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Determining the Principles of Professional Ethics and Measuring Perception in Forest Engineering in Türkiye

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Abstract

Aim of study: The aim of the study is to determine the professional ethics principles in forest engineering in Türkiye and to measure the level of perception of these principles by forest engineers.

Area of study: This study covers forest engineers employed in the state and private sector in Türkiye.

Material and methods: A questionnaire was designed for data collection in the study. The questionnaire includes 8 questions about the personal information of forest engineers and a 5-point Likert scale consisting of 36 items.

Main results: The professional ethics principles in forest engineering were determined as "contribution to the development of the profession"; "ecological sensitivity, openness and participation"; "respect for law, society and colleagues"; "public welfare and social responsibility"; "professional solidarity"; "honesty and impartiality"; "professional competence"; "loyalty"; and "local responsibility".

Highlights: In this study, professional ethics principles that will guide forest engineers in their professional activities have been determined. These principles are important in creating suitable conditions that will contribute to forest engineers to perform their professional activities effectively.

Keywords: Professional Ethics, Professional Ethics Principles, Forest Engineering

Türkiye'de Orman Mühendisliğinde Meslek Ahlakı İlkelerinin Belirlenmesi ve Algılanmalarının Ölçülmesi

Öz

Çalışmanın amacı: Bu çalışma, Türkiye'de orman mühendisliğinde meslek ahlakı ilkelerinin belirlenmesi ve bu ilkelerin orman mühendisleri tarafından algılanma düzeyinin ölçülmesini amaçlamaktadır.

Çalışma alanı: Bu çalışma, Türkiye'de devlette ve özel sektörde istihdam edilen orman mühendislerini kapsamaktadır.

Materyal ve yöntem: Çalışmada veri toplama amacıyla sormaca hazırlanmıştır. Sormaca, orman mühendislerinin kişisel bilgilerine yönelik 8 soru ve 36 maddeden oluşan 5'li Likert ölçeğini içermektedir.

Temel sonuçlar: Orman mühendisliğinde meslek ahlakı ilkeleri, "mesleğin gelişimine katkı"; "ekolojik duyarlılık, açıklık, katılımcılık"; "hukuka, topluma, meslektaşa saygı"; "kamu yararı ve toplumsal sorumluluk"; "mesleki dayanışma"; "dürüstlük ve tarafsızlık"; "mesleki yeterlilik"; "sadakat"; ve "yerel sorumluluk" olarak belirlenmiştir.

Araştırma vurguları: Bu çalışma ile orman mühendislerine mesleki faaliyetlerinde rehberlik edecek meslek ahlakı ilkeleri belirlenmiştir. Bu ilkeler, orman mühendislerinin mesleklerini etkin ve verimli bir şekilde yerine getirmelerine katkı sağlayacak uygun iklimin oluşmasında önem arz etmektedir.

Anahtar Kelimeler: Meslek Ahlakı, Meslek Ahlakı İlkeleri, Orman Mühendisliği

Introduction

Profession can be defined as the activities carried out by an organized group of people who have the ability and specialized knowledge, produce the goods and services needed by the society, and are compensated for it (Whitbeck, 2011; Harris et al., 1995). The fact that professionals have specialized knowledge results in a high degree of control over their work. In return for the opportunity to use this independence and power, the professionals make an implicit agreement with the society by promising that they will use their knowledge for the benefit of everyone (Boatright & Smith, 2017). The implicit agreement, which is the result of this special relationship between the profession

and the society, states that the professionals have special moral responsibilities towards the society and creates a moral infrastructure in the relations between the profession and the society (Arslan, 2005).

When a person is a member of the profession, the person accepts the duty and responsibility of acting in the interests of other people. While the professionals are attached to the personal and society morality before taking on these roles, after accepting these roles, they begin to occupy a different moral field, which is expressed as professional ethics (Boatright & Smith, 2017; Brien, 1998).

Professional ethics was defined as the principles and rules that are a product of a group and protected by that group and that enforce certain behavioral patterns among members by limiting personal predispositions (Durkheim, 2013). These principles help to create and protect professional identity by clearly expressing the basic objectives and qualifications that a professional should have. Another function of ethical principles is to regulate professional behavior by listing the professional standards. Ethical principles help the public and service recipients to believe that the requirements of the profession are fulfilled within the framework of basic ethical values, and create trust in the society. These principles are a set of rules that express how the professionals can achieve their goals together (Davis, 1991; Banks, 2003).

