

Full Length Research Paper

Health problems and conditions of the forestry workers in Turkey

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The first phase of supplying forest products to the producer is comprised of the production activities performed in the forests. As these activities are hard and difficult works carried out in forests, occupational accidents and safety usually remain current issues. Since the topographic structure in most of the forests in Turkey are not suitable for working with machines, forestry works are mostly performed in a labour-intensive way. The purpose of this study is to examine the working conditions of seasonal workers employed in forestry activities, their attitudes regarding accidents and safety, and the measures taken. On the other hand, the problems women experience regarding forestry works and their expectations of their daily life spaces was also examined. The study was carried out in Provincial Department of Forestry of Cankırı. All the people who participated in the study came from different cities as seasonal workers and had poor working and living conditions.

Key words: Forestry workers, accident, occupational safety, Cankırı, Turkey.

INTRODUCTION

There is no doubt that forestry represents a significant element in world economy. More than a quarter of all forest products produced each year is traded internationally. In the second part of 90's, the value traded is around \$100 billion per year (Michie and Wardle, 1998). In absolute terms, the value added generated by the forestry sector rose from about US\$100 billion in 2000 to about US\$120 billion in 2006. However, the share of forestry in Gross Domestic Products (GDP) and employment continues to decline, largely because of the faster growth of other sectors of the economy. Forestry employment accounted for about 0.8% of total employment in 2006. Moreover, in fuel wood harvesting, is estimated to employ about 14 million workers in the world, of whom 90% are in developing countries (FAO, 2009). Although there is no official record available intended for determining the number of forestry workers in Turkey, it is mentioned in some sources that it is around 375 thousand (Blombäck et al., 2003). However,

it is presumed that this information is exaggerated. In the interviews made with authorities, it is generally stated that the total number of the members of the forestry cooperative, forest villagers and seasonal workers employed in forestry work could be 200 thousand people at the most.

Forestry work is generally characterized by a combination of natural and material risks to the health and safety of forest workers. The natural risks are associated with steep and broken terrain, dense crops and adverse working conditions, including extremes of climate - both hot and cold. The negative effects of these natural features are often made worse by the inadequacy or absence of work site welfare facilities, food and drink, appropriate clothing, etc. Further risks are created as a direct result of the forestry operations themselves, both those involved in logging and those in subsequent processing. Falling trees, even relatively small ones, as well as the loose branches that accompany them are extremely dangerous and can cause serious accidents. The handling of trees during transport and conversion is also a risky job and the forces involved may lead to serious injuries if they get out of control. Primary

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processing is also fraught with dangers. The combined result is a profession in which the accident rate is higher than that in many other professions. In all countries where comparative statistics are available, forestry has a higher accident frequency rate than most other industrial sectors (Poschen, 1993; Staal, 2001).

Efforts to improve occupational safety and health have increased in recent years and it is likely that this will be a continuing concern for the industry. While conditions in the manufacturing industry have improved considerably, the accident situation in forestry and in particular in harvesting give cause for concern. Countries that do not have effective safety regulations and worker training will tend to have accident rates several times higher than industrialized countries, whether work is done with hand tools or with machines (ILO, 1998).

With the purpose of examining the conditions and health problems of the workers employed in forestry works in Turkey, this paper took the forestry workers of the city of Cankırı as its subject. In light of the data obtained through the questionnaire carried out face to face with the workers, suggestions intended for solving the workers' social and health problems have been developed.

MATERIALS AND METHODS

Site description

The city of Cankırı is located north of Central Anatolia, within the main watersheds of Kızılırmak and western Black Sea. The city is positioned between the 40° 30' 41" northern latitudes and 32° 30' 34" eastern longitudes. The altitude of the research area is 723 m a.s.l. Examining the city, which is located within the transition zone from humid Black Sea climate to arid Central Anatolia climate, from north to south, the farther we go south, vegetation cover becomes poorer (Yuksel et al., 2001). The annual average temperature of Cankırı is 11.1°C, while its annual precipitation is 417.17 mm (Anonymous, 2010a).

Primary types of trees that constitute the forests of the city of Cankırı are Austrian pine (*Pinus nigra* Arnold. subsp. *pallasiana* (Lamb.) Holmboe), Scotch pine (*Pinus sylvestris* L.), and Uludag fir (*Abies nordmanniana* (Stev.) Spach. ssp. *bormulleriana* (Mattf.) Code et Cullen). Oak (*Quercus* sp.) and Juniper (*Juniperus* sp.) are the most commonly found types in degraded forest areas.

