GENERAL DIRECTORATE OF FORESTRY

CRITERIA AND INDICATORS OF SUSTAINABLE FOREST MANAGEMENT

IMPLEMENTATION GUIDE

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CONTENTS

ABBREVIATIONS

AFT	Association of Foresters in Turkey
AGTF	Association of Green Turkey Foresters
C&I	Criteria and Indicators
CBD	Convention on Biological Diversity
CCCA	Central Committee for Coordination and Assessment
CFE	Chamber of Forest Engineers
COP	Conference of Parties
CPF	Collaborative Partnership on Forestry
CUFC	Central Union of Forestry Cooperatives
DA	Department of Afforestation
DBD	Department of Biological Diversity
DCFP	Department of Combating Forest Pest
DCP	Department of Construction and Procurement
DFCO	Department of Forest Cadastre and Ownership
DFFC	Department of Forest Fire Combating
DFVR	Department of Forest-Village Relations
DHM	Department of Hunting Management
DKM	Nature Conservation Centre
DNP	Department of National Parks
DNS	Department of Nursery and Seed
DNWFPS	Department of Non-Wood Forest Products and Services
DPE	Department of Permission and Easement
DRR	Department of Research and Registry
DS	Department of Silviculture
DSA	Department of Sensitive Areas
DSCWR	Department of Soil Conservation and Watershed Rehabilitation
DSİ	General Directorate of State Hydraulic Works
EFI	European Forest Institute
EU FLEGT	European Union Forest Law Enforcement Governance and Trade
EUFGIS	European Information System on Forest Genetic Resources
EUROSTAT	Statistical Office of the European Union
FAO	Food and Agriculture Organization
FE	Forest Europe
FMPD	Forest Management and Planning Department
FPMD	Forest Production and Marketing Department
FRA	Forest Resources Assessment
FRIS	Forest Resources Information System
FRTRD	Foreign Relations, Training and Research Department
FSC	Forest Stewardship Council
FTBSRI	Forest Tree Breeding and Seeds Research Institute
GDCDE	General Directorate of Combating Desertification and Erosion
GDEA	General Directorate of External Affairs
GDF	General Directorate of Forestry
GDNPNP	General Directorate of Nature Protection and Natural Parks
GDP	Gross Domestic Product
GDPNA	General Directorate for Protection of Natural Assets
GIZ	German Cooperation for International Cooperation
ICP FOREST	International Co-operative Program on Assessment and Monitoring of Air Pollution Effects on Forests)

IFF	Intergovernmental Forum on Forestry
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IPF	Intergovernmental Panel on Forestry ISCED International Standard Classification of Education
ISD	Information System Department
ISIC	International Standard Industrial Classification of all Economic Activities
ITTO	The International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IUFRO	International Union of Forest Research Organizations
JICA	Japan International Cooperation Agency
LFS	Labour Force Survey
LRTAP	Long Range Transboundary Air Pollution
MAF	Ministry of Agriculture and Forestry
MCPFE	Ministerial Conference on Protection of Forests in Europe
METLA	Finnish Forest Resources Institute
MEU	Ministry of Environment and Urbanization
NCA	Non-cadastral areas (The areas covered with trees and left outside the forests by the cadaster)
NFP	National Forestry Programme
OLC	Office of the Legal Counsel
PD	Personnel Department
PEFC	Programme for the Endorsement of Forest Certification
PES	Payment of Ecosystem Services
PFGFTRI	Poplar and Fast-Growing Forest Trees Research Institute
PID	Public Information Department
PS	Private Secretariat
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SDD	Strategy Development Department
SFM	Sustainable Forest Management
SoEF	State of European Forests
TBFRA	Temperate and Boreal Forest Resources Assessment
TEMA	The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats
TSI	Turkish Statistical Institute
TTKD	Association for Protection of Turkey's Nature
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention on Combating Desertification
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forestry
WLD	Wildlife Department

INTRODUCTION

Environmental degradation, mainly in the form of climate change, biodiversity loss and soil destruction, has been a global threat since the 1970s. One of the most important causes of these environmental degradations is the deforestation, which continues under the pressure of agricultural and industrial spread. For this reason, forests and forestry are at the top of the world agenda.

During preparations for the United Nations Conference on Environment and Development (UNCED) in Rio, efforts were put into the preparation of an international forestry convention to address this issue, which turned out to be an unsuccessful attempt. The concern that some countries see their forestry activities as an economic activity and that such a contract would be an obstacle to their economic development is one of the most important reasons for this. Nevertheless, at the conference held in Rio in 1992, a consensus was reached on the Principles of Forestry, and Chapter 11 of Agenda 21 was devoted to the fight against deforestation. In addition, the three international conventions adopted at this conference include issues related to forests, in part.

The 90s following the conference were the scene of an intensive decision-making process on forests and forestry. Approximately 270 resolutions were taken at the Intergovernmental Panel on Forests (IPF 1996-1998) and the Intergovernmental Forum on Forests (IFF 1998-2000) under the auspices of the United Nations. This process continues with the United Nations Forum on Forests (UNFF), which began in 2000. In addition to a series of decisions, THE UNFF succeeded in adopting the Non-legally Binding Instrument on All Types of Forests in 2007. In addition, United Nations Strategic Plan for Forests covering the years 2017-2030 was adopted by the General Assembly with the Resolution No. 71/285. This plan aims to achieve 6 global forestry objectives and 26 goals by 2030.

In parallel with this, regional processes began to ensure unity and cooperation in the implementation of decisions taken at the regional level, these processes focused mainly on standards and guidelines for a common perception of decisions and established their own reporting mechanisms. Turkey is a member of both the Forest Europe process covering Europe and the Near East Process.*

Sustainable forest management criteria and indicators are of particular importance in these processes, which aim at preventing deforestation and maintaining the ecological, economic and socio-cultural functions of forests for present and future generations. One of the four program areas of Chapter 11 of Agenda 21 exclusively includes provisions for the establishment or development of the capacity to systematically monitor and evaluate the overall impact of forestry programs, projects and activities on forest resources, and to produce the solutions necessary to address the identified deficiencies. In the following process, which criteria should be taken into consideration to monitor, evaluate and report the effects of any kinds of activities carried out in the context of sustainable forest management on forest resources constitutes an important field of study.

Our country has been carrying out its activities in this context mainly in compliance with the Forest Europe process since the early 90s. However, in these years, the problems stemming from new structuring and institutional changes had negative effects on our forestry. In spite of these, “General Directorate of Forestry the Strategy of 2000s” document prepared by our General Directorate of Forestry put forward the new forestry strategy and determined the measures to be taken for the effective implementation of international forestry decisions. This was a period when Turkey made important reforms in forestry: Geographic information systems started to be used and functional planning practices started with the FRIS project. With the structural arrangements aimed at a strong management model, the number of management directorates were gradually reduced and the norm staff project was prepared.

With the Information Technology Strategy Project, a serious transformation in the field of information was experienced and the old traditional information technologies were completely abandoned and the modern data processing infrastructure was established. The General Directorate of Forestry has been one of the leading public institutions that create an official web page. The most comprehensive study of Turkish forestry, Review of the Forestry

Sector, was carried out with the support of the World Bank. The Turkish National Forestry Program, which is still being implemented, has been carried out with the support of FAO.

The implementation of sustainable forest management criteria and indicators is one of the practices that started during this period. The MCPFE SFM C&I set was first tested in 1999 without any changes, and in 2003 the first national SFM C&I set consisting of 6 criteria and 28 indicators was determined and implemented. General Directorates of National Parks, Reforestation and Erosion Control and Forest-Village Relations did not have the opportunity to participate in this study. For this reason, SFM C&I set was mainly limited to the duties and competencies of the General Directorate of Forestry.

Nevertheless, participation in the implementation phase was surprisingly satisfactory and various segments such as public institutions and organizations, NGOs, universities and the private sector were highly interested in the subject and workshops conducted throughout the country. The 2006 and 2008 National Reports were published and these reports provided the basis for the strategic plans prepared. However, in 2011, the implementation by the General Directorate of Forestry was stalled to ensure the inclusion of other forestry units not included in the process, and capacity building works were carried out until 2017.

In 2017, Obsolete Ministry of Forest and Water Affairs decided that criteria and indicators of national sustainable forest management be renewed and appointed the General Directorate of Forestry to implement and coordinate this work, taking into account 1) the need to make up the shortages in the present set, 2) the experience gained and enhanced capacity of data collection and 3) the fact that SFM C&I set had been revised in 2015. With the support of the Integrated Management Project for Mediterranean Forests, the General Directorate of Forestry prepared and implemented a 4-phase program for this work.

First, 6 working groups were formed. A total of 281 members from the Ministry of Forestry and Water Affairs, other public institutions and organizations, NGOs, universities and the private sector were selected to participate in these working groups. The working groups held a total of 13 working meetings with 140 members actually attended, and they set 39 candidate indicators under 6 criteria and prepared final reports and their appendices. At the national workshop held in Ankara on July 25-26, 2018, the indicators determined by the working groups were discussed and the national set of criteria and indicators of Sustainable Forest Management in Turkey consisting of 6 criteria and 40 indicators was determined.

It is planned to test the national criteria and indicators of sustainable forest management in Turkey in pilot enterprises, at the final stage. At the first monitoring meeting held after the workshop, it was agreed that it was necessary to prepare a practical implementation guide before the test (pilot) implementation.

This guide consists of 4 sections. The first section deals with conceptual explanations of SFM C&I; second section with the collection of data on the indicators specified, and the third section with the evaluation and reporting of indicators at national and implementation unit levels. The last chapter consists of appendices, basically of terms and definitions.

The terms and definitions section was designed to contribute to making this guide more understandable and was added to the manual for information purposes. It should not be considered as a separate and independent glossary containing all forestry terms and definitions. The terms and definitions were prepared mainly using the translation of Forest Europe glossary in a way that they also include the terms and definitions from our country's National SFM C&I set, although not included in Forest Europe glossary.

1. **CONCEPT**

A. SUSTAINABLE FOREST MANAGEMENT

Sustainability is not a term stranger to forestry, except in ancient times when forests were seen as an obstacle to agricultural development and turned into agricultural areas to the extent that technological conditions allowed. The first documents on the concept of sustainability in forestry appeared in Europe around the 14th century. There were orders by the kings allowing the forest owners to benefit from the forests only if they inventory their forests and keep them in good condition. Until the second half of the 20th century, the concept of sustainability developed according to the conditions of the time, but focused mainly on wood production. During this period of deforestation and destruction of forests, the demand for the products and services provided by forests increased and diversified.

Upon these developments, the United Nations included forests and forestry in its agenda and the concept of sustainable forest management (SFM) started to be discussed. However, until recently, there was no consensus reached as to what SFM exactly means. At the 1992 Rio summit, some inferences could be made for SFM based on principles of forestry. These can be evaluated roughly under five headings.

