Mikro Ölçekli Mobilya ve Kereste Üreten İşletmelerin Atık ve Çevrelerine Karşı Yaklaşımları

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Öz

Bu çalışmanın amacı, orman ürünleri endüstrisinin iki alt sektörünü oluşturan mobilya ve kereste sektöründe faaliyet gösteren mikro ölçekli işletmelerin çevresel bilinç ve uygulamalarını ortaya koymaktır. Küçük ve orta ölçekli işletmeler her ülke ekonomisi içinde sayı, üretim miktarı, istihdam gibi yönlerden önemli yer tutar. Orman endüstrisini oluşturan kereste, mobilya ve kâğıt alt sektörlerinin % 99,9' u küçük ve orta ölçekli sınıfında yer alırken bunların da % 96' sı mikro ölçekli işletme sınıfı içinde yer almıştır. Bu kapsam içinde yer alan her bir işletmenin çevre üzerindeki etkileri sınırlı olmasına karşın; toplamda önemli bir etkiye sahiptirler. 80'li yılların sonlarından beri işletmelerin çevre üzerindeki etkileri artan bir kaygı konusu olmuştur. Bunun sonucu küçük ve orta ölçekli işletme sahip-yöneticileri üzerinde çevresel yönetim aktivite ve uygulamalarını geliştirmeleri için artan bir baskı vardır. Trabzon da faaliyet gösteren 885 mikro ölçekli kereste ve mobilya üreten işletmeyi temsil eden 120 işletmeye yüz yüze görüşme yöntemi ile 2015 yılında anket uygulanmıştır. İşletmelerin büyük çoğunluğu, çevre kirliliğinin olduğuna inanmaktadırlar ancak kendi işletmelerinin çevreyi kirlettiğine inanan işletme sayısı çok daha azdır. Ayrıca işletmelerin % 66'sının atıklarının azaltılamayacağına inandığı ve üretilen atıkları toplayan her hangi bir organizasyonun olmadığı, araştırmada elde edilen sonuçlardan bazılarıdır.

Anahtar Kelimeler: Çevre, mikro ölçekli işletme, atık, mobilya, kereste.

Approaches of Micro-Scale Furniture and Timber Producing Businesses towards Their Waste and Environment

Abstract

This study aims to demonstrate the environmental awareness and practices of micro-scale businesses operating in the furniture and timber industry, which are two sub-sectors of the forest products industry. Small and medium-sized businesses have a significant place in every country's economy for their size, production and employment. While 99.9% of the timber, furniture and paper sub-sectors constituting the forest industry are in the small and medium-sized class, 96% of them are in the micro-scale business class. Although the environmental impacts of each of these businesses are limited, they have an important influence in total. Since the late 1980s, environmental impacts of businesses have been an increasing matter of concern. As a result, there is an increasing pressure on small and medium-sized business owners and managers to improve their environmental management practices and performances. A questionnaire was applied to 120 businesses representing 885 micro-scale timber and furniture producing businesses operating in Trabzon by face to face interview in 2015. The clear majority of these businesses believe there is environmental pollution, but the number of businesses that believe their businesses less pollute the environment. In addition, some of the results of the survey are that 66% of the businesses believe that waste cannot be reduced and there is no organization collecting the waste.

Keywords: Environment, micro-sized enterprise, waste, furniture, sawmilling.

1. Introduction

Especially in western economies, since the late 1980s, the impact of businesses on the environment has been an increasing matter of concern. This led to an increasing pressure on the owners and managers of small and medium-sized businesses to improve their environmental management activities and practices (Gadenne, et al., 2009).

It can be assumed that a small or medium-sized business has little or no impact on the environment when considered alone. However, a single firm can have a negative impact on the environment and the aggregate of negative impacts of small and medium-sized businesses are important. It is especially true when small and medium-sized businesses globally constitute a significant proportion of the number of businesses. However, most small and medium-sized business owners and managers think that their businesses have little or no impact on the environment and therefore think they are exempt from the implementation of environmental practices (Cassells, et al., 2009).

