



*Full Length Research Paper*

# A study on performance assessment criteria's in forestry organization

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Accepted 10 December, 2016

Performance evaluation has become a favoured topic in recent years. Particularly, there has been a remarkable augmentation of organizations using this kind of management agent for two decades. Although the private sector accepted the advantages of this management tool, there have been uncertainties in the public sector. Forests are managed by state in Turkey. As a public sector, performance evaluation approach requires a criteria set for the appraisal of the success of this system in the forest sector. In this context, this study has been carried out at twenty-three Forest District Directorates, which are located in Denizli, zmir and Mu la Regional Forest Directorates that take part in the Aegean region of Turkey. Firstly, the performance criterion that has been developed occurred from fifty- two criteria in five different groups that can be used in the evaluation of forest engineers. After that, the forest engineers have graded the criteria that can be used in performance evaluation along with the 9-degree likert scale” should be used. In this way, ideal criteria set has been reached that will be used in evaluation of technique personnel in Directorate of Forest District. However, the group that has been considered important by forest engineers is the personal criteria in assigning promotion and performance evaluation. Technique, behavioral and functional criteria have followed this group orderly.

**Key words:** Performance evaluation, performance evaluation criteria, forest district.

## INTRODUCTION

There is an important relationship between business enterprise accomplishment and benefiting from personnel abilities well. So, today's administrations give the importance of intuitional efforts as well as activities due to clients or goal mass for identifying aims or success.

Performance evaluation is a process, in which a director evaluates the performance of the duty of the personnel with comparing standards being determined before and the way of measuring (Palmer, 1993).

Organization of performance evaluation system and selection of criteria and methods of evaluation are quite important processes in the management of human resources. So, performance evaluation is defined as a difficult, complex and unsatisfying (for related people) human resource activity.

A lot of methods have been developed for performance evaluation like critical incident method, weighted checklist

method, paired comparison analysis, graphic rating scales, performance ranking method, 360 degree performance appraisal and behavioral observation scales (Gary et al., 2005; Carson, 2006; Jafari et al., 2009; Strangand et al., 2009). There are numerous methods to measure employee's performance appraisal, but some of these methods are not suitable in some cases (Jafari et al., 2009). Organizations have been making their performance evaluations by making selection according to theirs aim, qualities and structures of workers and sometimes, by using several methods together. It is possible to use these methods compoundly, as they might be used separately.

## Performance evaluation in public sector

Boland and Fowler (2000) presented that although the

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measurement of performance in the public sector is relatively new, a substantial body of literature on performance management has been developed since the late 1970s, encompassing terms such as performance measures, performance indicators, performance appraisal and review, value for money and, more recently, quality assurance. This literature has mirrored a parallel development in which the language of performance has become an almost everyday feature of work in public sector organizations, in some form or another. Similarly, a new "industry" has developed within the public sector, which is concerned with collecting, reporting and appraising organizational performance (Holloway, 1999; Rouse, 1993, 1999).

Performance evaluation is fairly well developed as a set of tools for making better decisions within public organizations. Public managers and policy-makers now have performance-measurement tools to help carry out their responsibilities to deliver and improve services (Holzer and Yang, 2008).

### **Performance evaluation of Turkish public sector**

Success evaluation of civil servants is based on a grade system to 657 numbered laws and marking is made by a register report. Register reports are filled once in a year at the second half of December. Chief who will make evaluation must work with his under together at least six months. Register chiefs, evaluate each of questions that are related to basic dimensions of civil servants' general situation and manners, professional adequacy, managerial adequacy and abroad duty adequacy in register reports from the exact 100 point and also determines the register point of civil servant by dividing the total points that they have given to questions into question number. The average of civil servants register point is determined by taking the average of the points given by the chief's in charge. It is considered that civil servants who took register point above sixty have positive register.

It has been seen that performance of public personnel has been evaluated by considering general criteria in Turkey. It is not possible to talk about performance evaluation system based on expertise. In this concept, a successful performance evaluation system for each occupation is depended on determination of performance evaluation criteria as well. Evaluation criteria should include elements such as knowledge level related to labor and knowledge being transferred into application and quality of produced work.