1. Forests are essential for maintaining all life forms and economic development.
2. Taking into account the social and economic pressures that may appear when the use of forests is restricted and the development potential that the sustainable forest management will provide, the multifaceted functions of forests and the utilization of forests should be dealt with in a wholistic and bareaced way.
3. Forest resources and areas will be managed to meet the social, economic, ecological, cultural and spiritual needs of today's and future generations in a sustainable manner.
4. It should be known that all forest types are the source of rich biodiversity, genetic material, biotechnology products and photosynthesis with their role in sustaining ecological processes, sensitive ecosystems, watersheds and fresh water resources.
5. Interested parties, including governments, local communities, industry, workers, non-governmental organizations, individuals, forest villagers and women should be provided with the opportunity to participate in the development, implementation and planning of policies for them and their participation should be increased. National forestry policies should fully recognize and support the identity, culture and rights of these parties.

SFM was then defined as "[a] dynamic and evolving concept [that] aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations" (2007) during the process of United Nations Forum on Forests (UNFF).

Some regional processes also made SFM definitions for their regions. At the Ministerial Conference on the Protection of Forests in Europe, of which our country is an active member and is called shortly as Forest Europe, the definition of SFM was made as follows:

"the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems"

This generally accepted definition is considered suitable also for our country. As a matter of fact, Article 2 sub-paragraph (a) of the Law on Amending the Decree on the Organization of the General Directorate of Forestry and its Duties, under the title of Tasks, was changed in 2011. Finally, the mentioned statement was preserved also in Article 334 of The Decree No. 4 of the Presidency Decree, regulating the powers, duties and responsibilities of the General Directorate of Forestry, published in the Official Gazette and dated 15.07.2018, and is as follows:

"a) To manage forest resources within the ecosystem integrity together with the presence of plants and animals, taking into account forest resources and the ecological, economic and socio-cultural benefits of these resources, to plan them in a participatory and multi-purpose manner, to protect them against irregular interventions, natural disasters, fires, to combat various pests and to have combatted, to carry out and improve forestry quarantine services, to increase the number of forests areas and the services related to forests, to improve and rehabilitate forests, to provide them with silvicultural tending and regeneration"

Thus, a regulation was made also in our country based on the definition of SFM put forward by Forest Europe so that the ecological, economic and socio-cultural functions of forests are legally recognized.

B. CRITERIA AND INDICATORS OF SUSTAINABLE FOREST MANAGEMENT

The ecological, economic and socio-cultural functions of forests are quite complex and overlap in places. Naturally, it is rather difficult to track and assess how sustainable these functions are maintained or improved. It is clear that more concrete parameters are needed for this kind of a monitoring and assessment to be carried out systematically. This is one of the important reasons why sustainable forest management criteria and indicators were brought to the agenda. In Agenda 21, Section 11, the importance of the criteria and indicators for sustainability and the necessity to determine them are pointed out.

CRITERIA

During the development of the criteria, different processes were used with different logics. In general, a hierarchical systematic form consisting of "principles" to be under SFM's goal, "criteria" to correspond to these principles, and "verifiable indicators" that will later form these criteria were tried to be created. However, in some studies conducted in different regions and processes, it was observed that a principle determined was considered as a criterion in another study, which made the issue more complicated. For this reason, criteria were mainly focused and a consensus was reached on which criteria to be used to monitor and assess sustainable forest management. The thematic elements of sustainable forest management were defined in the Non-legally Binding Instrument on All Types of Forests adopted by the United Nations in 2007 as follows.

1. Extent of forest resources
2. Forest biological diversity
3. Forest health and vitality
4. Productive functions of forest resources
5. Protective functions of forest resources
6. Socio-economic functions of forest resources
7. Legal, policy and institutional framework

These 7 elements, along with some changes in sorting and notation, were accepted as SFM criteria by almost all processes and countries (some processes classify them under certain principles). Note that the first six criteria are about the state or function of forests, while the 7th criterion relates to forestry. In other words, it deals with which legal frameworks and which policy instruments are used to manage forests as well as the institutional capacities of the relevant organizations. Indicators for this criterion are usually qualitative and descriptive. The impact of the change in these indicators on the first six criteria will give an idea of the measures to be taken to solve the problems. The Forest Europe process has not adopted the approach of addressing governance under a separate criterion, and predicted that follow-up of governance issues with a total of 11 qualitative or descriptive indicators, including 5 general indicators and one indicator under each criterion would be more appropriate, instead of the 7th criterion.

INDICATORS

SFM criteria are the main elements through which sustainability is assessed by taking into account the ecological, economic and socio-cultural roles of forests and are composed of measurable indicators. The change in the indicators measured periodically will give an idea of sustainability under the relevant criterion. Indicators can be quantitative, qualitative or descriptive, and can be modified or improved over time.

The fact that the monitoring, evaluation and reporting of the criteria will be carried out through the indicators set for these criteria clearly demonstrates the importance of indicators. For this reason, both the determination of indicators and the configuration of the indicators determined have been one of the most emphasized issues.

In the process of determining indicators, suitability and applicability are the two most important requirements. Suitability means that the indicator is related to the relevant criterion and gives an idea of that criterion. Applicability means that indicators are measurable, verifiable, clear and meaningful, and communicative.

Structuring indicators is another important issue. Indicators are designed to reduce large data stacks to their simplest form in a way that they preserve their main meaning (Ott, 1978) and may have a layered structure. A three-layered structure is preferred for indicators in Turkey.

1. Indicator
2. Sub-indicator
3. Variables

Adopting the approach of Forest Europe, our country adopted

1. National forest program or equivalent
2. Institutional framework
3. Legal and regulatory framework
4. Instruments of finance and economy
5. Information and Communication

for all criteria besides 50 quantitative indicators under 6 criteria, as well as a total of 11 qualitative or descriptive indicators as “policies, institutions and instruments” under each criterion.

C. IMPLEMENTATION OF CRITERIA AND INDICATORS OF SUSTAINABLE FOREST MANAGEMENT

There is no standard concept of how exactly the SFM C&I is implemented, since the state of the forests and the factors that threaten them, the measures to be taken against them, vary greatly from region to region, from country to country. Therefore, each region or country creates an SFM C&I implementation model that suits to its own conditions and priorities.

A research project conducted by EFI in 2013 with the support of Forest Europe, METLA and FAO focused on European implementations of Sustainable Forest Management Criteria and Indicators. The report of this project, in which our country is also involved in the project and presented the model applied at the workshop held in Vienna, clearly demonstrates the difference in practices. The report, which is quite comprehensive, lists many weaknesses and deficiencies in the implementations. However, the most important and unsurprising finding is that in many countries, criteria and indicators are used only as a monitoring and reporting tool, are symbolic, and are inadequate in policy-making. As a result, high-level political interest and commitment to forests have not been established and the forestry sector has not gained priority in many countries.

The basis for the model, which has been in place in our country since 2003, is mainly provided by the idea of establishing political interest and determination and addressing the problems identified with a common mind. Implementation of SFM C&I is not only seen as a reporting system and does not aim for performance control at the implementation level.

Conceptually, the model in Turkey is based on the logic of cellular solution: If an agreement - on the activities carried out in any implementation unit – of the parties, who are affected by the activities is ensured, that activity will succeed smoothly. This agreement also includes solutions for the settlement of conflicts. The capacity of the unit carrying out the activity can be strengthened by voluntary contributions, the participation of the participants in the responsibilities enhances cooperation and creates an environment of trust between the parties. With this synergy created in the area, the workload of the center is reduced and resources are used more effectively.

GOAL AND STRATEGIC OBJECTIVES

Basically, the goal of the implementation is to mobilize internal dynamics of forestry and at the same time to cooperate with other sectors to prevent non-sectoral impacts that adversely affect forests. It is of great importance that effective sectors, politicians, decision makers, especially society, and all stakeholders are willing to understand the key role of forests in sustainable development and are committed to the protection and improvement of forests and behave determinedly. The basic requirement to ensure this is to provide all these sectors with reliable, verifiable information about the state of forests and forestry, as well as objective analysis and evaluations conducted by using this information transparently and at all levels.

Strategic objectives to reach this goal are given below.

- Creating an environment of dialogue and communication between policymakers, decision makers and relevant stakeholders within and outside the forestry sector
- Monitoring, assessing and transparent reporting of the state of the forestry sector, as well as the trends in it
- Identifying the development towards sustainable forest management and identifying the problems that can be encountered
- Formulating or renewing the national forestry program, strategic plans and forest management plan or equivalents, taking into account the recommendations in the implementation unit reports and the national report
- Providing sectors, scientific circles, stakeholders and society outside the forestry sector with reliable and verifiable assessments based on data and analysis

METHODOLOGY

The mechanism related to implementation of SFM C&I in Turkey and the establishment of the Central Coordination and Assessment Committee (CCAC), its responsibilities and duties, the structure and way of working of workshops to be established at the implementation level - all of which are included in the aforementioned mechanism - are discussed in detail in the section titled “Assessment and Reporting” of this guide.

The method is based on presenting the data on indicators in the workshops to be held at the implementation level in certain periods and the criteria assessments to be attended by all stakeholders and identifying problems at the implementation unit or national level during these assessments. Cooperation protocols can be signed or a principle agreement can be reached between the administration and voluntary participants to address the problems identified at the implementation unit level. The planners who will take part in the workshops make note of the issues that can be addressed with the capacity of the administration and take them into account when making or renewing their plans. Together with other agreements and recommendations for solutions, these are included in the workshop report. Data on

criteria and indicators are prepared in the format specified and added to the workshop report. In the implementation unit workshop, indicators can be determined to be implemented at the local level, thus creating a C&I set of

implementation unit level. Participation is an issue to be considered at every stage of the implementation and is voluntary. Participants can give their personal opinions about the criterion evaluated or speak on behalf of the group they represent, exchange information and express their interests. Participants should be provided with access to all kinds of information on the subject in order to allow them to make a right assessment. Requests or recommendations cannot be contrary to international conventions and national legislation. However, national legislative changes may be proposed to be communicated to the relevant authorities. Stakeholders who do not participate in the workshops or send representatives are considered to have agreed the decisions taken at these workshops.

The CCAC examines the reports of workshops conducted at the implementation unit level and assesses the indicator data obtained at the national level in a holistic manner, together with the findings and information obtained from these reports. To do this, it can set up working groups when necessary and invite representatives from stakeholders to participate in the work of the groups. These works conducted at the national level are included in the national report together with the recommendations for solutions. The report is submitted to all stakeholders to be viewed, and presented to policymakers and decision makers.