Small and medium-size businesses underperform when the environmental practices are in question in global context. One of the reasons for this is these businesses do not have enough time, and the other reason is the financial (Cassells, et al., 2009). In a study on the environmental practices of small and medium-sized businesses, the owner-managers of these businesses are defined as follows: they ignore the environmental impacts of their firms; they have few tools and resources to tackle with environmental problems; they resist to performing voluntary activities to reduce environmental impacts because of the cost; time and resource required; they are sceptical about the occupational benefits of sustainability and it is difficult for them to spend time with anything that will reduce environmental impacts (Ruth, 2000).

Gadenne et al. (2009) report that a majority of business owners have a strong and positive environmental perspective, but very few of the businesses attempt to implement environmental practices. They also report that financial constraints are the biggest obstacles that hinder owners and managers of small and medium-sized businesses from having awareness of environmentally sustainable practices (Gadenne, et al., 2009).

It was estimated that 50% of the wastes and pollution in Europe in 2002 were generated by small and medium-sized businesses. 80% of the pollution in the United Kingdom has been created by businesses of this scale. For this reason, if these businesses take on environment-friendly practices, their positive effects on the environment will be much more (Cassells, et al., 2009).

Ünver and Aşcıgil (2008) reported that 99.8% of all the businesses in 2000 in Turkey are small and medium-sized and that these businesses constitute 76.7% of the total employment (Ünver, et al., 2008). According to the General Industry Workplace Census Results conducted by the Turkish Statistical Institute in 2002, 99.9% of the businesses operating in the forest products industry (FPI) are small and medium-scale businesses. 96% of these businesses are micro-scale at the same time (TUİK, 2002). It is possible to conclude that micro-scale businesses have a large share in industrial pollution in Turkey (as in other countries). Raw materials used by the timber and furniture sub-sectors of this sector and the wastes they produce show difference in terms of pollution. In furniture production, engineered boards such as chipboard and fibreboard are mostly used. Adhesives, water repellents and fire retardants are used during the production of these boards and chemicals are used in surface coatings. For this reason, the wastes generated during furniture production are polluted. However, since the logs used as raw materials in timber production are not subject to any pollution, the wastes generated during their processing are also clean.

The aim of this study is comparatively to reveal the waste approaches and the environmental practices of micro-scale businesses in two different sub-sectors that produce timber and furniture and that generate wastes which have different pollution levels.

2. Materyal ve Metot

2.1. Materyal

The Census of General Industry and Workplace was last carried out in 2002. According to the results of this census, the number of forest products industry (FPI) businesses is 822. Since this number may have lost its actuality and in order to use up-to-date data in the determination of the main population of the study, the data from Trabzon Province Trade and Industry Chambers, Organized Industrial Zones and Chambers of Tradesmen and Artisans was gathered.

According to the records of two chambers of commerce and industry established in Trabzon, the number of FPI establishments which constitute 16th, 17th and 31st subsections of manufacturing industry was determined as 133 (TTSO, 2015), (OTSO, 2015). Another chamber where businesses come together and organize is the chambers of artisans and craftsmen. 760 businesses were identified in the records of these chambers (TESOB, 2015). In this regard, 893 businesses were detected when the data obtained from the registrations of all the chambers were arranged according to 16th, 17th and 31st subsections of the manufacturing industry. In this study, the sub-sector of paper and paper products (17th subsection) was excluded. With this sub-sector excluded, the main population was 885.

2.2. Metot

A type of survey method, face-to-face interview method was used as data collection tool in the research (Arıkan, 2011). Monahan (1990) reported that there are currently three general methods for analysing the formation, type and composition of industrial wastes, and that survey is one of these three methods (Monahan, 1990).

