowadays forest and forest products certification, which aims to prevent the reduction of forests and the global destruction of the environment, has become a necessary element for non-profit organizations and especially for forestry organizations in developed countries (Zhao et al., 2011; Lewis and Davis, 2015).

In this study, it is aimed to achieve to an analysis of the sectoral status in terms of certification process and identify forest and forest products certification awareness of Forest Enterprises (FE) managers and employees in Turkey.

## 2. Materials and Methods

### 2.1. Materials

In Turkey, 99.9% of forest areas are public property and forestry movements are overseen by General Directorate of Forestry (GDF). In GDF Country Organization, 243 FEs are serving under the 28 Regional Directorates of Forestry (GDF, 2016).

Since 2005, GDF has enlisted in the process of observing, evaluating and reporting with regards to certain criteria and indicators (Şener et al., 2011). Forest certification practices have launched since the year 2010 (FSC, 2015). In Turkey, 2.530.976, 33 ha (hectare) forest land has been certified with FSC FM/CoC certification, 32 of these areas being at FE level and 1 of them being GMC (Forest Management Chieftaincy) within 6 different Regional Directorates of Forestry (Muğla, Bolu, Bursa, Kastamonu, İstanbul) (FSC, 2015). This research is composed of totally of 243 FEs taking place in the GDF country organization which is active throughout the country.

The questionnaire which were used as data collection tool in the study consists of: 6 questions concerning the

demographic characteristics, 6 questions regarding the basic characteristics of managements and 4 questions concerning the certification knowledge of the managements. 55 proposals were used in the scale part of the questionnaire. The proposals are ranked under 7 headings: the effects of forest management certification on forest villagers, effects on sustainable forest management, environmental and ecological effects, effects on the forest products market, difficulties likely to be encountered, general opinions and solution recommendations.

## 2.2. Methods

In the study as the data collecting tool, a survey a survey was used, which was based on face to face interview method with the particular managements' managers and employees, as the data collecting tool. In the survey that was applied, Likert scale was used, which included 5 statements such as "I do not agree at all (1)", "I do not agree (2)", "I slightly agree (3)", "I agree (4)" and "I strongly agree (5)". In these surveys in terms of collecting ideas about certification in managements, a total of 34 suggestions under 5 main factors were utilized, which are based on general ideas about the certification, the effects of certification implementation to forest villagers, the effects of certification implementation on sustainable forest management, and the effects of certification implementation on the price and forest products market.

As the number of FEs that participated in the research is known, the formula below was used in determining the magnitude of the sample (Baş, 2006);

$$n = [N \cdot t^2 \cdot p \cdot q] / [d^2 \cdot (N - 1) + t^2 \cdot p \cdot q] \quad (\text{Eq. 1})$$

where; n: Sample magnitude, N: Main mass magnitude, t: Confidence coefficient (coefficient is taken as 1.96 for 95% confidence), p: The probability of the presence of the feature that is to be measured in the main mass, q: The probability of absence of the feature that is to be measured in the main mass (1-p), d: Accepted sample error (10%). In this application, the sample size was calculated as 70 (Baş, 2006).

In the study, a total 71 FEs in Turkey was reached and in these managements data collecting tools were applied to 146 participants who are managers and employees in these enterprises. 34 of the participants were certificated and 112 of them were non-certified FE managers and employees.

In the study, simple random sample method was used, in which every component's weight was equal and possibility of every component's being included in the sample is equal (Arıkan, 2004). In the research, data collecting tool's reliability was calculated as 0.932 with Cronbach Alpha Coefficient method. It is known that reliability coefficient between 0.80-1.00 points to a highly credible scale (Baş, 2006; Kalaycı, 2010).

For data validity, Kaiser- Meyer- Olkin (KMO) test was used, which was based on the comparison of correlation coefficient values that were observed with partial correlation and it is indicated that calculating KMO value between 0.8-0.9 shows that data validity is profoundly high (Kalaycı, 2010). According to analysed results, KMO value of the data tool was calculated as 0.827.

In the study, central distribution, frequency distribution, percentage and arithmetic means were utilized for findings to be solved. In addition to this, it was decided that non-parametric tests were needed to be applied because data didn't show normal distribution as a result of normality tests in which data was put to One Sample Kolmogorov Smirnov Test by using SPSS 20.9 for Windows program. In this situation, Mann Whitney U-Test was used for the comparisons with two separate samples and Kruskal-Wallis H Varyans Analysis was used for the comparisons with 3 or more separate samples.