There are four management offices (Central, Yapraklı, Sarıkaya and Sabanozu) of the Provincial Directorate of Forestry Management (PDFM) of Cankırı. While 7% of the 458.355 ha total area of the PDFM of Cankırı is composed of productive woods, 7% is of unproductive woods and 86% is woodless (Anonymous, 2010b).

Data collecting and statistical analyses

This study was conducted by the evaluation of the questionnaire applied face to face to total 102 forestry workers working in Yapraklı, Sarıkaya and Sabanozu areas of Cankırı PDFM of the Regional Directorate of Forestry of Ankara.

The questionnaire consisting 63 questions was applied separately to men and women. In order to receive objective and accurate answers to the questions, the questionnaire was

conducted face to face with the respondents. Initially the workers were informed regarding the scope of this study, why it is conducted and the general context of the questions. The questions cover the topics of personal information, performed works, social and economic conditions, work satisfaction, daily life and the problems experienced by women and children. Respondents were migrants coming from the cities of Adana, Mardin and Urfa. Having inadequate agricultural lands in their home villages, in forestry seasons these workers migrate to Cankırı with their families and at the end of the season they turn back to their home villages. Questionnaire administration was carried out in 2010 summer season (June, July, and August) in the working fields of the workers. Obtained data were statistically analyzed using SPSS 15.0 Windows Package Program and descriptive statistics also chi square.

RESULTS

In the study, socio-economic and demographic characteristics of the workers employed in the forestlands of the Yapraklı, Sarıkaya and Sabanozu areas of Cankırı PFMD of the Regional Directorate of Forestry of Ankara were examined and the findings obtained were presented in Table 1.

Table 1 show that, 53.9% of the subject group was constituted by men. During the study, we discovered that out of the 102 participants of the forest, 87 men and women actively worked in forest works. Out of the 102 participants of the study, 55 were men and 47 were women. Of the 55 men, 54 were actively working in forest works; however, there was one man who was unable to work because he lost his finger in a tractor accident. Out of the 47 women, 33 were active in forest works, while the other women took part in household duties. 76.5% of the total number of participants was seasonal forestry workers. A large majority of the workers were within the age group of 15 to 64. 80.4% of the participants could only continue their education until primary school. Only 4.9% of the group was constituted of high school graduates. 56.9% of the participants were married. In terms of population, 35.3% of the families were made up of seven or more persons.

While 91.3% of the participants stated that they were to be paid by the end of the work, 81.4% denoted that they could not receive their payments regularly and 85.3% indicated that they do not find their income adequate. More than half of the workers answered the question whether they like the job, explaining that "they do not like it but have to do it anyway", and gave the answer "no" to the question whether they are proud of their jobs. It was understood that 23.5% of the workers did not have any social securities covering any work accidents or occupational illnesses they may have.

During the work season in forest, majority of the respondents (76.6%) live in tents. It was discovered that in even natural needs such as toilets, bathrooms, cooking and cleaning, problems were experienced due to unavailability of the necessary infrastructure in the tent camping areas. One of the most important problems

Table 1. Some demographic information of the participants group.

Feature		Number	(%)
Gender	Men	55	53.9
	Women	47	46.1
Age groups	<15	3	2.9
	15-64	98	96.1
	>65	1	1.0
Education	Illiterate	24	23.5
	Literate	16	15.7
	Primary school graduate	42	41.2
	Secondary school graduate	15	14.7
	High school graduate	5	4.9
Marital status	Married	58	56.9
	Unmarried	43	42.1
	Divorced	1	1.0
Work status	Seasonal	78	76.5
	Temporary	24	23.5
	Permanent	-	-
Social security	Agriculture Insurance	10	9.9
	Social Security Insurance	3	2.9
	Poverty Insurance (Green Card)	65	63.7
	Non available	24	23.5
Side job	None available	81	79.4
	Farming	5	4.9
	Seasonal work	4	3.9
	Private sector	6	5.9
	Will do what I find	6	5.9

forestry workers experienced regarding the areas they live in was the provision of drinking and utility water. While 37.3% of the participants stated that they provided drinking and utility water from the fountain in the neighborhood, 20.6% indicated that they did so from a nearby brook. 84.3% of the participants stated that there were no bathrooms and toilets in the camping areas (in study area) and that they had to build a bath with their own means. In the working area lacking of toilets, the workers relieved themselves in the forest and this caused hygiene and health problems.