### **Forestry organization in Turkey**

In Turkey, forests are controlled and management by state. The Ministry of Environment and Forestry (MEF)

represents the highest authority in Forestry. It was founded in 2003 by merging the Ministry of Forestry and the Ministry of Environment. According to Bekiro lu (2006) organization of MEF is complicated and not functional. MEF is primarily responsible (in terms of forestry) for reforestation, erosion control, range improve-ment, seedling production, protected areas, national parks, wildlife, forest villages and research works. The responsibility for the protection, development and management of Forest lies with the General Directorate of Forest (GDF), which is one of the connected units of the MEF. GDF prepare and implement forest management plans to conserve the existing forest resources and to develop forest tree vegetation and provide adequate wood and non-wood forest products. These tasks were implemented by the Rural Organizations of the GDF. Rural organization consists of 27 Regional Directorates, 217 Forest District Directorates and 1308 Forest Sub-districts.

Principal difficulties in Turkish forestry have been tied to the facts that the concept of forestry is misunderstood, no performance criteria has been set for forestry organizations and the stage for competition has not been formulated. In order to prevail the modern concept of forestry, in some studies conducted in Turkey, work definitions in forestry organization, setting performance criteria, success evaluation, reward, encouragement and bonus salary incentives, institutionalization of in-labor and continuing education are recommended (Geray, 2001; Da demir, 2002).

Moreover, the present performance evaluating systems, due to these improved criteria, are quite insufficient because of its peculiar to forestry business administrations' conditions. The basic reasons are that production process is exposed to nature, gravity of enterprise is much and there are effort and dense studying because of rural development dimension. In addition to these, forestry organizations are differentiated in comparison with their commercial counterparts in the private sector. There is no profit maximizing focus and little potential for income generation. It is quite important to develop a performance evaluation system and measurement system in this complex structure being directed towards personnel.

Since the 1990s, sustainable forest management (SFM) has become a highly relevant topic both in forest and environmental policy. Criteria and indicators are primarily used in implementing the principles of SFM at the national, regional and forest management unit levels (Wolfslehner et al., 2005). On the other hand, criteria and indicators of SFM are important toll for managing forest resources and producing active knowledge effectively (Dölarslan, 2003; Durusoy, 2009). At present, a set of criteria and indicators for SFM are developed by many organizations and individuals. Concerning these conceptual and methodological challenges, there is a need for the development of a set of criteria and indicators for

**Table 1.** Developed performance criteria.

Group	Cod	Criteria
Personal	P1	Knowledge and accomplishment level (promotion exam grades, certificates, etc.)
	P2	Specialization degree (specialization on the concerning area, masters degree, etc.)
	P3	Fulfillment of orders
	P4	Availability of health for the profession
	P5	Professional experience (duration of service)
	P6	References
	P7	Leadership skills
	P8	Usage of computer, machines, instruments and tools
	P9	Marital status and age
	P10	Utilization of time
	P11	Organization and planning skills
	P12	Gender
Behavioral	B1	Aptness for group work, to work in cooperation and harmony
	B2	To be respected by the colleagues and trustworthiness
	B3	Taking responsibility, faithfulness and pursuance to profession
	B4	The skills to improve the subordinates
	B5	To reflect the family problems to work
	B6	The protection of the equipments of the corporation
	B7	Disciplinary fines
	B8	The level of harmony with seniors and subordinates
	B9	The level of handling with stress
	B10	The skills to work in different businesses and subjects and creativity
	B11	The level of being calm in critical situations
Working environment	W1	The number of interest and benefited groups, communicating with them and the skills to meet the customer satisfaction
	W2	Overtime working throughout the year
	W3	The duration of working on the land
	W4	The total number of received and sent documents
	W5	Gravity of working area, the number of villages around the forest and population
	W6	Working without sufficient number of staff
	W7	Working arduousness index of working area
	W8	Working in the hardship area
	W9	Working for more than five years in the same area
	W10	The risky condition of the working area against fire, protection and landslide
	W11	The level of the working area to fulfill the minimum social needs
Technical	O1	The number of official (court) reports written for forest crimes
	O2	The level of rise or loss in the size of the forest inside the responsibility area
	O3	The rise in private forests, village forests, afforestation areas
	O4	The number of forest fires and the amount of abundant area that is burn
	O5	Silvicultural business load, and the success on it
	O6	The degree of work made to care for and rehabilitation of the forests
	O7	The rise in the demand for the products and services supplied
	O8	The level of success on marketing compared to the former term
	O9	The degree of informing seniors about occupational matters with both verbal and written ways
	O10	Publication of articles about the occupational matters
Functional	F1	Production of fuelwood and roundwood