In the implementation of the questionnaire, stratified sampling, one of the probability sampling methods, was used. In this method, the main population is divided into subpopulations, and the samples are selected by simple sampling from these subpopulations. In simple sampling, each element of the population has equal chance of entering the sampling and the weight to be given to each element in calculations is equal (Kilic, 2012). Accordingly, the number of samples is calculated according to Equation 1.

$$n=[N \times t^2 \times p \times q] \; / \; [(N-1) \; \times D^2 + t^2 \times p \times q] \tag{1}$$

Here; n: the number of samples, t: Confidence coefficient (1,96 for $\alpha=0,05$), N: Main Population (885), p: The probability of presence of the desired property in the main population was taken as 0,9 since with stratified sampling, the population was divided within itself into subspaces with higher homogeneity (Arıkan, 2011), (Israel, 1992), q: Probability of absence of the property desired to be measured in the main population (1-p=0,1) and D: ± sampling error accepted according to the probability of presence of the property desired to be measured in the population (5% sampling error for the study is accepted). Accordingly, the sample number (n) is calculated as 120. The stratified partitioning of this sample size is calculated as 50 for sector 16 and 70 for sector 31 in proportion to stratum size.

Cross tabs were used in the presentation of the data. Chi-square tests were used to investigate the relationship between categorically categorized variables. In these tests, two hypotheses were established as follows and the hypotheses according to the obtained p value were accepted or rejected at the 5% significance level.

H_o: Variables are independent or there is no difference between variables ($p > 0.05$ H_o accepted).
H_a: Variables are dependent or there is a difference between variables ($p < 0.05$ H_a accepted).

3. Findings

Whether the businesses regarded their waste evaluation ways sufficient was found as in Table 1. According to Table 1, 56% of the businesses in the furniture sub-sector thought they evaluated the waste in the most appropriate way while the businesses in the timber sub-sector thought they could not evaluate their wastes.

Table 1. The notion of whether businesses evaluate their wastes in the most appropriate way.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
Not appropriate	31	44,3	25,8	28	56	23,3
Appropriate	39	55,7	32,5	22	44	18,3

According to the chi-square test results applied to the values of Table 1, H_0 is accepted, that is, no relationship was found between the variables ($p_{(0,206)} > 0,05$).

The waste evaluation methods that businesses know or heard of other than their existing waste evaluation methods but that they cannot implement were found as in Table 2. 31.4% of the businesses producing furniture stated that they did not know any other evaluation methods than their existing methods. This rate is 12% for timber producing businesses. In total, the most common method known to be different from the existing evaluation methods is that wastes can be used in board production.

Table 2. Waste evaluation methods that businesses know other than their own waste evaluation methods.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
Unknown	22	31,4	18,3	6	12	5
Used in board making	37	52,9	30,8	28	56	23,3
Sawdust used as fuel	1	1,4	0,8	2	4	1,7
Used in making furniture	1	1,4	0,8	1	2	0,8
Used in making pellet	9	12,9	7,5	13	26	10,8

The reasons for not implementing the known methods other than the applications in Table 2 were found as in Table 3. In total, the greatest proportion was that their waste is not sufficient in quantity and the second greatest proportion was that they had no reason to specify.

Table 3. Obstacles to known but not applicable evaluation methods.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
Not specified	22	31,4	18,3	12	24	10
Insufficient quantity	21	30	17,5	14	28	11,7
No demand	15	21,4	12,5	4	8	3,3
No communication	6	8,6	5	7	14	5,8
Current way of usage is sufficient	1	1,4	0,8	2	4	1,7
Low price	0	0	0	3	6	2,5
Business facilities are limited	5	7,1	4,2	8	16	6,7

The beliefs that the wastes generated during the production of the businesses can be reduced are found as in Table 4. In total, 65.6% of the businesses stated that their waste cannot be reduced.

Table 4. The notion of whether wastes can be reduced.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
They cannot be reduced	49	70	41,2	29	59,2	24,4
Waste can be reduced by means of suitable saw thickness, measurements of the pieces to be cut	11	15,7	9,2	7	14,3	5,9
They can be reduced by technological developments	6	8,6	5	8	16,3	6,7
They can be reduced by new processing methods	4	5,7	3,4	5	10,2	4,2

According to the chi-square test results in which the relationship between the notion of whether the wastes can be reduced and sectors have been examined, the H_0 hypothesis is accepted ($p_{(0,424)} > 0,05$).

It has been found that more than half of the companies that manufacture timber and furniture need information on the evaluation of their waste. According to Table 5, this ratio is 53% in total. According to the test results applied to the table values, no relation has been found between the variables ($p_{(0,693)} > 0,05$).