Gender based distribution of the production activities carried out within the scope of forestry was shown in Table 2. 87 of the total 102 respondents (85.3%) actively worked in forestry works.

The remaining men and women were engaged in other tasks such as directing the workers, following the operations with the operations directorate, marketing, housework, transportation and shopping. Also some of

the men and women interviewed carried out more than one task at the same time. For that reason, the data obtained from Table 2 were not the total number of people interviewed, but an evaluation based on the tasks men and women performed in forestry works. Male workers were mostly engaged in works of chopping (88.9%), stowing (77.8%), loading (50%) and site cleaning (50%). On the other hand loading (60.6%), stowing (51.5%) and peeling (27.3%) were the tasks the women mostly attend to. Although majority of the women (70.2%) worked together with their spouses in the forest, nearly half of them (45.5%) stated that they do not contribute to their family budgets. Regarding the workers' own opinion on whether they experience difficulties during their working activities, 42.5% of them stated that they experienced difficulties while 39.1% expressed that they experienced great difficulties. In his research, Enez (2008) have examined the difficulties workers have in their working activities and concluded that 39.9% of the

Table 2. Gender based distribution of the tasks carried out.

Tasks performed	Gender*						χ^2	P
	Men		Women		Total			
	Number	(%)	Number	(%)	Number	(%)		
Chopping	48	88.9	7	21.2	55	63.2	40.345	0.000
Stowing	42	77.8	17	51.5	59	67.8	6.473	0.017
Site cleaning	27	50.0	6	18.2	33	37.9	8.808	0.003
Bark peeling	9	16.7	9	27.3	18	20.7	1.404	0.281
Loading	27	50.0	20	60.6	47	54.0	0.928	0.381
Charcoal	25	46.3	5	15.2	30	34.5	8.794	0.005
Total	54	52.9	33	32.4	87	85.3	15.805	0.000

*Actively worked in forest works.

Table 3. Gender based distribution of the accidents had and their causes.

Parameter		Gender*				χ^2	P
		Women	Men	Total			
		(%)	(%)	Number	(%)		
Work accidents	Yes	27.3	37.0	29	33.3	0.879	0.482
	No	72.7	63.0	58	66.7		
Type of accident	Slip and fall	22.2	40.0	10	34.5	0.868	0.431
	Hit by tractor	-	10.0	2	6.9	0.967	1.000
	Hit by machine	-	55.0	11	37.9	9.212	0.010
	Hit by chopped tree	22.2	30.0	8	27.6	1.188	1.000
	Hit by lumber - wood	66.7	20.0	10	34.5	5.983	0.032
	Pressed between two objects	-	10.0	2	6.9	0.967	1.000
	Hit by another living being	-	5.0	1	3.4	0.466	1.000
	Falling from tractor	-	5.0	1	3.4	0.466	1.000
Causes of accidents	Lack of knowledge/training	34.1	35.2	34	34.7	0.013	1.000
	Over fatigue	56.8	61.1	58	59.2	0.185	0.685
	Lack of attention	52.3	83.3	68	69.4	13.061	0.001
	Adverse weather conditions	9.1	35.2	23	23.5	9.191	0.002
	Improper tools - machines	-	25.9	14	14.3	13.309	0.000
	Lack of protective equipment	6.8	25.9	17	17.3	6.174	0.016
What is needed in order to prevent accidents?	Being more careful	56.5	85.5	73	72.3	10.465	0.002
	Receiving training	19.6	40.0	31	30.7	4.917	0.320
	Increase in wages	23.9	32.7	29	28.7	0.951	0.382
	Provision of protective equipments	6.5	38.2	24	23.8	13.860	0.000
	More frequent controls	-	9.1	5	5.0	4.400	0.061
	Better working conditions	45.7	40.0	43	42.6	0.327	0.687
	Enhanced technology	2.2	20.0	12	11.9	8.645	0.013
	Nothing can be done	8.7	-	4	4.0	4.980	0.040

*: Actively worked in forest works.

workers have difficulties and 37.8% have a great deal of difficulties.

Table 3 show that, the gender based distribution of the

accidents workers and their causes. It was determined that 33.3% of the workers experienced at least one accident during their occupational lives. In another study

Table 4. Distribution of the ailments detected in forestry workers after they started working in forestry.