Table 1. Contd.

F3	The level of saving and developing the biodiversity
F4	Attaching importance to wildlife
F5	The level of saving and developing the water resources
F6	The level of prevention of erosion, flood and landslides
F8	Attaching importance to forage production

SFM at the local level. Issues of scale, data aggregation, flexibility, efficiency, participation and representation inevitably arise in any indicator selection process (Gough, et al., 2008).

In this context, performance evaluation system and measurement methods have proven to be useful tools to deal with criteria and indicators sets. There is also a need for methodology and case studies for the development and testing of performance evaluation system and measurement in a regional or local context

The mentioned deficiency has even made itself known in forestry organization. That is why, this study intended to show what the performance evaluation criteria for technical personal working in this very peculiar conditions of this sector, would be.

The aim of this paper is to identify criteria set for the performance evaluation of forest engineers. In Turkey, dearth of comparative empirical research into the actual practice of determining performance criteria in forestry has been observed. In this context, this article contributes to overcome this limitation.

## MATERIALS AND METHODS

Turkey is one of the Mediterranean countries. The Aegean Region is located at western part of Anatolian peninsula that is typically of Mediterranean climate and vegetation. Study has been conducted in Denizli, Izmir and Mu la Regional Forest Directorates and in 23 of their local forest directorates of Aegean Region. Other directorates (Çameli, Bayındır and Nazilli) in the vicinity of the conducted study area declined our invitation to be included in this study.

The amount of technical staff to be surveyed is calculated by the "proportional sample size" formula. According to this, the universe of the research is 369 (10% sampling error; 95% confidence interval) and the minimum sample size is calculated as 76.21. In total, 85 forest engineers (13 from Regional Directorate of Forestry, 72 from Directorate of Forestry) participated in the survey.

Primarily, in this study, literature review besides the methods of performance evaluation and the surveys used in previous studies and performance criteria are covered. Secondly, the activities, responsibilities, legislation, and the working conditions etc. are identified, after covering the records in Directorates of Forestry. Thus, 38 framework criteria, which could be used in order to measure the performance of forestry engineers (directors, assistant directors, and chiefs) who are employed in the Directorates of Forestry, are identified.

On focus group meetings and face to face interview, it is demanded that criticism on and any addition or removal from the framework should be made on the criteria suggested. Such

meetings and interviews are handled with 18 experienced forest engineers who work for (or are retired from) Denizli, Izmir and Mu la Directorates of Forestry. Thus, 52 criteria in five different groups (personal, behavioral, work environment, technical, and functional) are developed for the performance evaluation (Table 1). The data was gathered by the survey form. The ones devoted to personal, behavioral and work environment are concerned with the staff (forest engineers). On the other hand, technical and functional criteria are concerned with sustainable forest management criteria and indicators. The survey form is designed in five parts considering the personal, behavioral, work environment, technical and functional performance criteria. Due to the excessive number of criteria, the pair-wise comparison of the criteria was not preferred, instead, the 9-degree likert scale is used in classification of the criteria. The numbers in the scale are; 1 the least importance, 5 weak importance, moderate importance, 7 strong importance, 9 extreme importance and 2, 4, 6, 8 are intermediate values. In order to determine the convenience, a pre survey is conducted with 15 forest engineers.

## RESULTS

The reliability of the data is tested by "cronbach alpha quotient". In order to have statistically consistent and reliable data, the reliability coefficient should be at least 0.70 (Prokop et al., 2007; Yelbo a, 2008). Furthermore, firstly, the reliability of all criteria, and secondly the reliability of the criteria in each group are examined. As shown in Table 2, cronbach alpha values of criteria groups vary from 0.8319 – 0.9544. Thus, the data is statistically consistent and reliable.