## 3. Results and Discussion

In the research range, the distribution and the number of contacted participants is given as certain variables in Figure 1. The total number of participants reached in the study is 146. According to this, the greatest participation was obtained in The Black Sea Region on the basis of management, while the lowest participation rate was from Eastern and South-Eastern Anatolia Region. 11 of the enterprises that participated were FE and from these managements, 34 managers and employees were contacted. Participants were composed of 61% management chiefs and 82% managers and employees who had bachelor's level.

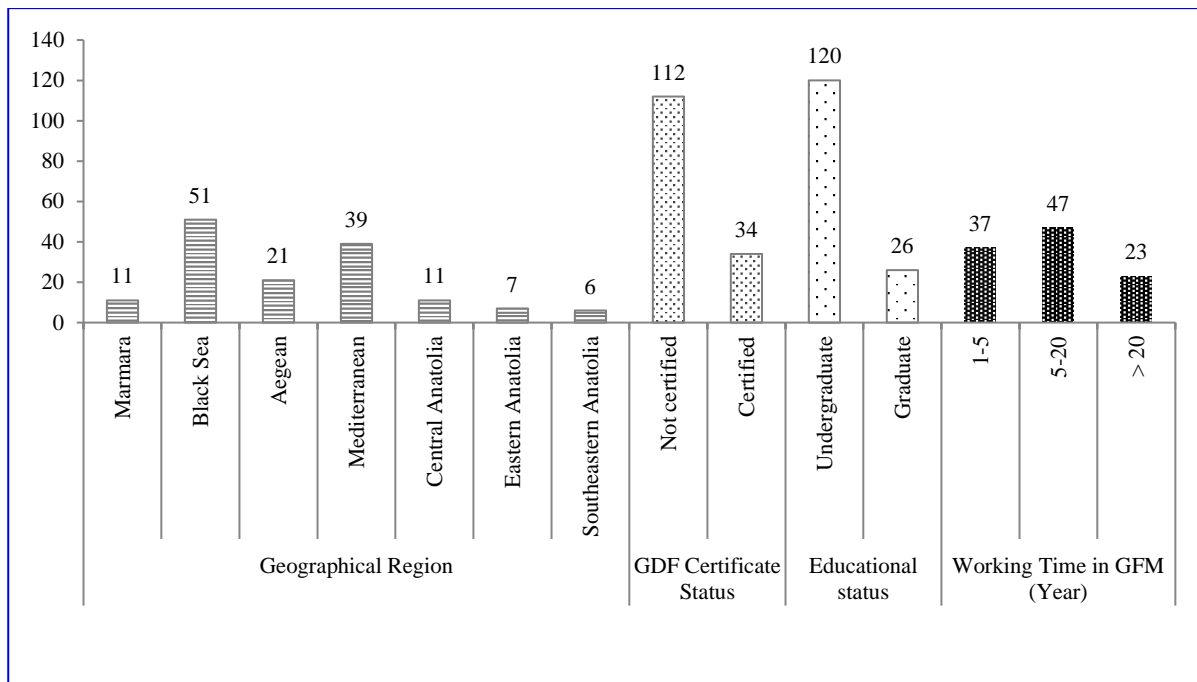


Figure 1. Distribution of participants in terms of different variables.

It is understood from Figure 2 that there is no significant difference ( $p > 0.05$ ) in certification views on the instances when participants have bachelors' or master's degree. It is possible to say that forest managements' high bureaucratic qualifications and the hardship while adapting to market conditions are crucial in certification awareness not occurring. Besides, there are noteworthy obstacles regarding certification awareness, since the undergraduate program does not include forest certification matter (Türker, 2009) and it is not sufficient in solving forestry problems in the international sense and it does not have the essential elements to address to international needs (Yıldız, 2010).