2. COLLECTION AND MONITORING OF DATA

As mentioned earlier, indicators can be layered. In the last Turkish Sustainable Forest Management National Indicators Renewal study, these layers were created in the form of indicators, sub-indicators and variables. However, this does not necessarily mean that each indicator will have sub-indicators or variables. The nature of the indicator and its availability of data are decisive in this regard. On the other hand, it is possible to add sub-indicators and variables to the specified indicators depending on the development of data collection and monitoring capacity over time.

In indicator structures created in the form of sub-indicators and variables, information such as the source of the data, the unit responsible for collecting the data, the unit of measurement, the data collection or range of measurement are included, and the sample table formats to be used in the report preparation process are provided. During the reporting period, sample tables will be revised in accordance with the descriptions below them.

CRITERION 1: FOREST RESOURCES AND THEIR CONTRIBUTION TO GLOBAL CARBON CYCLE

The criterion of forest resources and their contribution to global carbon cycle mainly focuses on the state of forest area and growing stock. The amount of carbon in forests is also an important parameter. This criterion is also linked to climate change. 5 indicators are identified under this criterion in Turkey's SFM C&I National set.

INDICATOR 1.1: FOREST AREA AND OTHER WOODED LAND

Description

This indicator shows the distribution of all natural and artificial forest areas owned by state, private and legal persons into forest types and phase classes based on their ecological, economic and sociocultural functions and NCA.

Sub-indicators

Sub-indicator 1.1.1	Distribution of forest areas into forest types based on their functions

Unit of measurement	Hectare
Range of measurement	5 years
Data source	Forest management plans, Forest Information System (ORBİS), Inventory Operation System (ENVANİS)
Responsible unit	GDF Forest Management and Planning Department

Sample Table 1: Distribution of Forest Areas into Forest Types Based on Their Functions

OWNERSHIP	FUNCTIONS	ORIGIN	Forest Area with Normal Crown Closure (ha)				Area of Forest Covered with Spaces (ha)				Forest Area Without Trees (ha)	Total Forest (ha)
			Coniferous	Deciduous	Mixed	Total	Coniferous	Deciduous	Mixed	Total		
State	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
Private/Legal	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
TOTAL AREA (ha)												

Note: NCA (The areas covered with trees and left outside the forests by the cadaster) will not be included in this table. An individual table will be prepared to show NCA.

Sample Table 2: Non-Cadastre Other Wooded Forest Area

	Unit	../..	2015	2016	2017	2018	2019
Size of the non-cadastre wooded area	Ha						

Values will be calculated for the period of last 10 years year by year and reported on a table.

Sub-indicator 1.1.2 Distribution of Forest Areas into Phase Classes Based on Their Functions

Unit of measurement	Hectare
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department

Sample Table 3: Distribution of Forest Areas into Phase Classes Based on Their Functions

OWNERSHIP	FUNCTIONS	ORIGIN	Forest Area with Normal Crown Closure (ha)								Covered Forest Area with Spaces (ha)	Total Forest Area (ha)
			a	b	c	d	e	Layered Stand	Un-even Aged Stand	Coppice		
State	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
Private/Legal	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
TOTAL AREA (ha)												

INDICATOR 1.2: GROWING STOCK AND INCREMENT

Description

This indicator shows the distribution of growing stock and increment of all natural and artificial forest areas owned by state, private and legal persons into tree species groups and phase classes based on their ecological, economic and sociocultural functions.

Sub-indicators

Sub-indicator 1.2.1	**Growing stock based on tree species groups**
Unit of measurement	m^3
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department

Sample Table 4: Growing Stock Based on Tree Species Groups

OWNERSHIP	FUNCTIONS	ORIGIN	Growing Stock in Forests with Normal Crown Closure (m^3)			Growing Stock in Covered Forests with Spaces (m^3)			Total Growing stock (m^3)
			Coniferous	Deciduous	Total	Coniferous	Deciduous	Total	
State	Economic	Natural							
		Artificial							
	Ecological	Natural							
		Artificial							
	Sociocultural	Natural							
		Artificial							
Private/Legal	Economic	Natural							
		Artificial							
	Ecological	Natural							
		Artificial							
	Sociocultural	Natural							
		Artificial							
TOTAL GROWING STOCK (m^3)									

Sub-indicator 1.2.2	**Growing stock based on phase classes**
Unit of measurement	m³
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department

Sample Table 5: Growing Stock Based on Phase Classes

OWNERSHIP	**FUNCTIONS**	**ORIGIN**	**Growing Stock in Forests with Normal Crown Closure (m³)**								**Growing Stock in Covered Forests with Spaces (m³)**	**Total Growing stock (m³)**
			a	b	c	d	e	Layered Stand	Un-even Aged Stand	Coppice		
State	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
Private/Legal	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
TOTAL GROWING STOCK (m³)												

Sub-indicator 1.2.3	**Growing stock increment based on tree species groups**
Unit of measurement	m³
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department

Sample Table 6: Growing Stock Increment Based on Tree Species Groups

OWNERSHIP	FUNCTIONS	ORIGIN	Increment in Forests with Normal crown closure (m^3)			Increment in Covered Forests with Spaces (m^3)			Total Increment (m^3)
			Coniferous	Deciduous	**Total**	Coniferous	Deciduous	**Total**	
State	Economic	Natural							
		Artificial							
	Ecological	Natural							
		Artificial							
	Sociocultural	Natural							
		Artificial							
Private/Legal	Economic	Natural							
		Artificial							
	Ecological	Natural							
		Artificial							
	Sociocultural	Natural							
		Artificial							
TOTAL INCREMENT (m^3)									

Sub-indicator 1.2.4	**Growing stock increment based on phase classes**
Unit of measurement	m^3
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department
Variables	Variables are given in the table below. Each data cell corresponds to one variable.

Sample Table 7: Growing Stock Increment Based on Phase Classes

OWNERSHIP	FUNCTIONS	ORIGIN	Tree Increment in Forests with Normal crown closure (m^3)								Tree Increment in Covered Forests with Spaces (m^3)	Total Increment (m^3)
			a	b	c	d	e	Layered Stand	Un-even Aged Stand	Coppice		
State	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
Private/Legal	Economic	Natural										
		Artificial										
	Ecological	Natural										
		Artificial										
	Sociocultural	Natural										
		Artificial										
TOTAL INCREMENT (m^3)												

Note: Data on this indicator will be provided from the databases created with the data obtained from forest management plans being implemented or these plans at 5-years intervals.

INDICATOR 1.3: CARBON STOCK

Description

This indicator shows distribution of the amount of subsoil and surface carbon in forest areas by normal, covered forests with spaces and openings.

Sub-indicators

Sub-indicator 1.3.1	**Carbon Stock**
Unit of measurement	Ton
Range of measurement	5 years
Data source	Forest management plans ORBİS ENVANİS
Responsible unit	GDF Forest Management and Planning Department

Note: Data on this indicator will be provided from the databases created with the data obtained from forest management plans being implemented or these plans at 5-years intervals. The calculation will be based on the IPCC guide. The studies already conducted or those still being conducted by the academic circles can be used to measure subsoil carbon. The sample table for the indicator is given below.

Sample Table 8: Carbon Stock

ORIGIN		Amount of Carbon in Forests with Normal Crown Closure (ton)		Amount of Carbon in Covered Forests with Spaces (ton)		Opening and Other Areas	Total Carbon (ton)
		Coniferous	Deciduous	Coniferous	Deciduous		
Natural	Surface						
	Subsoil						
	Deadwood						
	Litter						
	Soil						
	Total						
Artificial	Surface						
	Subsoil						
	Deadwood						
	Litter						
	Soil						
	Total						
TOTAL CARBON (ton)							

INDICATOR 1.4: FOREST CADASTRE

Description

This indicator shows the registered and cadastred forest areas owned by the State or private and legal persons and the areas removed from the forest area and wooded lands outside the forest areas

Non-cadastral areas (The areas covered with trees and left outside the forests by the cadaster)

Sub-indicators

Sub-indicator 1.4.1	**Forest cadastre**
Unit of measurement	Hectare
Range of measurement	1 year
Data source	GDF Department of Forest Cadastre and Ownership registrations
Responsible unit	GDF Department of Forest Cadastre and Ownership
Variables	1.4.1.1 Area of which forest cadastre is done 1.4.1.2 Registered area 1.4.1.3. Area removed from forest with 2/A 1.4.1.4. Area removed from forest with 2/B 1.4.1.5 Area reserved for special purposes such as plateau, announced with a decision of the Council of Ministers 1.4.1.6 Wooded land outside the forest area

Note: Forest cadastre covers the studies carried out under the Forest Law no. 6831 and Article 4 of the Cadastral Law no. 3402 dated 21.06.1987 and Article Annex-5 of the same Law.

Sample Table 9: Forest Cadastre

Activities	**Year 2019**
Area of which forest cadastre is done	
Registered area	
Area removed from forest with 2/A	
Area removed from forest with 2/B	
Area reserved for special purposes such as plateau, announced with a decision of the Council of Ministers	
Wooded land outside the forest area	

INDICATOR 1.5: MANAGEMENT OF FOREST AREAS

Description

This indicator shows forest areas managed according to integrated management plans and model plans.

Sub-indicators

Sub-indicator 1.5.1	**Forest areas managed with plans**
Unit of measurement	Hectare
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations
Responsible unit	GDF Forest Management and Planning Department
Variables	1.5.1 Forest area under integrated management plan 1.5.2 Areas managed with ecosystem-based functional forest management plans 1.5.3 Areas managed with other model plans

Sample Table 10: Forest Areas Managed with Plans

Activities	**Year 2019** **Ha.**
Forest area under integrated management plan	
Areas managed with ecosystem-based functional forest management plans	
Areas managed with other model plans	
TOTAL	

CRITERION 2: HEALTH, VITALITY AND INTEGRITY OF FORESTS

The criterion of health, vitality and integrity of forests is supplemental to the criterion 1. It provides data on the state of forest resources and the factors threatening these resources. 7 indicators are identified for this criterion in Turkey's SFM C&I national set.

INDICATOR 2.1: FORESTS AFFECTED BY NATURAL FACTORS

Description

This indicator shows the impact of biotic and abiotic factors, excluding the human factors, on the forests owned by the State, private or legal persons.