If Cronbach's alpha value decreases in an appreciable level when one of the variables is removed from the list, that variable that is removed formed the list (Gliem and Gliem, 2003). However, when any variable from the list is removed, no appreciable change is detected in cronbach's alpha value. Thus, no criterion is removed from the list just because of the cronbach's alpha value.

Kim and Olsen (1999) have used 4 degrees Likert Scale in their study in order to assess the importance the level of variables. The ones over 2 are chosen and the ones below 2 are removed from the variables list. In this survey, the criteria with average 5 points are chosen as performance criteria. The ones with an average below 5 are removed from the criteria list since they are considered less important or irrelevant by the forest engineers.

Fifty-two criteria that could be used in the appointments,



**Table 2.** Reliability value of group performance criteria.

Groups	Cronbach's alpha value
Personal	0.8319
Behavioral	0.8416
Working environment	0.8509
Technical	0.8484
Functional	0.8944
Overall criteria	0.9564

promotions and performance criteria of these engineers have been classified into 5 groups, based on personal, behavioral, work conditions, technical and functional evaluators. Engineers scored these criteria between 1 and 9. After the collected data were entered into the computer, the verdicts of 85 different people have been combined with arithmetical mean in order to obtain the average importance ranking. Standards relative importance values and weights were compiled based on the ranking given to each standard.

### Personal criteria

Work performance and personal qualities are in interaction. In the surveys revealing such interaction, it is clear that personal qualities substantially consider work performance (Yelbo a, 2006).

In performance evaluation literature, some studies have been accepted to the potential effects of some variables such as age, gender, experience, observation time, interpersonal affect and organizational politics on job performance (Blickle, et al., 2008; Kahya, 2007).

In this context, Table 3 includes the average of points of importance over personal criteria. According to the forest engineers, the most important criteria that should be used in appointment, promotion and performance assessment are professional experience, organization and planning skills (P11), knowledge and accomplishment levels (P1), and professional experience (P5). Nonetheless, forest engineers evaluated references (P6), gender (P12) and marital status and age (P9) criteria as less important or unimportant. In other words, references (P6), gender (P12) and marital status and age (P9) are the personal criteria that should not be used for appointment, promotion and performance assessment procedures. For this reason, they were omitted from personal criteria set.

According to researches handled, there is a U type interaction between the age and job satisfaction. According to this interaction, the satisfaction level of employees' age rise to about 25 when they start their job, and age of about 45 when they go up in their career. That means, when the employees get older and do not gain in their career, they feel dissatisfied. Also, it is stated that,

marriage helps the job satisfaction to rise (Koçak, 2009). Forest engineers start their job as "forest operation chiefs" and after working for 10 years in this position; they are promoted. Therefore, forest engineers have preferred "professional experience" criteria (P5) instead of marital status or age criteria (P9) in performance assessment.

Even though there is no gender discrimination, the forestry profession is mostly preferred by males rather than females because, it is handled in hard and open field conditions. Therefore, the vast majority of forest engineers are males (91%) compared to females (9%) (Arslanta , 2006). However, almost all of the management staff is constituted of males (Arslanta , 2006; Yavuz, 2007). This fact strengthens the idea that females have less opportunity for professional improvement when compared to males (Koçak, 2009). Accordingly, gender is considered as a performance criteria. However, forest engineers have considered such a criteria as a discrimination, which would be against the gender equality principle of staff management (Yurdakul, 2003) and have not considered gender as a performance assessment criterion.

Because of political the pressions, it is thought that references will be able to affect location in professional life of forest engineers, negatively. Likewise, sixty-four percent of forest engineers in Aegean region have clarified that they have run into political pressions and handicaps, while they have been working ( afak, 2008). Because of this, references have not been taken into consideration as performance criterion in terms of forest engineers.