Table 5. Information needed by businesses in waste reuse.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
No	34	48,6	28,6	22	44,9	18,5
Yes	36	51,4	30,3	27	55,1	22,7

95.7% of the businesses in the furniture sector and 94% of the timber producers have stated that they have no relation or communication with the public institutions related to the environment. According to Table 6, the ratio of those who said that they are in contact with these institutions is 2.5% in both subsectors. According to

chi-square test results, there was no difference in relation between sectors and environmental institutions (p $_{(0,693)}$ > 0,05).

Table 6. The relation between the businesses and environment-related institutions.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
No	67	95,7%	55,8%	47	94%	39,2%
Yes	3	4,3%	2,5%	3	6%	2,5%

The situation regarding whether the businesses are to increase the raw material productivity has been found as in Table 7. In the table, we can see that the majority of both sub-sector businesses try to increase the raw material efficiency. According to chi-square test results applied to the table values, no difference was found in terms of efforts of raw material productivity between the sectors (p $_{(0,244)}$ > 0,05).

Table 7. Efforts of businesses to increase raw material productivity.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
No	25	36,8	21,4	13	26,5	11,1
Yes	43	63,2	36,8	36	73,5	30,8

Table 8 shows whether businesses pay environmental taxes and whether they are aware of the services to be received in exchange for the taxes. In total, 10% of businesses do not pay environmental tax. No difference has been found between the sectors and the payment of the environmental tax and its content. In other words, H_0 was accepted (p $_{(0,064)}$ > 0,05).

Table 8. Whether businesses pay environmental taxes and whether they know the content of the taxes

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
They pay, but do not know why	34	48,6	28,3	29	58	24,2
They pay, for collecting garbage	26	37,1	21,7	9	18	7,5
They pay, for environmental cleaning	6	8,6	5	4	8	3,3
They do not pay	4	5,7	3,3	8	16	6,7

Table 9 shows the sensitivity of businesses to environmental problems and what they perceive as "environmental problems" in Turkey and in the world. In total, it was found that 7.5% of the businesses believe that there is no environmental problem. This ratio means that 92.5% of businesses acknowledge the existence of environmental problems.

Table 9. Businesses' views on environmental issues.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
Disposing of garbage in the streets / nature	24	34,3	20	7	14	5,8
Air pollution	19	27,1	15,8	12	24	10
There are not any environmental problems	6	8,6	5	3	6	2,5
Contamination of rivers	6	8,6	5	8	16	6,7
Pollution of the seas	4	5,7	3,3	5	10	4,2
There are environmental problems	3	4,3	2,5	6	12	5
Excessive construction	2	2,9	1,7	2	4	1,7
Waste of resources	2	2,9	1,7	1	2	0,8
Noise pollution	1	1,4	0,8	1	2	0,8
Destruction of forests	1	1,4	0,8	0	0	0
Too much use of chemicals	1	1,4	0,8	3	6	2,5
Pollution in moral values	1	1,4	0,8	2	4	1,7

Table 10 shows businesses' views on whether they have their own share of environmental pollution or, in other words, whether they pollute the environment. In total, 58.4% of the businesses believe that they do not create

harmful waste during the production activities. On the sectorial basis, ¾ of the timber producing businesses hold this view.

Table 10. Businesses' views on whether they cause environmental pollution.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
We do not pollute the environment	32	45,7	26,7	38	76	31,7
We create dust	23	32,9	19,2	7	14	5,8
We create pollution during painting or varnishing	9	12,9	7,5	0	0	0
We pollute the environment	3	4,3	2,5	0	0	0
We cause noise pollution	3	4,3	2,5	5	10	4,2

When chi-square analysis is applied to the values of Table 10, the results are not significant, since the expected value is less than 5 in more than 25% of the cells. For this reason, the cells were merged and Table 11 was obtained.

Table 11. The notion of whether businesses contribute to environmental pollution (line values merged)

			Furniture	Sawmill	Total
Contribution to environmental pollution	No	Count	32	38	70
		% within sector	45,7%	76%	58,3%
	Yes + noise	Count	6	5	11
		% within sector	8,6%	10,0%	9,2%
	Dust + varnishing	Count	32	7	39
		% within sector	45,7%	14,0%	32,5%
Total		Count	70	50	120
		% of total	58,3%	41,7%	100%

When the chi-square test was applied to the values of Table 11, it was concluded that there was a difference between the sectors (p $_{(0,001)}$ < 0,05). Based on this conclusion and the ratios in Table 11, furniture sector businesses mostly accept their negative impacts on the environment.