Types of ailments	Gender			
	Women		Men	
	Number*	(%)	Number*	(%)
Numbness in arms and legs	10	40.0	15	40.5
Feeling cold at the feet	5	20.0	3	8.1
Back and lumbar pain	22	88.0	33	89.2
Difficulty in hearing	-	-	3	8.1
Difficulty in seeing	1	4.0	3	8.1
Bronchitis	1	4.0	3	8.1

*The sum was not taken because a single participant can report more than one illness.

carried out with the participation of 250 forestry workers on the working conditions and accidents in forestry production, it has been stated that while 31% of the workers had at least one accident, 11% of them had 2 to 3 accidents and 5% had more than 4 accidents (Menemencioglu, 2006). The most frequently occurring types of accidents were being hit by machinery/tool (37.9%), being hit by lumber/wood (34.5%), slipping and falling (34.5%) and being hit by chopped trees (27.6%). Examining these kinds of accidents in terms of genders, it was determined that accidents of being hit by machines/equipments and lumber/wood were experienced more by male workers when compared with female workers ($p < 0.05$). In another similar study, it was stated that 56.6% of the workers experienced at least one occupational accident during their work lives and the most common types of accidents were being hit by a chopped tree (81.1%), slipping and falling (69.6%) and being hit by lumber, wood or another object (64.5%) (Enez, 2008). The reason why in this and other similar studies it was found out that men have higher injury rates than women is due to the fact that, compared to women men are more engaged in heavier tasks such as chopping. The persons interviewed stated that none of their family members had been subject to fatal accidents or injuries. Nevertheless, a study made in New Zealand examined the lethal occupational injuries that occurred between the years 1985 and 1994, and had asserted that forestry works took one of the first places in the occurrence of lethal occupational injuries (Feyer et al., 2001).

It was revealed by this study that 55.2% of those who had an accident directly go to the nearest medical institution for help, while 24.1% treated their injuries by themselves. Hospitalization rate due to occupational accidents was found to be 7.8%. Examining the causes of these accidents revealed that the subject group ranked lack of attention as the first cause (69.4%) followed by over fatigue (59.2%) and lack of knowledge and education or training (34.7%) while 72.3% of the workers answered the question what could be done in order to prevent these accidents stated that they should be more careful, 42.6% stated that working conditions need to be

improved and 30.7% answered that they need to receive proper training to do their jobs. The study discovered that 7.8% of the subject group had received occupational training. A relation between the lack of occupational relation and the occurrence of occupational accidents was sought but no statistically significant relation was found ($p > 0.05$). It was determined that the workers received their knowledge and experience regarding their jobs from their family elders, close circles or from the short term trainings given by forestry service organization.

It was understood that 70.1% of the workers had experienced at least one physical ailment after they started to work in forestry. Most commonly experienced ailments were back and lumbar pain (88.7%), feeling numbness in arms and legs (40.3%) and feeling cold in the feet (12.9%) (Table 4). In a study carried out on the health of forestry workers it was determined that back pains and rheumatism pains took the first place in aching ailments, fatigue and weakness were frequently seen, white finger illness, several neurological diseases and teeth disorders were seen in high rates among forestry workers (Acar and Senturk, 1999). All four of the participants who have bronchitis worked in wood charcoal production in the forest (Table 4). Adding cold to the excessive dust, toxic gases available in the wood charcoal production area especially poses a threat in terms of causing upper respiratory tract diseases. The interviews made revealed that those working in wood charcoal production areas mostly complain about the intensive dust in their working environment and long working hours. Also the unhealthiness of the living areas and working environments were determined as causes of the increases in illnesses.

Usage of personal protective equipments that constitute an indivisible part of occupational health and safety is important in all lines of work, in terms of preventing both occupational illnesses and accidents. In Turkey, the rate of usage of protective clothing and equipments of forestry workers is very low. In production areas where mostly forest villagers are employed as workers, this rate gets even lower (Acar et al., 2002).

Examining personal protective equipment usage by the participants of this study revealed that gloves (80.8%) and work footwear (52.6%) were the most commonly used equipment. Although 34.5% of the workers were employed in coal related tasks, the rate of those who wore mask while working was only 3.8%.