### Behavioral criteria

Performance evaluation system of business enterprise affects the attitudes of the individuals in both inside and out of company, positively (Güner, 2006). Performance evaluation criteria and methods, which have important effect on business enterprises, have gain more importance with increasing rivalry environment and structural alterations that occur in business world.

The averages of points of importance over behavioral criteria are presented in Table 3. According to the forest engineers, the three most important behavioral criteria that should be used in appointment, promotion and performance assessment are aptness for group work, to work in cooperation and harmony (B1); to be respected by colleagues, taking responsibility with trustworthiness (B2); and faithfulness and pursuance to the profession (B3). However, disciplinary fines and the level of reflecting the family problems to work (B5) are the criteria that should not be used in the appointment, promotion and performance assessment procedures.

Forest engineers stated that they could not have enough time for their families because of intense workings under difficult conditions and land situations at focus group meetings and assemblies. But, forest

**Table 3.** The average of points of importance of overall criteria.

<b>a) Personal criteria</b>				<b>b) Behavioral criteria</b>			
<b>Criteria</b>	<b>Mean</b>	<b>Std. dev.</b>	<b>Alpha if item is deleted</b>	<b>Criteria</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Alpha if item is deleted</b>
P11	8.0488	1.1643	0.8292	B1	8.1707	1.4385	0.8427
P1	7.8902	1.6997	0.8301	B2	8.0610	1.1690	0.8318
P5	7.4024	1.6767	0.8300	B3	7.9268	1.4889	0.8261
P7	7.0488	2.1711	0.8227	B11	7.3537	1.9205	0.8189
P10	6.7195	2.0744	0.8166	B10	7.1951	1.8622	0.8341
P2	6.5488	2.3942	0.8127	B4	7.0610	2.0144	0.8159
P8	6.2927	2.3700	0.8114	B9	7.0122	2.1343	0.8242
P4	6.1463	2.4501	0.7998	B8	6.7439	1.8844	0.8200
P3	5.2561	2.8276	0.8230	B6	6.3293	2.5437	0.8228
P6	4.3049	2.6883	0.8129	B7	5.0610	2.6263	0.8286
P12	3.8902	2.7080	0.8181	B5	4.6098	2.9134	0.8459
P9	3.5366	2.4805	0.8214				

  

<b>c) Working environment criteria</b>				<b>d) Technical criteria</b>			
<b>Criteria</b>	<b>Mean</b>	<b>Std. dev.</b>	<b>Alpha if item is deleted</b>	<b>Criteria</b>	<b>Mean</b>	<b>Std. dev.</b>	<b>Alpha if item is deleted</b>
W10	7.3171	1.5704	0.8447	O5	7.8415	1.4612	0.8500
W7	7.1341	2.1009	0.8342	O6	7.3780	1.9916	0.8416
W5	7.0366	2.1283	0.8342	O9	6.2927	2.2959	0.8252
W8	6.7561	2.3547	0.8283	O10	6.0122	2.2960	0.8398
W6	6.7561	2.1918	0.8364	O2	5.8293	2.5083	0.8239
W3	6.4390	1.9695	0.8427	O4	5.3659	2.6365	0.8420
W11	6.0854	2.4099	0.8248	O8	5.2805	2.4509	0.8225
W1	5.9390	2.4055	0.8660	O7	5.0244	2.3933	0.8310
W9	5.7073	2.5651	0.8376	O3	4.6707	2.6390	0.8193
W4	5.0854	2.7361	0.8372	O1	4.3293	2.5046	0.8434
W2	4.7805	2.5725	0.8312				

  

<b>e) Functional criteria</b>				<b>f) Group criteria</b>		
<b>Criteria</b>	<b>Mean</b>	<b>Std. dev.</b>	<b>Alpha if item is deleted</b>	<b>Group</b>	<b>Mean</b>	<b>Std. dev.</b>
F6	6.5244	2.3687	0.8677	Personal	7.5488	1.7152
F3	6.3415	2.3159	0.8708	Behavioral	7.4024	1.5859
F5	6.2683	2.4598	0.8711	Working environment	7.2195	1.5715
F7	5.4390	2.6717	0.8720	Technical	7.4390	1.6711
F4	5.3902	2.3505	0.9250	Functional	7.0122	1.5112
F1	5.3902	2.5031	0.8692			
F2	5.1585	2.3172	0.8801			
F8	3.9634	2.4416	0.8836			

engineers stated that this issue should not be reflected to environment at land workings and level of reflecting family problems to work (B5) has not been taken into consideration as a performance evaluation criterion.