Sub-indicators

Sub-indicator 2.1.1	**Forests affected by biotic factors**
Unit of measurement	Hectare, m^3
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations Forest management plans ORBİS
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.1.1.1 Damage by pests 2.1.1.2 Damage by fungi 2.1.1.3 Other biotic factors- damage by nematode virus 2.1.1.4 Combatting harmful factors

Note: Damages caused by insects, fungi and other biotic factors (nematode, virus), will be provided with the details including area that was damaged (Ha) and the amount of wood lost (m3), and each source of damage will be provided individually and their names will be specified. Reproduction and release of predatory animals (number of predatory animals reproduced, the size of the area into which they were released, expenditure (TL), and success rate), mechanical, biotechnique, chemical and biological controls (area, expenditure (TL), success rate) will be provided under the variable of combatting harmful factors on a table prepared on a yearly basis (Last 10 years). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 11: Damage by pests

2.1.1.1 Damage by pests		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Name of the pest (1)								
Tree species (1)	Area	Ha						
	Amount of loss	m^3						
Tree species (2)	Area	Ha						
	Amount of loss	m^3						
Name of the pest (2)								
Tree species (1)	Area	Ha						
	Amount of loss	m^3						
Tree species (2)	Area	Ha						
	Amount of loss	m^3						

Sample Table 12: Damage by Fungi

2.1.1.2 Damage by fungi		Unit	../..	2015	2016	2017	2018	2019
Name of the fungus (1)								
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						
Name of the fungus (2)								
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						

Sample Table 13: Combatting Harmful Factors

2.1.1.4 Combatting Harmful Factors		Unit	../..	2015	2016	2017	2018	2019
Reproduction of predatory animals	Reproduced	Quantity						
	Area	Ha						
	Expenditure	TL						
	Success	%						
Mechanical Control	Area	Ha						
	Expenditure	TL						
	Success	%						
Biotechnique control	Area	Ha						
	Expenditure	TL						
	Success	%						
Chemical Control	Area	Ha						
	Expenditure	TL						
	Success	%						
Biological Control	Area	Ha						
	Expenditure	TL						
	Success	%						

Sub-indicator 2.1.2	Forests affected by abiotic factors
Unit of measurement	Quantity, Hectare, m³
Range of measurement	1 year
Data source	GDF Department of Forest Fire Combating registrations GDF Department of Combating Forest Pest registrations Forest management plans ORBİS
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.1.2.1 Fires due to natural factors 2.1.2.2 Disasters such as storm, landslide, drought, avalanche etc.

Note: In addition to the number of forest fires caused by natural factors, area burned by tree species (Ha) and loss of wood (m^3) will be provided on a table. Data should cover at least the last 10 years and be supported by graphs. Details on variable of storm, landslide, drought, avalanche and etc. should be provided in a way that they include the area affected (Ha) and loss of wood (m^3) on a yearly basis (last 10 years), in addition to the number of each disaster. This data can be also supported with graphs. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 14: Fires Due to Natural Factors

2.1.2.1 Fires Due to Natural Factors		Unit	../..	2015	2016	2017	2018	2019
Number of Fires		**Quantity**						
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						

Sample Table 25: Disasters such as storm, landslide, drought, avalanche etc.

2.1.2.2 Disasters such as storm, landslide, drought, avalanche etc.		Unit	../..	2015	2016	2017	2018	2019
Number of Storms		**Quantity**						
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						
Number of Landslides		**Quantity**						
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						
Number of Avalanches		**Quantity**						
Tree species (1)	Area	Ha						
	Amount of loss	m³						
Tree species (2)	Area	Ha						
	Amount of loss	m³						

INDICATOR 2.2: SILVICULTURAL ACTIVITIES

Description

This indicator shows silvicultural operations and works of tending and rehabilitation carried out in even-aged and uneven-aged stands in forests.

Sub-indicators

Sub-indicator 2.2.1	**Silvicultural operations in even-aged stands**
Unit of measurement	Hectare, %
Range of measurement	1 year
Data source	GDF Department of Silviculture registrations ORBİS
Responsible unit	GDF Department of Silviculture
Variables	2.2.1.1 Regeneration
	2.2.1.2 Restoration in Coppices

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 16: Regeneration

2.2.1.1 Regeneration	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Area	Ha						
Success Rate	%						

Sample Table 17: Restoration in Coppices

2.2.1.2 Restoration in Coppices	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Area	Ha						
Success Rate	%						

Sub-indicator 2.2.2	Silvicultural operations in uneven-aged stands
Unit of measurement	Hectare, %
Range of measurement	1 year
Data source	GDF Department of Silviculture registrations ORBİS
Responsible unit	GDF Department of Silviculture
Variables	2.2.2.1 Regeneration

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 38: Regeneration

2.2.1.1 Regeneration	Unit	../..	2015	2016	2017	2018	2019
Area	Ha						
Success Rate	%						

Sub-indicator 2.2.3	Tending
Unit of measurement	Hectare
Range of measurement	1 year
Data source	GDF Department of Silviculture registrations ORBİS
Responsible unit	GDF Department of Silviculture
Variables	2.2.3.1 Development phase tending 2.2.3.2 Pre-commercial thinning 2.2.3.3 Tending in coppices with high forests 2.2.3.4 Thinning

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 19: Tending

Tending	Unit	../..	2015	2016	2017	2018	2019
Development phase tending							
Pre-commercial thinning	Ha						
Tending in coppices with high forests	Ha						
Thinning	Ha						

Note: 2.2.3.1 Culture tending will be also included in the development phase tending.

Sub-indicator 2.2.4	**Rehabilitation Area**
Unit of measurement	Hectare, %
Range of measurement	1 or 2 years
Data source	GDF Department of Silviculture registrations ORBİS
Responsible unit	GDF Department of Silviculture
Variables	2.2.4.1 Rehabilitated area and success rate

Sample Table 20: Rehabilitated Areas

2.2.4.1 Rehabilitated Areas	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Area	Ha						
Success Rate	%						

Note: This indicator mainly deals with silvicultural activities. Registrations and rulers of GDF-SD Department will be used until the unity of data with ORBİS is provided. Range of measurement is 2 years in the variables including success rate. The format provided by GDF-Department of Silviculture in the assessment book can be used for the data to be provided on table. Values will be calculated for the last 10-year period year by year and reported on a table.

INDICATOR 2.3: DAMAGES BY HUMAN-INDUCED FACTORS

Description

This indicator shows the damages caused by humans in forests.

Sub-indicators

Sub-indicator 2.3.1	**Forest area**
Unit of measurement	Quantity, Hectare, m³, Quintal
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations ORBİS
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.3.1.1 Felling 2.3.1.2 Opening, settlement, occupation

Sample Table 21: Forest Area Felling

2.3.1.1 Felling	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Number	Quantity						
Area	Ha						
Amount of loss	m³						
	Quintal						

Sample Table 22: Forest Area Opening, settlement, occupation

2.3.1.2 Opening, settlement, occupation	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Number	Quantity						
Area	Ha						
Amount of loss	m³						
	Quintal						

Sub-indicator 2.3.2	Other forest area
Unit of measurement	Quantity, Hectare, m³, Quintal
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations ORBİS
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.3.2.1 Felling 2.3.2.2 Opening, Settlement, Occupation

Sample Table 23: Other Forest Area Felling

2.3.2.1 Felling	Unit	../..	2015	2016	2017	2018	2019
Number	Quantity						
Area	Ha						
Amount of loss	m³						
	Quintal						

Sample Table 24: Other Forest Area Opening, Settlement, Occupation

2.3.2.2 Opening, settlement, occupation	Unit	../..	2015	2016	2017	2018	2019
Number	Quantity						
Area	Ha						
Amount of loss	m³						
	Quintal						

Note: The data including the total felling, opening, settlement and occupation practices and the loss of wood (m^3 and quintal) caused by them will be provided on a table for the last 10 years. This data will be divided into two as forest areas and other forest areas. Other forest areas refer to forests with a crown closure lower than 10% (including forest soil (OT) and openings). Values will be calculated for the last 10-year period year by year and reported on a table.

Sub-indicator 2.3.3	Crown fires
Unit of measurement	Quantity, Hectare, m³, TL
Range of measurement	1 year
Data source	GDF Department of Forest Fire Combating registrations ORBİS
Responsible unit	GDF Department of Forest Fire Combating
Variables	2.3.3.1 Forest affected by fire 2.3.3.2 Distribution of Crown Fires by Their Reasons

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 25: Forest Affected by Crown Fire

2.3.3.1 Forest affected by Crown Fire		Unit	../..	2015	2016	2017	2018	2019
Number of Fires		**Quantity**						
Area	1st Degree Sensitive	Ha						
	2nd Degree Sensitive	Ha						
	3rd Degree Sensitive	Ha						
	4th Degree Sensitive	Ha						
	5th Degree Sensitive	Ha						
Loss		**m³**						
Tree species (1)		**Name**						
Amount of loss		m³						
Financial loss		TL						
Tree species (2)		**Name**						
Amount of loss		m³						
Financial loss		TL						

Sample Table 26: Distribution of Crown Fires by Their Reasons

2.3.3.2 Distribution by the Reasons of Crown Fires		Unit	../..	2015	2016	2017	2018	2019
Deliberate	Number	Quantity						
	Area	Ha						
Accident	Number	Quantity						
	Area	Ha						
Negligence	Number	Quantity						
	Area	Ha						
Unknown reason	Number	Quantity						
	Area	Ha						

Sub-indicator 2.3.4	**Ground fires (including soil)**
Unit of measurement	Quantity, Hectare, m³, TL
Range of measurement	1 year
Data source	GDF Department of Forest Fire Combating registrations ORBİS
Responsible unit	GDF Department of Forest Fire Combating
Variables	2.3.4.1 Forests affected by fire 2.3.4.2 Distribution of Ground Fires by Their Reasons

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 27: Forest Affected by Ground Fire

2.3.4.1 Forest affected by Ground Fire		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Number of Fires		**Quantity**						
Area	1. Degree Sensitive	Ha						
	2. Degree Sensitive	Ha						
	3. Degree Sensitive	Ha						
	4. Degree Sensitive	Ha						
	5. Degree Sensitive	Ha						
Loss		**m³**						
Tree species (1)		Name						
Amount of loss		m³						
Financial loss		TL						
Tree species (2)		Name						
Amount of loss		m³						
Financial loss		TL						

Sample Table 28: Distribution of Ground Fires by Their Reasons

2.3.4.2 Distribution by the reasons of Ground Fires		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Deliberate	Number	Quantity						
	Area	Ha						
Accident	Number	Quantity						
	Area	Ha						
Negligence	Number	Quantity						
	Area	Ha						
Unknown reason	Number	Quantity						
	Area	Ha						

INDICATOR 2.4: DAMAGE DUE TO GRAZING

Sub-indicator 2.4.1	**Area damaged due to grazing**
Unit of measurement	Hectare
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations ORBİS
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.4.1.1 Damaged Area

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 29: Area Damaged due to Grazing

2.4.1.1 Damaged Area	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Number of animals causing the damage	Quantity						
Area	Ha						

INDICATOR 2.5: PERMISSIONS AND EASEMENTS

Description

This indicator shows permissions given and easements provided pursuant to Article 16, 17/3 and 18 of Forest Law, as well as the losses caused by them.