The measurements made in relation to the environmental impact of business activities are found in Table 12. When chi-square test was applied to the values in Table 12, there was no difference between the sectors in terms of making environmental measurements (p $_{(1,0)}$ > 0,05).

Table 12. Measures related to the environment in the businesses.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
No	68	97,1	57,1	47	95,9	39,5
Yes	2	2,9	1,7	2	4,1	1,7

The problems faced by businesses during their re-evaluation of waste are shown in Table 13. The most important problem faced by businesses according to the table is that they do not have sufficient stock yard. The issues that are encountered and that are different between sectors are found as "cost" and "waste cannot be reused" (p < 0,05). There was no relationship between the sectors in terms of encountering other problems (p > 0,05).

Table 13. Problems encountered during recycling of waste.

		Furniture	Sawmill	Total
Recycling area	Count	28	25	53
	% within sector	50	61	
The lack of state support	Count	20	18	38
	% within sector	35,7	43,9	

Rest of The Table 13

Time	Count	17	20	37
	% within sector	30,4	48,8	
Cost	Count	8	19	27
	% within sector	14,3	46,3	
The lack of information	Count	14	10	24
	% within sector	25	24,4	
It is sometimes not possible to recycle	Count	10	6	16
	% within sector	17,9	14,6	
Wastes cannot be reused.	Count	13	3	16
	% within sector	23,2	7,3	
Reluctance of employees	Count	8	5	13
	% within sector	14,3	12,2	
Separate collection of wastes	Count	2	4	6
	% within sector	3,6	9,8	
Total	Count	56	41	97
	Toplam %	57,7%	42,3	100

The forest products industry makes production by making use of shape. The material is cut and processed during the shape change and therefore the use of the right blade can be a determining factor in the amount of sawdust formation. Blade preferences of businesses in the material cutting are found as in Table 14. It can be seen from the table that the majority of businesses use appropriate blade for the material cutting. It was observed and reported by manufacturers that businesses using uniform knives mostly used the same type of raw materials. There was a difference between the use of knives and the sector in material cutting ($p_{(0,00)} < 0,05$).

Table 14. Blade usage in material cutting.

	Furniture			Sawmill		
	Count	% within sector	% of total	Count	% within sector	% of total
Blade is used according to the material	62	89,9	52,5	25	51	21,2
Single blade is used	7	10,1	5,9	24	49	20,3

Methods for disposal of wastes that businesses cannot evaluate are found as in Table 15. In total, 45.4% of the businesses evaluate their entire waste. 36,1% of the businesses dispose waste they cannot evaluate into the garbage containers of the municipality. Some business owners verbally stated that this practice was not approved by the municipality during the survey.

Table 15. Methods of disposal of wastes that cannot be evaluated or reused.

Methods for disposal		Furniture	Sawmill	Total
There is not any waste that cannot be evaluated	Count	31	23	54
	% within sector	44,3	46,9	
They are being disposed into special garbage areas the municipality designated.	Count	2	2	4
	% within sector	2,9	4,1	
They are being disposed into general garbage containers the municipality put.	Count	33	10	43
	% within sector	47,1	20,4	
They are being disposed into empty land.	Count	1	1	2
	% within sector	1,4	2	
They are given free of charge to others.	Count	5	20	25
	% within sector	7,1	40,8	
Total	Count	70	49	119
	Total %	58,8%	41,2	100

4. Discussion

Half of all businesses think that they evaluate their waste in the most appropriate way. In this respect, the sub-sectors are independent of each other. A total of about ¼ of the businesses are not aware of a waste evaluation form other than their current ones. The most common method, although not implemented, is that waste can be

used in board making. Another second common evaluation is that wood (timber) sawdust can be used to make pellets.