#### The criteria of working environment

In performance evaluation literature, although age, gender, experience, observation time and interpersonal

affect have been considered in many studies, no research has been devoted to the potential effects of job characteristics and working conditions on task and contextual performance (Kahya, 2007).

The averages of the points of importance over the criteria of working environment are shown in Table 3. According to the forest engineers, the three most important criteria of working environment that should be used in appointment, promotion and performance assessment procedures are the risky condition of the working area against fire, protection and landslide, etc. (W10); working arduousness index of working area (W7) and the size of responsibility area; and the number of villages around the forest and population (W5). However, overtime working throughout the year (W2) is the criteria that should not be used in appointment, promotion and performance assessment procedures.

It is expected from forest engineers to work for long hours for facilities such as protecting forest, fire and production except working hours. On the other hand, to forest engineers are not paid for overtime working hours. In this concept, the criterion of "working overtime during the year" (W2) at the focus group meeting has been added as a motivation element for performance evaluation. But, as a result of land workings, forest engineers have not taken into consideration this criterion as a performance criterion.

### Technical criteria

The average of the points of importance over the technical criteria is given in Table 3. According to the forest engineers, the three most important technical criteria that should be used in appointment, promotion and performance assessment procedures are silvicultural business load and the success on it (O5); the degree of work made to care for and rehabilitation of the forests (O6); and the degree of informing seniors about occupational matters with both verbal and written ways (O9). However, the rise in private forests, village forests, afforestation areas (O3) and the number of official reports written for forestry crimes (O1) are the criteria that should not be used in appointment, promotion and performance assessment procedures.

The presences of unproductive forest areas, forest fires and forest protection workings have been arranged as the most important forestry problems in Aegean Region. In this concept, silvicultural applications have been given great importance to manage coppice and degraded forests. Thus, it is aimed at building and continues healthy forests with the application of silvicultural methods. Besides, important investments are established in order to fight forest fire and develop capacity to forest protection facilities and technical concept. Activities, which are related to "the rise in private forests, village forests, afforestation areas" criterion (O3) are carried out with public relations. Yet, a large part of forest engineers

in the region do not support these activities since they cause smashed forest areas, damage natural structure and raise labour intense.

Forest engineers consider the number of official reports written about forest crimes as a part of their duties (O1). For this reason, they write down report about crimes such as cutting, opening, transporting and putting out to pasture. It is observed that there is a decrease according to past years when numbers of proceeding are examined. Emigration of rural population to cities, becoming conscious of public and understanding changes are basic reason of decreasing forest crimes. Decreasing forest crimes are expected by SFM. Because of this, forest engineers have not taken into consideration this criterion as a performance criterion.

### Functional criteria

Table 3 shows the average of the points of importance over the functional criteria. According to the forestry engineers, the three most important criteria that should be used in appointment, promotion and performance assessment procedures are prevention of erosion, flood and landslides (F6); saving and developing the biological variety (F3); and saving and developing the water resources (F5). However, attaching importance to herbal and leaf production (F8) is the criteria that should not be used in appointment, promotion and performance assessment procedures. Besides, the reason why attaching importance to herbal and leaf production criteria got low points can be attributed to stock raising being preferable, and widespread and uncontrolled goat grazing has damaged forest resources in the Aegean Region.

In previous years, society and scientists have given great importance to especially deforestation, water problem and drought. In this concept, forests are evaluated as a basis resource for preventing erosion and providing quality and continual water. These developments have caused forest engineers to see these functions as the most important functional performance criterion.

In the largest city of Aegean Region in zmir, this research was aimed to determine the function priorities of forest resources. In this study at zmir, the sequence of forest functions was obtained, and the environmental functions take the first priority, followed by good quality and abundant water production function, non-wood forest products function, tourism function, wood raw-material production function and forage function, respectively (Geray et al., 2007).