Sub-indicators

Sub-indicator 2.5.1	**Permissions given pursuant to Article 16 of Forest Law**
Unit of measurement	Quantity, Ha, m³
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations ORBİS
Responsible unit	GDF Department of Permission and Easement
Variables	2.5.1.1 Permissions for mining exploration, production, enterprise, facility and infrastructure facility 2.5.1.2 Permissions for fills to prepare for rehabilitation

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 30: Permissions Given Pursuant to Article 16 of the Forest Law

2.5.1 Permissions Given Pursuant to Article 16		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Permissions for mining exploration, production, enterprise, facility and infrastructure facility	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for fills to prepare for rehabilitation	Number	Quantity						
	Area	Ha						
TOTAL	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						

Sub-indicator 2.5.2	Permissions given pursuant to Article 17/3 of the Forest Law
Unit of measurement	Quantity, Ha, m³
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations ORBİS Ministry of Culture and Tourism registrations
Responsible unit	GDF Department of Permission and Easement
Variables	2.5.2.1 Permissions for energy transmission, natural gas, petroleum pipelines 2.5.2.2 Permissions for thermic, HES, RES, natural gas and nuclear energy plants, wind measurement mast etc. 2.5.2.3 Permissions for tourism area 2.5.2.4 Permissions for health, sports, tourism, defense and educational facilities 2.5.2.5 Permissions for graveyard 2.5.2.6 Permissions for transportation (main road, village road etc.) 2.5.2.7 Permissions for dam reservoirs 2.5.2.8 Permissions for communication (THİ, communication board and radio station) 2.5.2.9 Other permissions (infrastructure, solid waste disposal plant and storage area etc.)

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 31: Permissions Given Pursuant to Article 17/3 of Forest Law

2.5.2 Permissions Given Pursuant to Article 17/3		Unit	../..	2015	2016	2017	2018	2019
Permissions for energy transmission, natural gas, petroleum pipelines	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for thermic, HES, RES, natural gas and nuclear energy plants, wind measurement mast etc.	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for tourism area	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for health, sports, tourism, defense and educational facilities	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for graveyard	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						

Permissions for transportation (main road, village road etc.)	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for dam reservoirs	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for communication (THİ, communication board and radio station)	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Other permissions (infrastructure, solid waste disposal plant and storage area etc.)	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
TOTAL	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						

Sub-indicator 2.5.3	**Permissions given pursuant to Article 18 of Forest Law**
Unit of measurement	Quantity, Ha, m³
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations ORBİS
Responsible unit	GDF Department of Permission and Easement
Variables	2.5.3.1 Permissions for fish farming facility, treasure hunt, archeological excavation and restoration 2.5.3.2 Permissions for mine – coal, turpentine, gum etc. 2.5.3.3 Permissions for factory, line, mill

Note: Tables prepared for each sub-criterion will show all data for this indicator. A sample table is provided below. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 32: Permissions Given Pursuant to Article 18 of the Forest Law

2.5.3 Permissions Given Pursuant to Article 18		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Permissions for fish farming facility, treasure hunt, archeological excavation and restoration	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for mine – coal, turpentine, gum etc.	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
Permissions for factory, line, mill	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						
TOTAL	Number	Quantity						
	Area	Ha						
	Amount of loss	m³						

INDICATOR 2.6: IMPACT OF AIR POLLUTION CLIMATE CHANGE ON FORESTS

Description

This indicator shows the effects of air pollution and climate change on forests and forest soil.

Note: The data related to this indicator is present in the annual reports prepared as a result of the measurements and assessment conducted in Class 1 and Class 2 observation areas which were established for the monitoring the impact of climate change and air pollution on forests. These reports will be referred to, to obtain data.

Sub-indicators

Sub-indicator 2.6.1	**Deposition and concentration of air pollutants**
Unit of measurement	Quantity, µg/m³
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.6.1.1 Deposition (rain, snow) sampling analysis 2.6.1.2 Soil solution sampling and analysis 2.6.1.3 Ozon, Sulphur dioxide, Ammonia, Nitrogen dioxide sampling and analysis

Note: Each three variable's number of samples and results of analysis for the sub-indicators of deposition and concentration of air pollutants (µg/m³) will be provided on a table specifying data for each year. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 33: Deposition and concentration of air pollutants

2.6.1. Deposition and concentration of air pollutants		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Deposition (rain, snow) sampling analysis	Number of Samples	Quantity						
	Results of Analysis	µg/m³)						
Soil solution sampling and analysis	Number of Samples	Quantity						
	Results of Analysis	µg/m³)						
Ozon, Sulphur dioxide, Ammonia, Nitrogen dioxide sampling and analysis	Number of Samples	Quantity						
	Results of Analysis	µg/m³)						

Sub-indicator 2.6.2	Assessment of ozone damage
Unit of measurement	Quantity, E/H
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.6.2.1 Assessment and analysis of ozone damage

Note: Assessment of ozone damage is a qualitative indicator. The number of trial areas in which observation was done and whether there is ozone damage in these areas will be specified (Yes/No). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 34: Ozone Damage

2.6.2. Assessment of Ozon Damage		Unit	../..	2015	2016	2017	2018	2019
Assessment and analysis of ozone damage	Number of Trial Area	Quantity						
	Results of Analysis	Existent/Non-existent						

Sub-indicator 2.6.3	Concentration of needle-litter samples
Unit of measurement	Quantity, µg/m³
Range of measurement	2 years for needle, 1 year for litter
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.6.3.1 Sampling and analysis of needles 2.6.3.2 Sampling and analysis of litter (needle, leaf, branch and cone)

Note: Variable of needle-leaf sampling analysis under the sub-indicators of needle-leaf litter concentration will be provided on table for 2-years periods. Variable of litter (needle, leaf, branch, cone) sampling and analysis will be given on a yearly basis on a table including the number and results of measurements. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 35: Concentration of Needle-Leaf and Litter Samples

2.6.3. Concentration of Coniferous-Leaf and Litter Samples		Unit	../..	2015	2016	2017	2018	2019
Sampling and analysis of needle leaf	Number of Analysis	Quantity						
	Results of Analysis	µg/m³)						
Sampling and analysis of litter (needle, leaf, branch and cone)	Number of Analysis	Quantity						
	Results of Analysis	µg/m³)						

Sub-indicator 2.6.4	Monitoring the Soil Health
Unit of measurement	Quantity, mg kg-^{1}
Range of measurement	10 years
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.6.4.1 Sampling and analysis of soil

Note: The number of samples and results of the analysis of the variable (mg kg-^{1}) of sampling and analysis of soil will be provided under soil health. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 36: Soil Health

2.6.4. Soil Health		Unit	../..	2015	2016	2017	2018	2019
Sampling and analysis of soil	Number of Analysis	Quantity						
	Results of Analysis	(Mg kg-^{1})						

Sub-indicator 2.6.5	Phenological observations
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest

Sub-indicator 2.6.6	Meteorological observations
Unit of measurement	Quantity, mm, °C, %, W/m², m/s, kPa, Vol %
Range of measurement	1 year
Data source	Automatic Meteorological Observation Stations (OMGİ) Registrations
Responsible unit	GDF Department of Combating Forest Pest

Sub-indicator 2.6.7	Vegetation and biological diversity
Unit of measurement	Quantity
Range of measurement	5 years
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest

Sub-indicator 2.6.8	Assessment of tree growth and revenue
Unit of measurement	Quantity
Range of measurement	5 years
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest

Note: The sub-indicators of phenological observations, meteorological observations, assessment of the state of vegetation and biological diversity, tree growth and the assessment of its state are of qualitative character.

- Number of phenological observations, number of trees observed and the assessments made (annually);
- Assessments (annual) based on the number of stations where meteorological observations were made and the data provided by OMGİ (Automatic Meteorological Observation Stations);
- Number of the assessment areas observed for the identification of the state of vegetation and biological diversity and names of the woody and herbaceous plants identified in these areas and their assessment (every 5 years);
- The number of observation areas where the assessments of tree growth and revenue were made and measurements of diameter and etc. of the selected trees in these areas, and the assessments based on this data (every 5 years) should be provided under these sub-indicators. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 37: Observations

2.6.5.-8. Quality of Observation		Unit	../..	2015	2016	2017	2018	2019
Phenological observations	Number of trees observed	Quantity						
	Results of Observation	(Good/Average/Poor)						
Meteorological observations	Number of stations where meteorological observations were done	Quantity						
	Results of Observation	(Good/Average/Poor)						
Observations of vegetation and biological diversity	Number of observations	Quantity						
	Results of Observation	(Good/Average/Poor)						
Assessment of tree growth and revenue	Observation Number	Quantity						
	Results of Observation	(Good/Average/Poor)						

Sub-indicator 2.6.9	Damage factors in trees and visual assessment of tree crowns
Unit of measurement	Quantity, %, Class (1,2,3)
Range of measurement	1 year
Data source	GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Combating Forest Pest
Variables	2.6.9.1 Assessment of damage factors 2.6.9.2 Assessment of loss of needle leaf on crown 2.6.9.3 Assessment of fruit cone on crown

Note: The followings are under the sub-indicator of damage factors in trees and visual assessment of tree crowns and the information relating to them per year can be shown on a single table.

- Number of observation areas for damage factors, number of trees assessed and the number (quantity) of insects, fungi etc. identified,
- Number of observation areas for the state of needle-leaf on crown, number of trees assessed and the loss rate of needle- (%),
- Number of observation areas for the state of fruit cone on crown, number of trees assessed and the state of fruit cone (Class 1-2-3).

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 38: Damage Factors in Trees and Visual Assessment of Tree Crowns

Damage factors in trees and visual assessment of tree crowns		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Damage factors	Observation Area Number	Quantity						
	Number of trees assessed	Quantity						
	Number of insects, fungi etc.	Quantity						
Loss of needle-leaf on crown	Observation Area Number	Quantity						
	Number of trees assessed	Quantity						
	Loss rate	%						
State of fruit cone on crown	Observation Area Number	Quantity						
	Number of trees assessed	Ha						
	State of fruit and cone	Class 1-2-3						

INDICATOR 2.7: FOREST ROADS AND FACILITIES

Description

This indicator shows the length of roads and lines built for transportation and/or fire prevention, area lost and the amount of growing stock lost.