On the other hand; it is possible to determine that business and professional ethics have been the subject of an increasing number of scientific studies in the world and especially in Türkiye in recent years. It has been observed that scientific studies on professional ethics in the world focus on the importance and necessity of professional ethics principles. However, no scientific study on determining professional ethics principles related to forest engineering or any other profession has been found.

It has been determined that scientific studies have been carried out to determine professional ethics principles in professions such as accountancy, policing, and teaching. The principles of professional ethics in accountancy have been established as independence; honesty, reliability and impartiality; professional competence; professional care; planning and oversight; professional discretion; contingent fee; acts incompatible with professional dignity; unfair competition; and advertising ban (Güner, 2007). The principles of professional ethics in policing have been listed as professional responsibility; professional efficiency; professionalism; openness to criticism; respect for the individual; protection of rights and freedoms; observance of the principle of equality; respect for private life; professional discretion; and honesty (Bedük et al., 2005). The principles of professional ethics in teaching have been determined as professionalism; responsibility in providing service; justice; equality; ensuring a healthy and safe environment; non-corruption; honesty and trust; objectivity; professional loyalty and continuous development; respect; and effective use of resources (Aydın, 2006). It has been observed that there is no scientific study to determine the principles of professional ethics in forest engineering in Türkiye.

Forest engineering can be defined as the application of engineering principles to the solution of forestry problems. Forest engineering is a profession based on the interaction between engineering, forestry and business science (Brown, 1977). In other words; forest engineering is a profession in which biological, technical, economic, social and managerial activities are carried out in order to meet the needs of the society for forest products and services continuously and in the most appropriate way. In forest engineering, forest ecosystems are intervened consciously and systematically in line with the welfare of the society (Türker, 2010).

Many products and services offered by forest ecosystems in economic, ecologic and social contexts cover not only the people of the country but also the people of the world and the problems brought about by deforestation negatively affect the lives of people all over the world. Today the presence of life-threatening events such as global warming, climate change, floods and landslides that are caused by global deforestation further increased the responsibility of forest engineers. Therefore, forest engineers should consider this fact and

adhere to some principles and rules in the management of these ecosystems. Indeed, professional ethics principles have been developed by professional associations in forest engineering in countries such as the United States, Canada, and the United Kingdom. Determination of professional ethics principles that would guide the professional activities of forest engineers is also a necessity in Türkiye.

The objectives of the study are to determine the professional ethics principles in forest engineering in Türkiye, to measure the level of perception of these principles by forest engineers and to create an ethical awareness. The principles of professional ethics will emphasize the ethical responsibilities of forest engineers towards the profession, colleagues and the society. These principles will clarify what is expected from forest engineers in professional activities and contribute to the formation of forest engineering identity. A peaceful working environment will be created by taking into account the principles of professional ethics, and this environment will contribute forest engineers to produce more quantity and quality goods and services.

Material and Method

In this study, a questionnaire was used as a data collection instrument. The questionnaire consists of 8 questions about the personal information of forest engineers, and a 5-point Likert scale with 36 items prepared to measure their perceptions of professional ethics.

In the process of determining the Likert scale, professional ethics principles adopted by forestry associations and institutions in various countries such as the United Kingdom, the United States, Canada, Australia, New Zealand, Ireland and Philippines were accessed (URL-1, 2006; URL-2, 2011; URL-3, 2011; URL-4, 2011; URL-5, 2011; URL-6, 2011; URL-7, 2011). When these principles were examined, it was observed that certain principles were similar although they were adopted in different countries. Similar ethics principles were considered as the foundation in the determination of professional ethics principles and rules in forest engineering. Questions (4-9-10-12-13-14-17-18-19-22-23-24-29-30-33-34-35) were formed by using the common expressions determined by the forestry professional associations mentioned above.

In addition, The Principles of Ethical Behaviour for Public Officials in Türkiye and The Principles of Professional Behaviour, which was adopted by the Union of the Chambers of Turkish Engineers and Architects were utilized in the development of the questionnaire. The questions (1-2-3-26-27-28-36) were developed based on the Principles of Ethical Behaviour for Public Officials in Türkiye. The questions (1-9-10-22-23-33) were also similar to the statements in The Principles of Professional Behaviour. Face-to-face interviews conducted with forest engineers employed by the state and private sector were also used preparation of the questionnaire. The questions (5-6-7-8-11-15-16-20-21-25-31-32) were developed by the researchers using face-to-face interviews.