Another study was handled to determine functional priority of forest resources of Ulus State Forest Enterprise in Black Sea region. According to these, the functions priorities of forest resources of Ulus State Forest Enterprise were determined, respectively as water production, wood raw-material production, carbon stock,

non-wood forest products production, wildlife and forage utilization (Da demir and Güngör, 2010).

However, in researches, priority arrangement of forest functions change according to aim, time and geographic regions that affect intense of forest sources. For example, the criterion of fuelwood and roundwood production that was considered as the first aim in the past, takes part at last rows, nowadays. It is indispensable to alter the performance criteria as time, aims and geographic regions are getting different.

## Conclusion

The differentiation of goals in forestry up to the regions; the changes in the forest functions; the difference in office and land works; ecological differences; and the variety in social, cultural and developmental degree of the lands have made the performance assessment not to be a one dimensional, but a multi dimensional process. Thus, in this research, different criteria in five dimensions are developed for the performance assessment of technical staff.

The criteria designed can assess and evaluate many subjects that are expected from the performance assessment of forestry. It can easily be determined whether the technical staff works efficiently or not via repentance of performance assessments for certain periods. So, the board can easily compare the former and the existing term.

Criteria towards individual, behavioral and working environment that are determined in this research are related to personnel (forest engineers). On the other hand, performance criteria in technical and functional groups are related to continual forest management and indications. SFM criteria and indication set in Turkey are only related to field of duty and responsibility of GDF. This set contains facilities of other institutions for forest. So, SFM criteria and indicator set are determined and observed again in both local scales by focusing on the continuity of all forest resources. In this process, adding performance criteria to SFM criterion and indicators set is important in terms of providing performance evaluation continuity.

Available criteria have been developed to assess the performance of forest engineers, forest directorate vice administrator and administrator working in forest management administrations. It is not suggested to use overall criteria for performance evaluation of different administrative units' technical personal other than regional or local forest directorates. That is why for every other administrative unit, criteria must be reevaluated to better suit the need arising from very peculiar working conditions.

It can be used in performance evaluations of other forestry institutions of Environment and Forest Ministry without changing large scale. But, performance criteria in technical and functional groups are completely towards

forest management. So, it is necessary that any institution changes or replaces functional performances criteria to its conditions.

For example, Nature Protection and National Parks Agency (DKGM) have to determine performance criteria due to its duty and responsibility. In this situation, performance criteria such as biological variety, protection of genetic resources, management of wetland, management of national park, wildlife management, ecotourism and environmental impact assessment can be considered. The same samples can be given for other institutions.

The other point that should be taken into consideration in terms of performance criteria are ecologic, economic and cultural functions of Forest District Directorates. As these functions are changing, the priority and qualification of performance criteria also changes. It is observed that expectations and demands of society change by time at the same time. So, it is necessary that performance criteria set should be renewed according to management plans in the mid terms.

In this research, firstly, focus group meetings and individual meetings benefited from the determination of criteria set. Then, to determine the importance levels of criteria, likert scale was used and in this way field workings were made. But, a large concept workshop, Delphi technique, different technique such as AHP can be used for the determination of criteria and their importance levels. Workshops and Delphi technique were not preferred since it contained a large region and raised cost. AHP method was not preferred in same concept since the number of criteria does not appropriate the pair wise comparisons.

As far as the importance value averages are concerned, personal criteria group has been the top choice for forest engineers. Behavioral and functional ones have followed technical criteria as the second in line. The functional criteria scored rather low because engineers are already aware of the fact that forest resources in Turkey are not managed, thinking that functionality or becoming aware that such an approach is not likely to be effected in the operation of Aegean region forests within the next 10 years, caused this result. Additionally, the difficulties in the proper evaluation of the particular group have also contributed to this low score.

In this study, the criteria are identified for the performance assessment of forest engineers who are employed in Directorates of Forestry in Aegean region. Performance assessment is a persistent activity. So it is necessary to add the identified criteria into the local criteria and indicators of SFM. Such activity is to help the performance assessment gain persistency.

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