Sub-indicators

Sub-indicator 2.7.1	**Roads for transportation**
Unit of measurement	Km, Ha, m³
Range of measurement	1 year
Data source	GDF Department of Construction and Procurement registrations ORBİS
Responsible unit	GDF Department of Construction and Procurement registrations
Variables	2.7.1.1 Forest Road

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 39: Roads for Transportation

2.7.1.1 Forest road		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Forest road	Length	Km						
	Area lost	Ha						
	Growing stock lost	m3						

Sub-indicator 2.7.2	**Fire safety roads and lines**
Unit of measurement	Km, Quantity, Ha, m³
Range of measurement	1 year
Data source	GDF Department of Forest Fire Combating registrations ORBİS
Responsible unit	GDF Department of Forest Fire Combating
Variables	2.7.2.1 Fire safety roads and lines

Sample Table 40: Fire Safety Roads and Lines

2.7.2.1 Fire safety roads and lines		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Fire safety roads and lines	Length	Km						
	Number	Quantity						
	Area lost	Ha						
	Growing stock lost	m3						

Note: Number of any road built for transportation and any safety roads and lines built for fire prevention and the size of the area they cover and the amount of wood lost due to the construction of these facilities will be provided in a year-specific form on a table covering at least the last 10 years. Values will be calculated for the last 10-year period year by year and reported on a table.

CRITERION 3: PRODUCTION CAPACITY AND FUNCTIONS OF FORESTS

This criterion focuses on capacities related to any good and service provided by forests. 3 indicators are identified under the criterion.

INDICATOR 3.1: INCREMENT AND PRODUCTION

Description

This indicator shows the wood production in forests and the wood increment in these areas.

Sub-indicators

Sub-indicator 3.1.1	**Increment**
Unit of measurement	m^3
Range of measurement	5 years
Data source	Forest management plans ORBİS
Responsible unit	GDF Forest Production and Marketing Department
Variables	3.1.1.1 Increment in production forests 3.1.1.2 Increment in other forests

Sample Table 41: Increment in Forests

Activities	**Year 2019** **M^3**
Increment in production forests	
Increment in other forests	
TOTAL	

Sub-indicator 3.1.2	Production
Unit of measurement	m^3, stere
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations ORBİS
Responsible unit	GDF Forest Production and Marketing Department
Variables	3.1.2.1 Industrial wood production 3.1.2.2 Woodfuel production

Note: Data on the increment, both in production forests and other forests, will be obtained from forest management plans or ORBİS, if integrated. Data on production will be obtained through the year-end balance sheets to be shown on a table covering the last 10 years. These tables can be supported with graphs. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 42: Wood Production

3.1.2 Production	Unit	../..	2015	2016	2017	2018	2019
Log	m3						
Wooden Pole	m3						
Mine Pole	m3						
Wood for Industry	m3						
Wood for Paper Production	m3						
Fibre-chip Wood	m3						
Long Pole	m3						
END. ODUN TOTAL	m3						
Woodfuel	Stere						

INDICATOR 3.2: NON-WOOD PRODUCTS AND SERVICES

Description

This indicator shows any products and services obtained from forests, except for wood.

Sub-indicators

Sub-indicator 3.2.1	**Non-wood products**
Unit of measurement	Ton, Kg, Quantity
Range of measurement	1 year
Data source	GDF Department of Non-Wood Forest Products and Services registrations ORBİS
Responsible unit	GDF Department of Non-Wood Forest Products and Services

Note:. Non-wood products will be provided on a table including product-based annual production, covering the last 5 years. An example table for this is provided below. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 43: Non-Wood Products

3.2.1 Non-Wood Products		**Production**						
Product Name	***Scientific Name***	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Thyme	*Thymus, Thymbra, Orignum, Satureja spp.*							
Laden	*Cistus spp.*							
Laurel	*Laurus nobilis*							
Chestnut	*Castanea sativa*							
Italian stone pine	*Pinus pinea*							
Arbutas	*Arbutus spp.*							
Sage	*Salvia spp.*							
Carob	*Ceratonia siliqua*							
Myrtle	*Myrtus comminus*							
Sumac	*Rhus coriaria*							
Lamb's-ear	*Sideritis spp.*							
Cyclamen	*Cyclamen spp.*							
Lindens	*Tilia spp.*							
Haw	*Crataegus spp.*							
Brier	*Erica spp.*							
Rose hip	*Rosa canina*							
Rosemary	*Rosmarinus officinalis*							
Wild pear	*Pyrus spp.*							
Crab apple	*Malus sylvestris*							
Summer Snowflake	*Leucojum aestivum*							

Sub-indicator 3.2.2	Services
Unit of measurement	Ha, Quantity
Range of measurement	1 year
Data source	GDF Department of Non-Wood Forest Products and Services registrations MAF General Directorate of Nature Protection and Natural Parks registrations ORBİS
Responsible unit	GDF Department of Non-Wood Forest Products and Services
Variables	3.2.2.1 City forest 3.2.2.2 Recreation area 3.2.2.3 National park 3.2.2.4 Nature park 3.2.2.5 Natural monument 3.2.2.6 Nature conservation area 3.2.2.7 Wildlife improvement area

Sample Table 44: Services

3.2.2 Services		Unit	../..	2015	2016	2017	2018	2019
City forest	Number	Quantity						
Recreation area	Number	Quantity						
National park	Number	Quantity						
	Area	Ha						
Nature park	Number	Quantity						
	Area	Ha						
Natural monument	Number	Quantity						
	Area	Ha						
Nature conservation area	Number	Quantity						
	Area	Ha						
Wildlife improvement area	Number	Quantity						
	Area	Ha						

Note: Values will be calculated for the last 10-year period year by year and reported on a table. The variables of 3.2.2.1 City Forest and 3.2.2.2 Recreation area under the sub-indicator of Services will be specified only in numbers. Another table including total numbers and areas for other variables covering the last 10 years will be prepared. An example table for this is provided above. The data provided in this table can be supported with graphs.

INDICATOR 3.3: CERTIFIED FOREST

Description

This indicator shows the number and area of forests with forest management certificate issued by independent organizations.

Sub-indicators

Sub-indicator 3.3.1	**Certified forest**
Unit of measurement	Ha, Quantity
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations
Responsible unit	GDF Forest Production and Marketing Department

Note: The number and area of certified forests will be shown on a table according to certificate types, if there are. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 45: Certified Forests

3.3.1 Certified forest	Type of Certificate	Unit	../..	2015	2016	2017	2018	2019
Certified forest area	FSC	Quantity						
		Ha						
	PEFC	Quantity						
		Ha						
	DİĞER	Quantity						
		Ha						
TOTAL		Quantity						
		Ha						

CRITERION 4: FOREST BIODIVERSITY

As is known, loss of biological diversity is one of the most important environmental concerns on a global level. This criterion deals with monitoring the state of biological diversity in forests and forest areas, and consists of 11 indicators.

INDICATOR 4.1: TREE SPECIES DIVERSITY

Description

This indicator shows tree species diversity and the areas they cover in forests and forest areas.

Sub-indicators

Indicator 4.1	**Tree species diversity**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans
Responsible unit	GDF Forest Management and Planning Department

Note: Data on area and structure (crown closure, mixture, number of trees with high diameter etc.) of tree species mixture classes present in the management plans in forests with normal crown closure and covered forests with spaces will be shown on a table. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 46: Tree Species Diversity

4.1 Tree species		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Coniferous	Turkish Pine	Ha						
		%						
	Black Pine	Ha						
		%						
	Scots Pine	Ha						
		%						
	Juniper	Ha						
		%						
	Fir	Ha						
		%						
	Cedar	Ha						
		%						
	Laden	Ha						
		%						
	Italian stone pine	Ha						
		%						
	Other	Ha						
		%						
TOTAL		Ha						
		%						

Deciduous	Oak	Ha						
		%						
	Beech	Ha						
		%						
	Alder	Ha						
		%						
	Chestnut	Ha						
		%						
	Hornbeam	Ha						
		%						
	Poplar	Ha						
		%						
	Linden	Ha						
		%						
	Ash	Ha						
		%						
	Eucalyptus	Ha						
		%						
	Other	Ha						
		%						
TOTAL		Ha						
		%						
OVERALL SUM		Ha						

INDICATOR 4.2: REGENERATION

Description

This indicator shows areas of regeneration, afforestation areas within and outside the forests and success rates in forests with normal crown closure and covered forests with spaces.

Sub-indicators

Sub-indicator 4.2.1	**Natural regeneration**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Silviculture registrations
Responsible unit	GDF Department of Silviculture

Sub-indicator 4.2.2	**Artificial regeneration**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Silviculture registrations
Responsible unit	GDF Department of Silviculture

Sub-indicator 4.2.3	**Restoration in coppices**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Silviculture registrations
Responsible unit	GDF Department of Silviculture

Sub-indicator 4.2.4	Reforestation
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Afforestation registrations GDF Department of Silviculture registrations Forest management plans
Responsible unit	GDF Department of Afforestation

Sub-indicator 4.2.5	Natural expansion Area
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Afforestation registrations GDF Department of Silviculture registrations Forest management plans
Responsible unit	GDF Department of Silviculture
Sub-indicator 4.2.6	**Afforestation outside the forest**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	GDF Department of Afforestation registrations GDF Department of Silviculture registrations Forest management plans
Responsible unit	GDF Department of Afforestation

Note: Sub-indicators can be shown on a single table in a year-specific form, for which an example is given below. This table can be supported with graphs. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 47: Regeneration, Restoration and Afforestation

4.2 Regeneration		Unit	../..	2015	2016	2017	2018	2019
Natural regeneration	Area	Ha						
	Success	%						
Artificial regeneration	Area	Ha						
	Success	%						
Restoration in coppices	Area	Ha						
	Success	%						
Reforestation	Area	Ha						
	Success	%						
Natural expansion area	Area	Ha						
	Success	%						
Afforestation outside the forest	Area	Ha						
	Success	%						

INDICATOR 4.3: NATURALNESS

Description

This indicator shows the areas undisturbed (natural) and/or disturbed (semi-natural) by man and plantation areas in coniferous, deciduous and mixed forests, as well as the ratio of the size of these areas to that of the total forest area.

Sub-indicators

Sub-indicator 4.3.1	**Natural forest area undisturbed by man**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.3.2	**Semi-natural forest area**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.3.3	**Plantation**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans GDF Department of Afforestation registrations
Responsible unit	GDF Department of Afforestation

Note: Data will be received from forest management plans for forests with normal crown closure and covered forests with spaces and the rate of the size of these areas and that of the total forest area will be specified. Each sub-indicator can be shown on a single table. The Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 48: Naturalness

4.3 Naturalness	Crown closure		Unit	../..	2015	2016	2017	2018	2019
Natural	Normal	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
	with Spaces	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
Semi-natural	Normal	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
	with Spaces	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
Plantation	Normal	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
	With Space	Coniferous	Ha						
			%						
		Deciduous	Ha						
			%						
		Mixed	Ha						
			%						
TOTAL AREA (ha)									

INDICATOR 4.4: INTRODUCED TREE SPECIES

Description

This indicator shows the areas covered by non-native, invasive tree species and those spread outside their own natural habitat in forests with normal crown closure and covered forests with spaces, as well as the ratio of these areas to the total forest area.