The most important reason why businesses do not apply waste evaluation methods other than their existing practices is that they believe that the amount of waste they produce is small. The second reason is that there is no reason specified for the matter. The third major reason is that there is no demand for these wastes. In a study carried out in Louisiana, the US, businesses reported that they wanted to sell their waste to paper plants but that they were not interested because the amount of waste was low and that some of them paid $ 250 per week to evacuate these wastes to get rid of them (De Hoop, et al., 1997). Hoop et al. (1997) suggested that producers with a low amount of waste should establish a network among themselves to collect their waste and to make deals with businesses that use these wastes as raw materials (De Hoop, et al., 1997).

The European Union waste management policy includes waste reduction, reuse, recycling, reduction in the volume and elimination of waste respectively (URL 1, 2015). An effective waste management can include all these stages. Waste reduction is the most effective of these steps. Eshun et al. (2012) reported that good manufacturing practices, technological changes, change in input, change in product, recycling of waste, and reuse of waste can be utilized to reduce waste (Eshun, et al., 2012). However, in our study, it was found that 65.6% of the businesses in total believed that their wastes could not be reduced. This ratio is 70% in the furniture sector. There is no difference between the sectors. Few businesses believe that the amount of waste can be reduced by appropriate material selection, technological developments and new processing methods, respectively. Generally, as the diameter of the logs used for timber production increases, waste production decreases (Yang, et al., 2008). In their studies on the use of wood waste in 1988 and 2003, Murphy et al. (2007) reported that the amount of wood waste generated in 2003 was 22% less than that of 1988, and that they believed that the technological developments in the timber industry (better peeler, optimizers in head and edge cutters and finer sawtooths) played an important role in this decrease (Murphy, et al., 2007). Keegan et al. (1998) reported that the amount of waste generated per m^3 decreased by about 30% from 1969 to 1998 (Keegan III, et al., 1998). Laner and Rechberger (2009) reported that when waste is not produced, it is not necessary to collect, store, process and dispose it (Laner, et al., 2009).

Only 5% of businesses have found to be related to environmental institutions. Mostly small businesses (less than 20 employees) do not comply with obligatory legislative requirements (Rajendran, et al., 2003). For example, in Spain, a member of European Union, since the amount of waste produced by 20 of the 40 businesses producing toxic waste is not important, they are not registered to any relevant institution (Casares, et al., 2005). Mitchell et al. (2011) reported that they cannot name any waste law that most small and medium-sized business owners and managers must comply with in their studies (Mitchell, et al., 2011).

Efficient use of materials reduces both the amount of waste and the need for unprocessed raw materials. Though increasing material efficiency is regarded as a natural purpose by businesses, this is not really regarded as an "environmentally friendly" application (Ilomäki, et al., 2001). In this study, it was found that 67.6% of the businesses were in an effort to increase raw material efficiency and there was no difference between the sub-sectors and the businesses making this effort.

A little more than half of the businesses pay environmental tax, but they do not know for which service they are paying this tax. 10% of the businesses do not pay environmental tax. The ratio of environmental tax payment and knowing the content of the tax show similarity between sub-sectors. Casares et al. (2005) report that businesses pay tax for the amount of waste they produce and that the business scale is effective when the tax rate is determined, but that the amount and level of tax is independent of the type of waste (Casares, et al., 2005).

9/10 of businesses believe that there are environmental problems in Turkey and in the world, but 6/10 of them believe that their businesses do not cause environmental pollution. Redmond et al. (2008) found that 98% of small-scale business managers were concerned with environmental problems, but 63% of these businesses admitted that their businesses had negative environmental impacts (Redmond, et al., 2008). This study did not cover a single sector but it covered small businesses operating in ten different sectors. Holland and Gibbon (1997) also pointed to the fact that most small-scale businesses believe that their environmental impacts are in proportion to their activities, that is, as they are small because their environmental impacts are also little (Holland, et al., 1997). Gadenne et al. (2009) also reported that small business owners-managers have a strong and positive view of the environment, but few businesses apply environmentally sustainable practices (Gadenne, et al., 2009).