The developed questionnaire was presented to the expert group consisting of forestry organization employees, representatives of non-governmental organizations operating in forestry, and academicians. In this context, 7 forestry organization employees, 8 non-governmental organizations representatives and 8 academicians were interviewed. The expert group evaluated the suitability and adequacy of the questionnaire content with respect to Turkish forestry.

A pilot scheme was conducted on the questionnaire and it was analyzed for validity and reliability. The reliability of the questionnaire was determined by Cronbach alpha analysis. Analysis results demonstrated that questionnaire Cronbach alpha reliability coefficient was 0.936 and the questionnaire was highly reliable.

The construct validity of the questionnaire was determined by factor analysis. In the factor analysis, it was determined that Kaiser-Meyer-Olkin (KMO) value was 0.869 and in Bartlett's analysis, p value was 0.00. These results demonstrated that the sample size was very good for factor analysis and that the data were suitable for factor analysis. The significant factors were identified using eigenvalues in the factor analysis and factors

were identified with eigenvalues that were equal to 1 or greater than 1.

The population included forest engineers employed by state and private sector. Forest engineers employed by the state are mostly employed by the General Directorate of Forestry (GDF), General Directorate of Combatting Desertification and Erosion (CDE) and General Directorate of Nature Conservation and National Parks (NCNP). Forest engineers employed in the private sector include forest engineers performing in forestry offices established on the basis of Law No. 5531 since 2006.

The number of forest engineers employed by the state was obtained from the personnel departments of the general directorates. The number of forest engineers employed by private sector was obtained from Chamber of Forest Engineers of Türkiye.

After the determination of the population, the sample size was determined with the following formula (Eq 1.) (Orhunbilge, 1997);

$$n=\frac{z^2.N.p.q}{N.D^2+Z^2.p.q} \quad (1)$$

In the formula;
n: Represented the sample size
N: represented the population
Z: Represented the Z value obtained from the normal distribution table based on the determined confidence level (1.96 for 95% confidence level)
D: Represented the accepted error margin (5%)
P: Represented the ratio of the presence of the measurement criterion in the population.

The "stratified sampling" method was used for the distribution of the sample size.

The questionnaire was applied using different methods such as implementation by the authors personally, sending the questionnaires by e-mail, collection of the completed forms via e-mail or by regular mail. Population, sample size and respondents number of the survey are shown in Table 1.

Table 1. Survey population, sample size, number of respondents and response rate

Groups		Population	Sample size	Respondents	Response rate (%)
State	GDF	5180	442	683	100
	NCNP	365	51	97	
	CDE	47	28	28	
Private sector		480	215	251	100

In this study, the views of forest engineers employed in the state and private sector between 2014 and 2015 were utilized. A larger number of questionnaires than the sample size was sent and all questionnaires were answered.

In this study, the significance order (SO) and the significance degree (SD) of the professional ethics principles were determined by considering the arithmetic mean. The significance degree of the professional ethics principles was specified using the following ranges: None (1.00–1.79); Low (1.80-2.59); Intermediary (2.60-3.39); Mostly (3.40-4.19); Completely (4.20-5.00) (Tekin, 2004; Oracion et al., 2005; Garcia et al., 2021).

Findings

As a result of the factor analysis, 9 factors were constructed. The resulting factors were adequately named based on the related items (The items constituting the factors and their factor loads are presented in Appendix-1). Accordingly, professional ethics principles in forest engineering included nine principles of "contribution to the development of the profession"; "ecological sensitivity, openness and participation"; "respect for law, society and colleagues"; "public welfare and social responsibility"; "professional solidarity"; "honesty and impartiality"; "professional competence"; "loyalty"; and "local responsibility".

It was determined that, "respect for law, society and colleagues" principle was the principle that was perceived at the highest level by significance order. This principle was followed by "honesty and impartiality"; "local responsibility"; "public welfare and social responsibility"; "loyalty"; "professional solidarity"; "ecological sensitivity, openness and participation"; "professional

competence" and "contribution to development of the profession" (Table 2).

On the other hand, analysis of significance degrees demonstrated that forest engineers considered the principles of "contribution to development of the profession" and "professional competence" "mostly" important, while the principles of "respect for law, society, and colleagues"; "honesty and impartiality"; "professional solidarity"; "ecological sensitivity, openness and participation"; "public welfare and social responsibility"; "local responsibility"; and "loyalty" were considered "completely" important (Table 2).