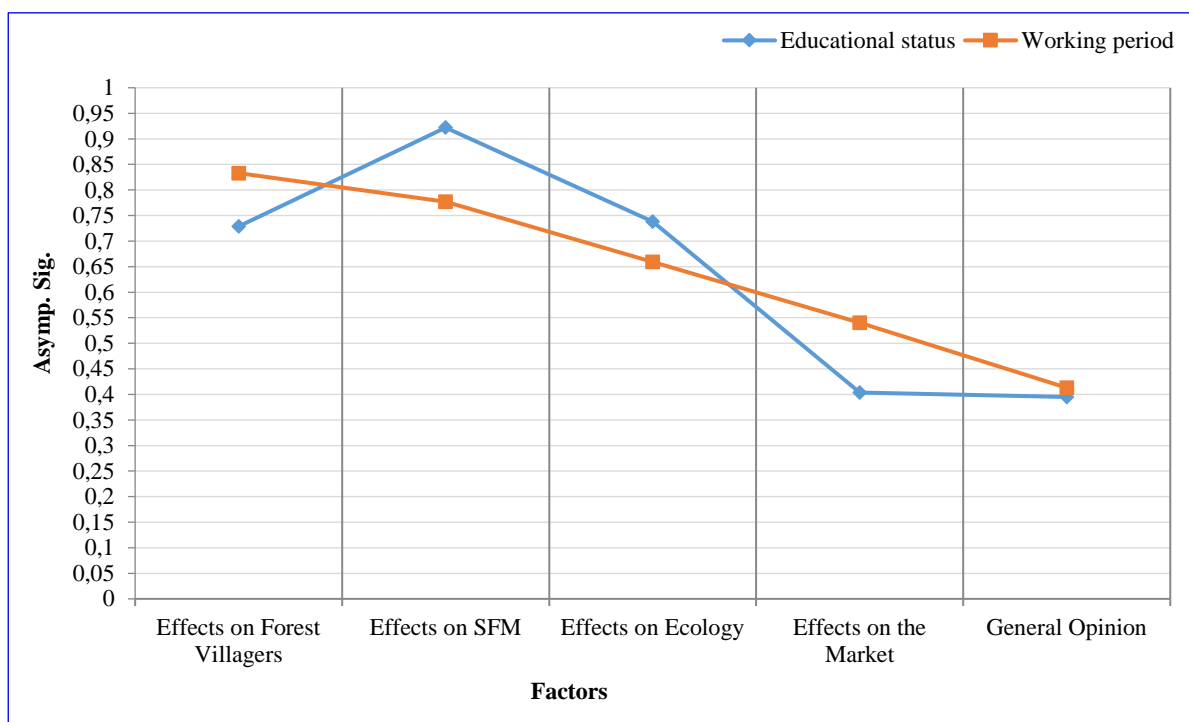


Figure 2. Certification awareness of staff by working period and educational status ( $p < 0.05$ ).

The opinions of participants about the certification do not show any significant difference ( $p > 0.05$ ) according to

working periods in the forestry organization, which can be seen in Figure 2. It can be said that the non-occurrence of differences between FE managers and employees for certification awareness is an expected result when the facts that the certification processes in Turkish Forestry became common after 2010 (GDF, 2016) and the FE certification rate is at a level of 13% are considered together.

It is understood that there is a significant variation ( $p < 0.05$ ) in “Effects on Forest Villagers” and “Effects on the Market” factors (Figure 3) with respect to opinions of participants concerning the recognition status of FSC certificate.