Sub-indicators

Sub-indicator 4.4.1	**Native species outside the natural distribution area**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans GDF Department of Afforestation registrations
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.4.2	**Area covered with non-native tree species**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans GDF Department of Afforestation registrations
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.4.3	**Invasive species**
Unit of measurement	Ha, %
Range of measurement	5 years
Data source	Forest management plans GDF Department of Afforestation registrations
Responsible unit	GDF Forest Management and Planning Department

Note: Data on sub-indicators will be provided in separate tables in a way that they include the distribution areas and the ratio of them to the total areas. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 49: Introduced tree species

4.4 Introduced tree species	Crown closure	Tree species*	Unit	../..	2015	2016	2017	2018	2019
Native species outside their natural distribution area	Normal	…….	Ha						
			%						
		…….	Ha						
			%						
		…….	Ha						
			%						
	with Spaces	…….	Ha						
			%						
		…….	Ha						
			%						
		…….	Ha						
			%						
Alien species	Normal	…….	Ha						
			%						
		…….	Ha						
			%						
		…….	Ha						
			%						
	with Spaces	…….	Ha						
			%						
		…….	Ha						
			%						
		…….	Ha						
			%						
Invasive species	Normal	…….	Ha						
			%						
		…….	Ha						
			%						
		…….	Ha						
			%						
	with Spaces	…….	Ha						
			%						
		…….	Ha						
			%						
TOTAL AREA (ha)									

***Note:** New rows can be added to the table in line with the number of tree species.

INDICATOR 4.5: DEADWOOD

Description

This indicator shows the volume of deadwood that is standing and lying on the ground in forests with normal crown closure and those covered with spaces.

Sub-indicators

Sub-indicator 4.5.1	**Standing**
Unit of measurement	m^3, m^3/Ha
Range of measurement	5 years
Data source	Forest management plans
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.5.2	**Lying on the ground**
Unit of measurement	m^3, m^3/Ha
Range of measurement	5 years
Data source	Forest management plans
Responsible unit	GDF Forest Management and Planning Department

Note: Data will be received from forest management plans (for the sub-indicators of standing deadwood, standing dead trees at a minimum of 8 cm diameter will be counted, while for the sub-indicators of lying deadwood, lying deadwood with a minimum diameter of 10 cm and height of 50 cm will be counted). Average amount of deadwood per hectare will be also specified in the table to be prepared. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 50: Deadwood

4.5 Deadwood	**Crown closure**	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Standing deadwood	Normal	m^3						
		m^3/Ha						
	with Spaces	m^3						
		m^3/Ha						
Deadwood lying on the ground	Normal	m^3						
		m^3/Ha						
	with Spaces	m^3						
		m^3/Ha						
TOTAL		m^3						
		m^3/Ha						

INDICATOR 4.6: GENETIC RESOURCES

Description

This indicator shows the gene conservation areas and the numbers and areas of genetic resources (in-situ and ex-situ).

Sub-indicators

Sub-indicator 4.6.1	**Gene conservation area**
Unit of measurement	Ha, Quantity
Range of measurement	5 years
Data source	GDF Foreign Relations, Training and Research Department-OATIAEM registrations GDF Department of Nursery and Seed registrations GDF Department of Silviculture registrations GDF Forest Management and Planning Department registrations Forest management plans
Responsible unit	GDF Foreign Relations, Training and Research Department-OATIAEM
Variables	4.6.1.1 In-situ areas 4.6.1.2 Ex-situ areas

Sub-indicator 4.6.2	**Seeds resources**
Unit of measurement	Ha, Quantity
Range of measurement	5 years
Data source	GDF Foreign Relations, Training and Research Department-OATIAEM registrations GDF Department of Nursery and Seed registrations GDF Department of Silviculture registrations GDF Forest Management and Planning Department registrations Forest management plans
Responsible unit	GDF Foreign Relations, Training and Research Department-OATIAEM
Variables	4.6.2.1 In-situ areas 4.6.2.2 Ex-situ areas

Note: Sub-indicators can be shown on a single table. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 51: Genetic resources

4.6 Genetic resources	Conservation Method	Unit	../..	2015	2016	2017	2018	2019
Gene conservation area	In-Situ	Quantity						
		Ha						
	Ex-Situ	Quantity						
		Ha						
Seed resources	In-Situ	Quantity						
		Ha						
	Ex-Situ	Quantity						
		Ha						
TOTAL		Quantity						
		Ha						

INDICATOR 4.7: FOREST FRAGMENTATION

Description

This indicator shows the number and area of non-forest areas and forest fragments separated from each other.

Sub-indicators

Sub-indicator 4.7.1	**Fragment Number**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations GDF Information System Department registrations
Responsible unit	GDF Forest Management and Planning Department
Variables	4.7.1.1 Number of fragments smaller than "10" hectares 4.7.1.2 Number of fragments at the size of "10-99" hectares 4.7.1.3 Number of fragments at the size of "100-999" hectares 4.7.1.4 Number of fragments at the size of "1000" hectares and above

Sub-indicator 4.7.2	**Fragment Area**
Unit of measurement	Hectare
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations GDF Information System Department registrations
Responsible unit	GDF Forest Management and Planning Department
Variables	4.7.2.1 Area of forest fragments smaller than "10" hectares 4.7.2.2 Area of fragments at the size of "10-99" hectares 4.7.2.3 Area of fragments at the size of "100-999" hectares 4.7.2.4 Area of fragments at the size of "1000" hectares and above.

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 52: Forest Fragmentation

4.7.1/4.7.2 Fragment Number and Area	**Previous Year of Inventory (…/…)**			**Last Year of Inventory (…/…)**		
	Fragment Number	Area	Average Fragment Size	Fragment Number	Area	Average Fragment Size
	Quantity	Ha	Ha	Quantity	Ha	Ha
< 10 hectares forest fragment						
10-99 hectares forest fragment						
100-999 hectares forest fragment						
> 1000 hectares forest fragment						

Sub-indicator 4.7.3	Area of ecological corridors
Unit of measurement	Hectare, %
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations GDF Information System Department registrations
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.7.4	Area lost
Unit of measurement	Hectare, %
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations GDF Information System Department registrations
Responsible unit	GDF Forest Management and Planning Department

Sub-indicator 4.7.5	Area gained
Unit of measurement	Hectare, %
Range of measurement	5 years
Data source	GDF Forest Management and Planning Department registrations GDF Information System Department registrations
Responsible unit	GDF Forest Management and Planning Department

Note: Data on forest fragmentation will be calculated by using geographic information system applications. For the sub-indicators of ecological corridors, areas reserved or identified only for this purpose will be taken into consideration. The data that can be verified by Forest Management and Planning Department will be used to do the measurements of the area lost or gained. Data can be provided individually or on a single table. Average size of the fragments under the sub-indicators of fragment area will be measured and included in the relevant table. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 53: Fragmentation

4.7.3/4/5 Fragmentation	Unit	../..	2015	2016	2017	2018	2019
Area of ecological corridors	Ha						
	%						
Area lost	Ha						
	%						
Area gained	Ha						
	%						

INDICATOR 4.8: ENDANGERED FOREST SPECIES

Description

This indicator shows the number of endangered species in forest ecosystem based on the categories on IUCN Red List.

Sub-indicators

Sub-indicator 4.8.1	**Extinct (EX)**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.2	**Extinct in the Wild (EX)**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.3	**Critically Endangered (CR)**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.4	Endangered (EN)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.5	Vulnerable (VU)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.6	Near Threatened (NT)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.7	Least Concern (LC)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Sub-indicator 4.8.8	Data Deficient (DD)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM GDNPNP

Sub-indicator 4.8.9	Not Evaluated (NE)
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations GDF Forest Management and Planning Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Information System Department registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP Department of Biological Diversity/ DKM

Note: Present data on this indicatory will be provided through working of General Directorate of Nature Protection and Natural Parks (Department of Biological Diversity) and Nature Conservation Centre in coordination, and will be shown on tables. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 54: Threatened Forest Species

Threat Category		CLASS	Unit	../..	2015	2016	2017	2018	2019
Extinct (EX)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Extinct in the Wild (EX)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Critical (CR)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Endangered (EN)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Vulnerable (VU)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						

Near Threatened (NT)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Least Concern (LC)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Herbaceous	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Data Deficient (DD)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						
Not Evaluated (NE)	Fauna	Mammal	Quantity						
		Bird	Quantity						
		Reptile	Quantity						
		Insect	Quantity						
		Butterfly	Quantity						
		Other	Quantity						
	Flora	Woody	Quantity						
		Herbaceous	Quantity						
		Other	Quantity						

INDICATOR 4.9: PROTECTED FORESTS

Description

This indicator shows the areas with status which are taken under protection due to biological diversity, landscape and other reasons in forests.

Sub-indicators

Sub-indicator 4.9.1	**Protected areas**
Unit of measurement	Ha, Quantity
Range of measurement	5 years
Data source	MAF GDNPNP Department of Natural Parks registrations MAF GDNPNP Wildlife Department registrations MAF GDNPNP Department of Sensitive Areas registrations MAF Information System Department MEU General Directorate for Preservation of Natural Heritage Department of Research and Registry GDF Forest Management and Planning Department registrations GDF Information System Department registrations GDF OATIAEM Forest management plans
Responsible unit	MAF General Directorate of Nature Protection and Natural Parks
Variables	4.9.1.1 National park 4.9.1.2 Nature conservation area 4.9.1.3 Natural park 4.9.1.4 Natural monument 4.9.1.5 Wildlife improvement area 4.9.1.6 Conservation forest 4.9.1.7 City Forest 4.9.1.8 Forest with Nature Protection-Conservation working group characteristic 4.9.1.9 Natural protected area 4.9.1.A Special environment protection site 4.9.1.B Ramsar area 4.9.1.C Wetland 4.9.1.D Biosphere reserves 4.9.1.E World heritage site 4.9.1.F Gene conservation area 4.9.1.G Raw material supply areas

Note: While preparing a table for protected areas, the areas protected with status and the forests protected without status will be shown on separate tables. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 55: Protected Areas

4.9.1 Protected areas	Type of Protected Area	Unit	../..	2015	2016	2017	2018	2019
Areas with status	National Park	Quantity						
		Ha						
		%						
	Nature Conservation Area	Quantity						
		Ha						
		%						
	Natural Park	Quantity						
		Ha						
		%						
	Natural Monument	Quantity						
		Ha						
		%						
	Wildlife Improvement Area	Quantity						
		Ha						
		%						
	Conservation Forest	Quantity						
		Ha						
		%						
	Natural Protected Area	Quantity						
		Ha						
		%						
	Special Environment Protection Site	Quantity						
		Ha						
		%						
	Ramsar Area	Quantity						
		Ha						
		%						
	Wetland	Quantity						
		Ha						
		%						
	Gene Conservation Area	Quantity						
		Ha						
		%						
Protected forests without status	City Forest	Quantity						
		Ha						
		%						
	Forest with Nature Protection-Conservation working group characteristics	Quantity						
		Ha						
		%						

	Biosphere Reserve	Quantity						
		Ha						
		%						
	World Heritage Site	Quantity						
		Ha						
		%						
	Raw Material Supply Areas	Quantity						
		Ha						
		%						
TOTAL		Quantity						
		Ha						
		%						

Note: %, rate of forest area located in the protected area will be calculated and written in the data area.