Table 2. The perception level of professional ethics principles by forest engineers

PIRINCIPLES	Mean	SO	SD
Contribution to development of the profession	4.10	9	Mostly
Ecological sensitivity, openness and participation	4.43	7	Completely
Respect for law, society, and colleagues	4.75	1	Completely
Public welfare and social responsibility	4.59	4	Completely
Professional solidarity	4.46	6	Completely
Honesty and impartiality	4.73	2	Completely
Professional competence	4.11	8	Mostly
Loyalty	4.47	5	Completely
Local responsibility	4.61	3	Completely

Discussion and Conclusion

Professions have written or unwritten principles and rules that are utilized in the management of professional activities (Bilgi & İpbüker, 2005). Written professional ethics principles in Türkiye are often included in legal regulations and legal documents such as strategic plans, action plans.

In this study Civil Servants Law which is binding on forest engineers employed in the state and regulations governing the establishment and operational principles of forestry and forest products offices which is binding on forest engineers employed in private sector were examined. As a result of this, it was concluded that principles such as loyalty; honesty and Impartiality; solidarity; care; and confidentiality were included in the Civil Servants Law (Official Gazette, 1965). It was observed that principles such as professional competence; independence; honesty, reliability and impartiality; confidentiality; social responsibility; and avoidance of unfair competition were included in the regulations governing the establishment and operational principles of forestry and forest products offices (Official Gazette, 2009).

On the other hand, a number of principles and values are included in the strategic plans in which the aims of the institutions and the strategies required to achieve them are identified. The fundamental values of the Ministry of Agriculture and Forestry (AFM) were determined as accessibility; corporate honesty; selfless service and openness to progress; sensitivity; quality; expertise; social responsibility; stakeholder satisfaction; being scientific; being result oriented in strategic plan for 2019-2023 (AFM, 2022). Honesty; sensitivity; openness to progress; and social responsibility which are expressed as values in AFM's strategic plan, are similar to the principles set forth in this study.

The principles and values of the GDF were determined as sustainability; impartiality; openness and accountability; reliability; being scientific; productivity; local and global responsibility; sensitivity for the nature, environment and people; participation; and stakeholder satisfaction in the strategic plan (GDF, 2018). Impartiality; openness; local responsibility; sensitivity for the nature, environment and people; and participation are among the professional ethics principles determined in this study.

The principles and values of the CDE were determined as sustainability; sensitivity for the nature, people and environment; participation; coordination; efficiency; productivity; openness and accountability; reliability; being scientific; impartiality; quality; accessibility; compliance with National Development Policies and other

National Strategy Documents; fulfilling obligations arising from international contracts; and fair sharing of costs and benefits in the strategic and action plan (CDE, 2019). Principles such as sensitivity for the nature, environment and people; participation; openness; and impartiality comply with the principles determined in this study.

The fact that in legal regulations, in AFM and GDF strategic plans and CDE strategic and action plan, principles such as openness; participation; sensitivity; honesty; impartiality; local responsibility; professional competence; confidentiality; and social responsibility were expressed supports the abovementioned view.

In a study conducted by Türker et al., (2009) on the organizational culture in forestry organizations, it was determined that organization managers considered employee welfare and comfort; business productivity; social welfare and peace; trust; colleagues and subordinates; loyalty; justice; solidarity; being realistic; and research and development as "very important". Even though this study was conducted only with the managers, it was observed that, although the principles emphasized by the managers in the abovementioned study were not identical, they were consistent with the principles that were considered “completely” important by the forest engineers in the present study.

The most significant characteristic of the professional ethics is that this code is deemed necessary for individuals who work in the same profession across the world (Kuçuradi 1988). In other words, it could be argued that professional ethics serves as a common language among the members of a profession that perform the same duties. The fact that professional ethics principles in countries with different social, economic and cultural conditions such as the United States, Canada, the United Kingdom, Ireland, New Zealand, Australia and the Philippines are similar indicate a common language in the field of forest engineering.

In conclusion, the professional ethics principles for forest engineers were determined by collecting the principles that are similar worldwide and found in different legal regulations in Türkiye. These principles were identified as Contribution to the development of the profession, Ecological sensitivity, openness and participation, Respect for law, society and colleagues, Public welfare and social responsibility, Professional solidarity, Honesty and impartiality, Professional competence, Loyalty and Local responsibility.

The 9 principles mentioned above were accepted at a high level by forest engineers in Türkiye. In other words, the principles of professional ethics accepted by global forest engineers were also accepted by Turkish forest engineers.