In a study carried out regarding the workers employed in Adapazari-Hendek forest plantation, it has been stated that the workers do not use any protective helmets, goggles, headsets and masks, but all of them use protective gloves and footwear (Eroglu et al., 2010). Examining the general health perceptions of the participants showed that there were a statistically significant difference between men and women ($p < 0.05$) while 58.2% of the men expressed their health states as good and bad, 59.5 % of the women stated that their health was good and very good.

CONCLUSION AND SUGGESTIONS

Throughout the world, forest labour is considered to be among the work areas defined as 3D (for difficult, dirty and dangerous) (ILO, 1998). In Turkey, due to the fact that machine aided working is not common; forest labour is a heavy and difficult area of occupation. For this reason it is not easy to find forestry workers in Turkey. According to Forest Law, forestry works are to be primarily assigned to close forest villages or to forest cooperatives. However, in most cases forest villagers or cooperatives are not very willing to undertake these kinds of forestry works due to the fact that the tasks are hard and the payments are low. For this reason, nomadic groups that undertake temporary and seasonal forestry works were formed. Throughout Turkey, forestry works are carried out by migrant workers coming from areas that are underdeveloped in socio-economic terms. The workers in the subject area were seasonally migrating families from Eastern and Southeastern Anatolian cities. General characteristics of these groups are similar to each other. The workers of the studied area had also low levels of education, large families, low levels of income and they were employed in forestry activities because they needed to. The members of these families do not have social securities, they carry out these activities through conventional techniques and do not use protective equipments and thus, they are frequently exposed to accidents.

It was determined that while men were mostly employed in chopping, stowing, area cleaning and loading tasks that are considered to be heavy, women were mostly employed in tasks such as loading, stowing and peeling. Therefore physical ailments were detected more frequently in men.

Majority of the participants of the questionnaire (76.5%) live in tents during forestry production activities. The conditions of the tents they live in are not convenient in

terms of living, recreation and continuing work in a healthy way. The facts that forestry workers do not have bathrooms, toilets and means to wash their laundries, and that they have difficulties in providing drinking water caused inconveniences in terms of hygiene and health. Also, because of the fact that they live remotely from city centers and counties makes it difficult for them to utilize health services and removes the possibility of early treatments in emergencies. Such circumstances may lead to faster spread of communicable diseases, prevent the workers to be able to resist diseases and if they are ill, may prevent them to recover quickly and start working again. In order to rectify such living conditions that are open to all kinds of external dangers, infrastructure regarding vital needs such as electricity, water, toilets and bathrooms, and the structures to cover these need to be established, and mobile units providing basic health services need to be formed for carrying out regular checkups.

Some respondents (33.3%) had at least one accident throughout their occupational lives. It has been determined that these accidents are mainly caused by lack of attention, over fatigue and lack of knowledge and training. The accidents that may occur due to lack of knowledge and training can be prevented by providing the necessary trainings. On the other hand, in order to prevent the accidents that may occur due to lack of attention and over fatigue, recreational breaks need to be provided in a more conscious manner. Also providing occupational training to these workers and raising their awareness on first aid and safety will achieve a decrease in the number of occupational accidents.

It has been determined that a large majority of the workers have several health problems and the most common ones of these are back and lumbar pain, numbness in arms and legs, and feeling cold at the feet. It has been also understood that all four of the workers employed in wood charcoal generating activities have bronchitis disease. In order to prevent accidents and illnesses and in order to enable the workers to carry out their works in a health and safe way lacks of protective equipments need to be rectified and their use need to be encouraged and popularized. For this purpose, at first trainings explaining the importance of the matter need to be organized and after the necessary standards are set, usage of personal protective equipment should be ensured by carrying out audits. Since almost all of the forests in Turkey are operated by the government, the most important responsibility and authority to audit also belong to the government.

The government should set safety standards of forestry works safety and should continuously supervise compliance to these standards. The majority of forestry workers have no training or education at all on this field. Also the fact that these workers do not have any social securities in case they have an occupational accident or disease emphasize on the necessity of attaching more

importance to the matter.

In conclusion, the working mechanism of forestry activities in Turkey, which is remote from health services and which causes occupational accidents and illnesses need to be regularized. Unhealthy accommodation circumstances, inadequate social security implementations, inadequate training and work organization, adverse working conditions need to be improved and the regulations intended for the solution of the problems need to be carried out by the government as the biggest employer in this field. In case these circumstances are improved and the problems are solved, workers will be exposed to occupational accidents and illnesses less frequently and thus their life qualities and performance effectiveness will be enhanced.

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