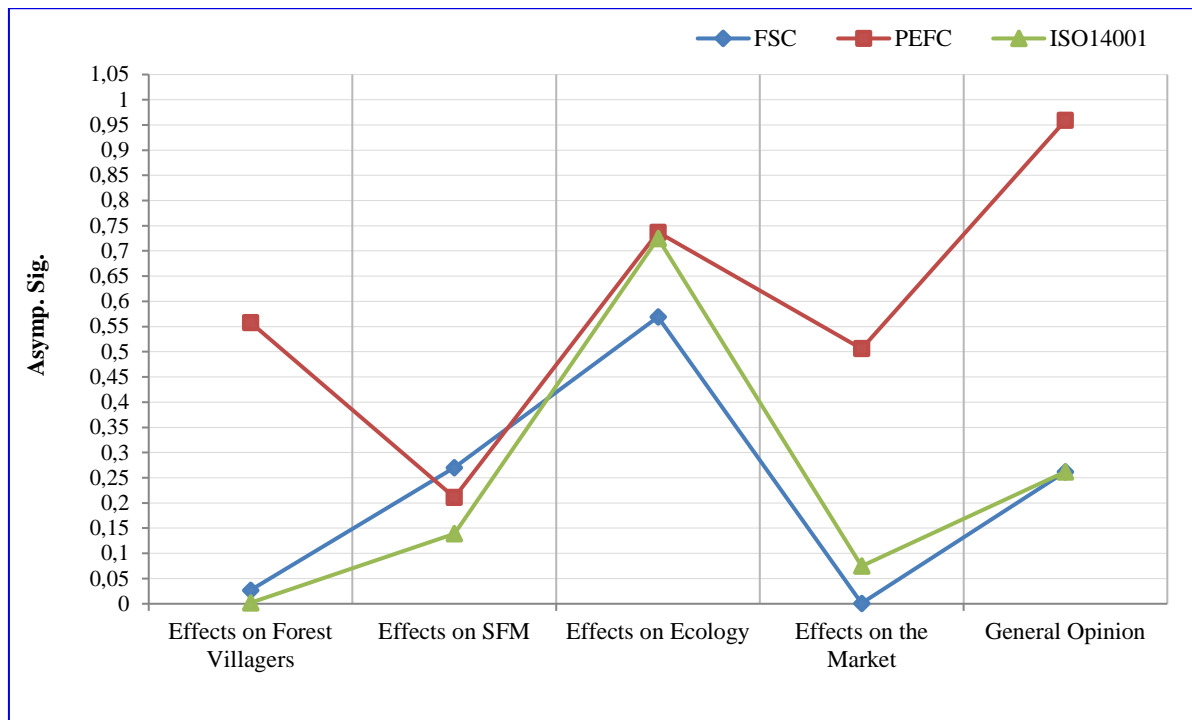


Figure 3. Certification systems awareness status ( $p < 0.05$ ).

It is observed that participants have negative opinions regarding FSC, which is the most recognized in Turkish forestry organization and the most applied certificate type at the same time. The idea that its effects on both the forest villagers and the market will not provide the expected benefit stands out. When the fact that approximately 43% of the managers and employees recognizing FSC certificate are certified business personnel and the study, (Genç, 2014) which demonstrates that the certification increases the workload especially on workers at engineering level, are considered together, we can come to conclusion that there are negative opinions concerning certification process for certified FEs.

Likewise, it is a possibility that the assumptions which are as follows: it is difficult to train forest villagers in the certification process, the difficulty will be experienced during the application of the legal legislation to forest villagers with low education and income levels, and the FSC's economic benefit feature is of secondary importance (Genç, 2014) contribute to negative opinions of managers and employees about FSC certification. The source of participant's positive thoughts can be said to have been emerged from the fact that the ones recognizing environmental certificates have a higher environmental awareness (Schepers, 2010; Thompson et al., 2010) and the environmental management systems are recognized by ISO 14001.

It is figured out that there is no significant difference ( $p > 0.05$ ) in the opinions of the participants on the certification concerning the recognition status of PEFC certificate (Figure 1). It is figured out there is a considerable difference ( $p < 0.05$ ) in the “Effects on Forest Villagers” factor in respect to the participant's recognition status of ISO 14001 environmental management certificate (Figure 1).

The recognition rates of certification document between participants are occurred at the levels of 49% in FSC certificate, 5% in PEFC certificate and 35% in ISO 14001 certificate (Figure 4).

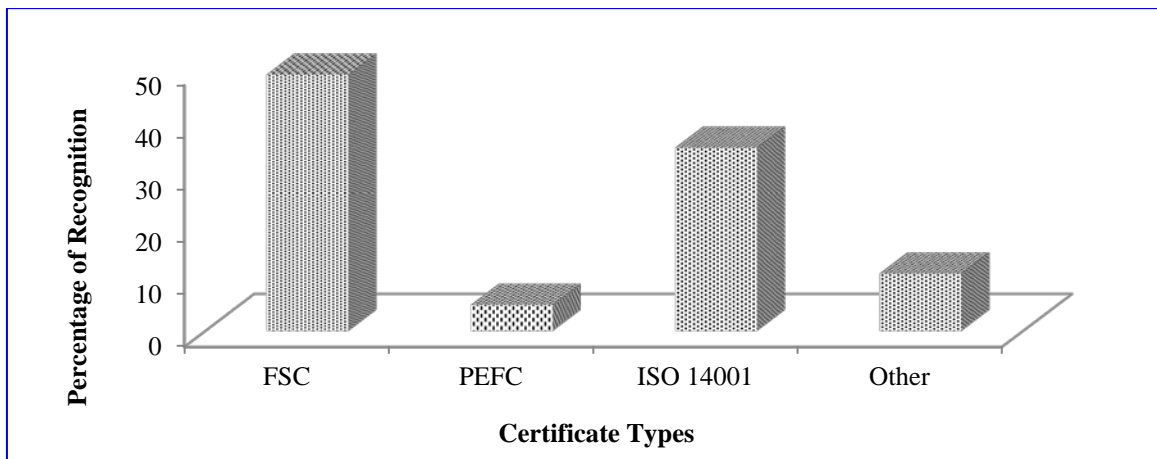


Figure 4. Status of the recognition of certificate documents by FE managers and employees.