Almost all of the businesses were found to have made no measurements on the environment. No difference was found between sub-sectors in terms of this application. Mitchell et al. (2011) reported in their studies that although 69% of small and medium-sized businesses are aware of their negative impacts on the environment, only 18% of these businesses measure this impact somehow (Mitchell, et al., 2011). Čavlović et al. (2012) reported that wood-processing industries can cause soil, earth and air pollution other than greenhouse gas emissions, and that businesses using their own waste as fuel in Croatia exceeded pollution limit values many times (Čavlović, et al., 2012).

Businesses face various problems when evaluating their waste. The most common problem, both by total and by sectors, is "space". Second is the "lack of state support". Redmond et al. (2008) distinguished the problems encountered in the recycling of wastes as non-business and intra-business, and they categorized the absence of state support, recycling and possibilities as non-business problems which we also stated in our study; and cost, the lack of knowledge, stock yard, time and reluctance of staff as intra-business problems (Redmond, et al., 2008).

There are differences in the choice of blades that businesses use during material cutting. In the furniture sector, the rate of using uniform blade is 10.1%, in the timber sector this rate is 49%. The reason for the high use of uniform blade or band saws in timber manufacturing businesses is that they cut the same kind of trees. Appropriate blade selection is influential on the amount of waste (Murphy, et al., 2007).
45.4% of the businesses evaluate all their waste. Only 1.7% disposes waste they cannot evaluate into wasteland and 36.1% disposes them into the municipality's waste containers. During the implementation of the survey, some of the businesses that dispose of wastes that they could not evaluate stated that the municipality did not approve of this practice. However, there is no regulation regarding the collection of these wastes. In our study, we did not encounter any applications for disposal of wastes by burning them on the open area or by collecting them by any organization and disposing them in landfills. In a study carried out in an industrial area in Granada, Casares et al. (2005) found that the municipality had blue paper collection containers, yellow bottle collection containers, and various waste collection containers each of 3 m³ size, and that the businesses directly took their wastes to waste evaluation factories and had to pay about € 12 per ton and in addition to the municipality this service, there are private waste collection companies that offer such services (Casares, et al., 2005).

5. Conclusion

Half of the businesses believe that their waste evaluation forms are the "most appropriate". In fact, ¼ of these businesses are not aware that there are other forms of waste evaluation. Apart from the existing applications, the most common but not applied evaluation method is the use of wastes in particle board production, and secondly, in pelletizing. The biggest obstacle to the implementation of evaluation forms other than the existing application is that the amount of waste produced is small. This belief is more prevalent in the furniture sector. There have been no attempts to collect waste from these businesses, which are mostly located in small industrial sites or scattered throughout the city.

While the best waste management policies are waste reduction, that is, not producing any wastes, 65.6% and 70% of timber and furniture producing businesses, respectively, believe that waste cannot be reduced. However, 67.6% of businesses are in an effort to increase raw material productivity. The reason for the contradiction between these two conclusions is that companies' understanding of raw material efficiency is towards obtaining more products from unit material. Increasing productivity is a natural purpose for most businesses, but, for these businesses, reducing waste does not seem to mean productivity and be an eco-friendly application.

Most business owners-managers believe that there are environmental problems in Turkey and in the world. However, the percentage of those who agree that their businesses have a negative impact on the environment is less. This trend is a common feature for small and medium-sized businesses (Redmond, et al., 2008). Businesses that admitted that they polluted the environment stated that the way they pollute the environment are in the forms of noise, the fine dust formed during the cutting of the wood, and the emissions during painting and varnishing operations. None of the businesses identified the flue gases resulting from the wastes they burn as a pollutant. The flue gases formed as a result of incineration of board waste in unsuitable simple chimneys are particularly important. The chemical adhesives and preservatives used during the production of boards necessitates that these wastes be incinerated under full incineration conditions.

About half of the businesses evaluate all their waste. Very few of the remaining businesses dispose their waste to wasteland; 36.1% of them dispose their waste to the garbage containers used for collecting urban solid waste.

There are no municipal or private sector attempts to collect the wastes generated in the businesses. In addition, incineration or land filling of wastes in open areas applications have not been declared or observed.

By and large, it can be said that micro-scale businesses producing furniture and timber are far from eco-friendly applications and do not feel any pressure to reduce their negative impacts on the environment.

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