The identification of professional ethics principles is useful and necessary for the profession in many respects. However, only the identification of the principles is not sufficient to obtain the benefits expected from the professional ethics. "Moral education" is also important for these principles to fulfill their intended purposes. Thus, to reflect the findings of the present study in practice, it is recommended to provide training on professional ethics principles for professionals in the public and private sectors and professional candidates.

The professional ethics principles determined for forest engineering should be included in the strategic plans of AFM, GDF and CDE, and NCNP should operate by taking these principles into account. The principles of “contribution to the development of the profession”; “respect for the law, society and colleagues”; “professional solidarity”; “professional competence”; and “loyalty”, which are not included in the strategic plan and action plan, should be included in these documents.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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Appendix-1. Factors and factor loads

Variables	Contribution to the development of the profession	Ecologic sensibility, openness, participation	Respect for law, society and colleagues	Public Welfare and Social Responsibility	Professional Solidarity	Honesty and Impartiality	Professional Competence	Loyalty	Local Responsibility
4 Contributing to forestry education, instruction and applications by participating in activities in educational institutions and sharing knowledge and experiences	0.76								
5 Contributing to the science of forestry and applications by voicing professional knowledge and experiences in scientific journals and conferences	0.83								
6 Support and assistance in the studies conducted by non-governmental organizations in the field of forestry that contribute to the presence, improvement and sustainability of the ecosystems	0.75								
16 Considering the biological, economic, social, etc. dimensions of the profession of forestry when conducting professional activities	0.50								
19 Reporting the activities that are considered as harmful for the reputation of the profession to the authorities	0.68								
20 Making sure that conducted professional activities would not harm the integrity of the ecosystem		0.74							
21 Conducting professional activities by considering all functions of the forest ecosystem		0.84							
22 Managing forest ecosystems by considering the needs of the present and future generations		0.73							
26 Presenting the reasons, implementation and outcomes of operations conducted during professional activities to the related individuals in a comprehensive and adequate manner		0.52							
27 Responding to complaints or information requests about professional activities in an open and honest manner		0.57							
28 Obtaining the views of all interest groups in the decision making processes related to professional activities		0.56							
1 Abstaining from discrimination due to factors such as language, religion, race, philosophical belief, political orientation, gender, etc. among those who benefit from forestry services			0.65						
17 Conducting professional activities based on legal regulations			0.68						
23 Abstaining from seniority and title discrimination among colleagues based on language, religion, race, political orientation, sect, gender, etc., except those provisioned by the law			0.55						
24 Abstaining from unjustified criticism and behavior that could harm the reputation of the colleagues or institutions			0.52						
25 Abstaining from psychological or physical abuse of colleagues when conducting professional activities			0.72						
33 Utilizing forestry knowledge and abilities for social welfare				0.73					

34 Prioritizing long-term social benefits rather than personal gain	0.79					
35 Preventing the spread of exaggerated, conflicting, incomplete, biased and incorrect information on forestry	0.53					
36 Utilizing all physical, financial and human resources and time in professional activities in an economical, active and productive manner	0.58					
12 Sharing professional knowledge and experiences with colleagues, supporting and guiding colleagues		0.70				
13 Providing necessary opportunities for candidate professionals, unqualified forest engineers or forest engineering students to acquire professional experience		0.66				
14 Appreciating quality work conducted by the colleagues, blazoning the incomplete or inadequate work conducted by the colleagues		0.74				
15 Exchanging views with colleagues during the decision making processes related to professional activities, prioritizing counsel		0.74				
2 Abstain from using the reputation and means that derive from the membership of the profession to benefit or harm an individual, group or political organization			0.31			
3 Abstaining from drafting or approving a counterfeit or deceptive document for any reason			0.81			
11 Abstaining from using elements such as political affiliation, nepotism in professional promotions and appointments			0.71			
18 Abstaining from demanding personal material or immaterial gains from business partner for service customers or refusing such offers			0.66			
7 Participating in in-service training and scientific conferences that would improve professional competency				0.51		
8 Ability to utilize the contemporary technology and information systems that are required in forestry applications and following the technological advances of the time				0.54		
9 Following the developments in global forestry and maintaining current knowledge				0.61		
10 Conducting professional activities in the fields where the individual possesses sufficient professional knowledge and experience				0.69		
29 Abstaining from disclosing confidential information that the individual obtained during professional activities throughout the professional life and after, unless there is a legal obligation					0.73	
30 Abstaining from providing services to any real or legal entity other than the current employer					0.74	
31 Acquiring good knowledge about the social, cultural and ecologica aspects of the region served						0.71
32 Respecting the knowledge, culture, values and traditions of the local people						0.65