It is understood that there is a significant difference ( $p < 0.05$ ) between the opinions of the participants with regards to the certification and the geographical region where the participants are serving in regards to the "General Opinion" and "Effects on Forest Villagers" factors (Table 1).

Table 1. Kruskal-Wallis H-Test results according to FE's geographical region variable at factor scale.

Factors	Region	Number (N)	Mean Rank	Chi-Square	df	Asymp. Sig.
<b>Effects on Forest Villagers</b>	Marmara	11	93.68	13.683	6	0.033*
	Black Sea	51	65.33			
	Aegean	20	56.70			
	Mediterranean	39	77.08			
	Central Anatolia	11	76.64			
	Eastern Anatolia	7	79.64			
	Southeastern Anatolia	6	113.67			
<b>Effects on SFM</b>	Marmara	11	100.50	12.456	6	0.053
	Black Sea	51	73.25			
	Aegean	21	52.88			
	Mediterranean	39	69.45			
	Central Anatolia	11	81.95			
	Eastern Anatolia	7	85.71			
	Southeastern Anatolia	6	94.92			
<b>Effects on Ecology</b>	Marmara	11	90.50	9.537	6	0.146
	Black Sea	51	80.93			
	Aegean	21	55.86			
	Mediterranean	39	67.72			
	Central Anatolia	11	69.86			
	Eastern Anatolia	7	66.79			
	Southeastern Anatolia	6	93.00			
<b>Effects on the Market</b>	Marmara	11	69.00	10.046	6	0.123
	Black Sea	51	75.07			
	Aegean	21	49.76			
	Mediterranean	39	77.06			
	Central Anatolia	11	82.95			
	Eastern Anatolia	7	95.14			
	Southeastern Anatolia	6	85.75			

Table 1. continued.

Factors	Region	Number (N)	Mean Rank	Chi-Square	df	Asymp. Sig.
General Opinion	Marmara	11	60.14	13.648	6	0.034*
	Black Sea	51	86.79			
	Aegean	21	55.14			
	Mediterranean	39	69.46			
	Central Anatolia	11	59.45			
	Eastern Anatolia	7	77.50			
	Southeastern Anatolia	6	96.58			

\*p&lt;0.05

It is seen that warehouse sales method is used in the whole Southeastern Anatolia Region where there is a high awareness of the factors with a significant difference and there isn't any certified forest area in this region. Among the findings of this study, the high awareness of certification (Table 3) in the FEs, where warehouse sale applications are carried out, and lower awareness level in certified businesses, which is opposite of what is expected in certified FEs, can be shown as a reason for regional differences in awareness. Previous studies have also stated that regional differences and local characteristics cause different certification perceptions (Hain, 2005; Ulybina and Fennell, 2013).

It is understood that there is a significant difference ( $p < 0.05$ ) between the certificate holder status of participants and their opinions on the certification in factors "Effects on the Forest Villagers" and "Effects on the Market" (Table 2).

Table 2. Mann-Whitney U-Test results according to FE certificate status variable at factor scale.

Factors	Certificate Status	Number (N)	Mean Rank	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig.
Effects on Forest Villagers	Not Certified	112	78.33	1250.5	1811.5	-2.823	0.005*
	Certified	34	54.89				
Effects on SFM	Not Certified	112	77.08	1502.5	2097.5	-1.863	0.062
	Certified	34	61.69				
Effects on Ecology	Not Certified	112	73.90	1859.5	2454.5	-0.209	0.834
	Certified	34	72.19				
Effects on the Market	Not Certified	112	82.11	939.5	1534.5	-4.482	0.000*
	Certified	34	45.13				
General Opinion	Not Certified	112	74.03	1845	2440	-0.275	0.784
	Certified	34	71.76				

\*p&lt;0.05

Even though the previous studies on the certification opinions have stated that employees in certified firms have positive view (Owari et al., 2006), this research has put forward that the certified FE executives have more negative views on the certification implementation when compared with non-certified FE managers and employees. It can be stated that the excess workload on the management units at FEs (Türker et al., 2009) may have resulted from supplementation of workload increase due to the certification (Genç, 2014).

It is found out that there is a significant difference ( $p < 0.05$ ) in the level of 5 factors between the opinions of the participants about certification and the sale method used for the wood-based products in the enterprises where participants are working (Table 3). The gathered data proves that certification awareness status of FE managers, who use ware-based sales, is higher than FE managers who use the planted tree sales method. It can be said the fact that the presence of cooperatives and private enterprises which don't have direct contact with ultimate consumer (Komut and Öztürk, 2014) and the existence of drawbacks (Alkan and Demir, 2015; Şen and Aközlü, 2015) cause the certification awareness of the managers and employees at the FEs to remain at a lower level.

Table 3. Kruskal-Wallis H-Test results according to FE sales method variable at factors scale.

Factors	Sales Method	Number (N)	Mean Rank	Chi-Square	df	Asymp. Sig.
<b>Effects on Forest Villagers</b>	Stumpage	10	94.2	8.36	3	0.039*
	Stumpage Weighted	17	68.65			
	Warehouse	18	94.25			
	Warehouse Weighted	101	68.57			
<b>Effects on SFM</b>	Stumpage	10	96.75	8.837	3	0.032*
	Stumpage Weighted	17	71.85			
	Warehouse	18	93.42			
	Warehouse Weighted	101	67.93			
<b>Effects on Ecology</b>	Stumpage	10	82.45	12.359	3	0.006*
	Stumpage Weighted	17	62.97			
	Warehouse	18	103.97			
	Warehouse Weighted	101	68.96			
<b>Effects on the Market</b>	Stumpage	10	89.3	8.071	3	0.045*
	Stumpage Weighted	17	76.53			
	Warehouse	18	94.83			
	Warehouse Weighted	101	67.62			
<b>General Opinion</b>	Stumpage	10	91.75	10.544	3	0.014*
	Stumpage Weighted	17	64.71			
	Warehouse	18	99.03			
	Warehouse Weighted	101	68.62			

\*p&lt;0.05

Orders and demands of the central executive units were observed to be more effective in the certified FEs's transition to certification than the environmental factors (Figure 5). These findings revealed that the association objectives are generally determined by senior executive units in the FEs (Türker et al., 2009).

The sampling rate of FE number, which is requested by customers for any environmental certification is determined as 8%. The obtained findings can be inferred as that consumer demand for certified products has not been established yet in Turkey.

The participants have answered the question from where they got the initial data about the certification as following: 58% percentage stated "from briefing meetings in firms", 40% said from "written notices coming from operation department or senior units" and 2% said from "sectoral media news" as responses.

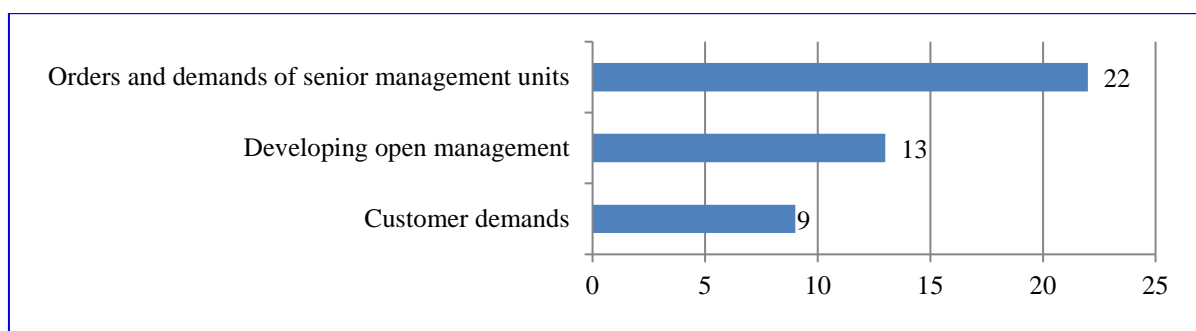


Figure 5. Factors affecting the certification transition of FEs.

#### 4. Conclusions

At the end of the studies, the forest management certification of the FE manager and employees questioned in Turkey were found to have low awareness levels. On the other hand, the ISO 14001 Environmental Management System certification was recognized, and participant awareness was higher, unlike the FSC and PEFC certification



systems.

On the other hand, employees in geographic regions where certified FEs are located have a negative perception of the forest management certification. It is deduced that the workload concerns of FE employees who are in a position as a forest management certification practitioner is an important factor in this regard.

The warehouses sales method used in the marketing of forest products has been shown to have an impact on the employees' level of certification awareness. It was observed that the certification systems have positive effects on the sustainability of forest resources for employees in the FEs, where these methods are used in the warehouse.

It is understood that the evaluations, the education levels of the employees and the working period in the forestry organization do not develop the views that the forest management certification is beneficial.

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