Sub-indicator 4.9.2	**Forest Europe classification**
Unit of measurement	Ha, Quantity
Range of measurement	5 years
Data source	GDF Foreign Relations, Training and Research Department registrations GDF Forest Management and Planning Department registrations MAF GDNPNP registrations
Responsible unit	GDF Foreign Relations, Training and Research Department
Variables	4.9.2.1 FE Class 1 (no active intervention, minimum intervention, conservation through active management) 4.9.2.2 FE Class 2- Specific natural elements (protection of landscapes)

Note: Data on the sub-indicators of protected areas will be prepared based on the data that the responsible unit receives from relevant units and the number, area and ratios of areas protected with status and the forests protected without status and the total area will be shown on a single table. Sub-indicator data of Forest Europe classification will be prepared by the unit that is coordinating (GDF FRTRD) with Forest Europe and shown on an individual table. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 56: Forest Europe Classification

Forest Europe Class		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Class-I	No Active Intervention	Ha						
		Quantity						
	Minimum Intervention	Ha						
		Quantity						
	Conservation Through Active Management	Ha						
		Quantity						
Class-II	Specific Natural Elements (Protection of Landscapes)	Ha						
		Quantity						
TOTAL		Ha						
		Quantity						

INDICATOR 4A: COMMON FOREST BIRD SPECIES

Description

This indicator shows the number and population of common bird species in forest ecosystem.

Sub-indicators

Sub-indicator 4A.1	**IUCN red list**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations MAF Wildlife Department Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP / DKM

Sub-indicator 4A.2	**State of population**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP registrations Nature Conservation Centre registrations
Responsible unit	MAF GDNPNP / DKM

Note: All data on this indicator will be produced by coordinated work of General Directorate of Nature Protection and Natural Parks and Nature Conservation Centre and shown on tables. Values will show the period last 5-10 years. Latin names of common forest bird species will be found out and every single common forest bird species will be assessed individually.

Sample Table 57: Common Forest Bird Species

Variables	**Unit**	**Previous Year of Inventory (…/…)**	**Last Year of Inventory (…/…)**
Number of common forest bird species	Quantity		
State of population of common forest bird species	Decreasing		
	No change		
	Increasing		
Population threat to common forest bird species	Biotic factors	To be explained qualitatively.	To be explained qualitatively.
	Abiotic factors	To be explained qualitatively.	To be explained qualitatively.

INDICATOR 4B: COMMON MAMMAL SPECIES

Description

This indicator shows the number and state of population of common mammal species in forest ecosystem.

Sub-indicators

Sub-indicator 4B.1	**Common mammal species**
Unit of measurement	Quantity
Range of measurement	5 years
Data source	MAF GDNPNP Wildlife Department registrations
Responsible unit	MAF GDNPNP Wildlife Department

Note: Data on this indicator will be provided by GDNPNP Wildlife Department and shown on a table in a suitable format. Values will cover periods of the last 5-10 years. Latin names of common forest mammal species will be found out and every single common forest mammal species will be assessed individually.

Sample Table 58: Common Mammal Species

Variables	**Unit**	**Previous Year of Inventory (…/…)**	**Last Year of Inventory (…/…)**
Number of common forest bird species	Quantity		
State of population of common forest bird species	Decreasing		
	No change		
	Increasing		
Population threat to common forest bird species	Biotic factors	To be explained qualitatively.	To be explained qualitatively.
	Abiotic factors	To be explained qualitatively.	To be explained qualitatively.

CRITERION 5: PROTECTIVE FUNCTIONS OF FORESTS

This criterion deals with forests reserved for the protection of soil and water and other resources or those managed for this purpose. 3 indicators are identified under this criterion.

INDICATOR 5.1: SOIL CONSERVATION FORESTS

Description

This indicator shows the forests reserved for conservation of soil or those managed for this purpose.

Sub-indicators

Indicator 5.1	**Soil conservation forests**
Unit of measurement	Quantity, Ha, Da
Range of measurement	Annually
Data source	Forest management plans MAF GDCDE registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation

Note: Data on high slope areas with no production activities in forests with normal crown closure and covered forests with spaces, forest areas reserved for erosion control, areas with practice of pasture improvement, areas reserved for afforestation near dams, artificial lakes and water sheds or those managed with this purpose, all of which aim at soil conservation, will be shown on a year-specific table. It is essential that this data is verifiable and does not overlap with the other sub-indicators (water conservation, infrastructure protection). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 59: Soil Conservation Forests

5.1 Soil Conservation Forests		**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Forests with normal crown closure	High slope forest areas with no production activities	Quantity						
		Ha						
	Areas reserved for erosion control	Quantity						
		Ha						
	Areas with practice of pasture improvement	Quantity						
		Ha						
	Afforestation in dams, artificial lakes and watersheds.	Quantity						
		Ha						
	Other areas reserved for soil conservation	Quantity						
		Ha						
Covered forests with spaces	High slope forest areas with no production activities	Quantity						
		Ha						
	Areas reserved	Quantity						

	for erosion control	Ha						
	Areas with practice of pasture improvement	Quantity						
		Ha						
	Afforestation in dams, artificial lakes and watersheds.	Quantity						
		Ha						
	Other areas reserved for soil conservation	Quantity						
		Ha						
TOTAL		Quantity						
		Ha						

INDICATOR 5.2: WATER CONSERVATION FORESTS

Description

This indicator shows forest areas reserved for the conservation of water or those managed for this purpose.

Sub-indicators

Sub-indicator 5.2.1	**Drinking water conservation forests**	
Unit of measurement	Quantity, Ha, Da	
Range of measurement	Annually	
Data source	Forest management plans MAF GDNPNP registrations MAF GDWM (General Directorate of Water Management) registrations MAF DSİ registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations GDF Department of Afforestation registrations GDF Department of Silviculture ORBİS	
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation	

Sub-indicator 5.2.2	Running water conservation forests
Unit of measurement	Quantity, Ha, Da
Range of measurement	Annually
Data source	Forest management plans MAF GDNPNP registrations MAF SYGM registrations MAF DSİ registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations GDF Department of Afforestation registrations GDF Department of Silviculture ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation

Sub-indicator 5.2.3	Water resources conservation forests
Unit of measurement	Quantity, Ha, Da
Range of measurement	Annually
Data source	Forest management plans MAF GDNPNP registrations MAF GDWM registrations MAF DSİ registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations GDF Department of Afforestation registrations GDF Department of Silviculture ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation

Sub-indicator 5.2.4	Waterfront conservation forests
Unit of measurement	Quantity, Ha, Da
Range of measurement	Annually
Data source	Forest management plans MAF GDNPNP registrations MAF GDWM registrations MAF DSİ registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations GDF Department of Afforestation registrations GDF Department of Silviculture ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation

Note: Data on stream restoration in forests with normal closure and covered forests with spaces, forming of gallery forests (including river-side and creek-side afforestation), forests reserved near drainage basins such as dams and artificial lakes or those managed for this purpose, all of which are aimed at water conservation, will be shown on a table covering at least the last 5 years. It is essential that this data is verifiable and does not overlap with the other sub-indicators (soil conservation, infrastructure protection). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 60: Water Conservation Forests

5.2 Water Conservation Forests	Unit	../..	2015	2016	2017	2018	2019
Drinking water conservation forests	Quantity						
	Ha						
Running water conservation forests	Quantity						
	Ha						
Water resources conservation forests	Quantity						
	Ha						
Waterfront conservation forests	Quantity						
	Ha						
TOTAL	Quantity						
	Ha						

INDICATOR 5.3: NATURAL DISASTER AND INFRASTRUCTURE PROTECTION FORESTS

Description

This indicator shows forest areas reserved for providing general protection of infrastructure facilities such as roads, factories, inhabited areas etc. against natural disasters and the forest areas managed for this purpose.

Sub-indicators

Sub-indicator 5.3.1	**Natural disaster protection forests**
Unit of measurement	Ha, Quantity, Da
Range of measurement	Annually
Data source	Forest management plans GDF Department of Soil Conservation and Watershed Rehabilitation registrations MAF GDCDE registrations GDF Department of Afforestation registrations ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation
Variables	5.3.1.1 Avalanche prevention forests 5.3.1.2 Landslide prevention forests 5.3.1.3 Flood prevention forests 5.3.1.4 Drought prevention forests

Sub-indicator 5.3.2	**Infrastructure protection forests**
Unit of measurement	Ha, Quantity, Da
Range of measurement	Annually
Data source	Forest management plans GDF Department of Soil Conservation and Watershed Rehabilitation registrations MAF GDCDE registrations GDF Department of Afforestation registrations General Directorate of Highways ORBİS
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation
Variables	5.3.2.1 Scrub ecosystems conservation forests 5.3.2.2 Forests for protection against rolling stones and rocks 5.3.2.3 Areas with watershed rehabilitation 5.3.2.4 Forest areas for road protection

Note: Values will be calculated for the last 10-year period year by year and reported on a table. Protected forests of which aim is clearly defined should be taken into consideration, as there is a risk of overlapping of the data under this indicator. The main purpose should be taken into consideration in forests which are reserved or managed for more than one conservation goal. The data will be shown on tables covering at least the last 5 years.

Sample Table 61: Natural Disaster and Infrastructure Protection Forests

5.3 Natural Disaster and Infrastructure Protection Forests	Protective Functions	Unit	../..	2015	2016	2017	2018	2019
Natural disaster protection forests	Avalanche Prevention Forests	Quantity						
		Ha						
	Landslide Prevention Forests	Quantity						
		Ha						
	Flood Prevention Forests	Quantity						
		Ha						
	Drought Prevention Forests	Quantity						
		Ha						
Infrastructure protection forests	Scrub Ecosystems Conservation Forest	Quantity						
		Ha						
	Forests for Protection against Rolling Stones or Rocks	Quantity						
		Ha						
	Areas with Watershed Rehabilitation	Quantity						
		Ha						
	Forest Areas for Road Protection	Quantity						
		Ha						
TOTAL		Quantity						
		Ha						

CRITERION 6: SOCIOECONOMIC FUNCTIONS OF FORESTS

Any contribution that forests made to society and national economy is assessed through this criterion. 11 indicators are identified under this criterion.

INDICATOR 6.1: CONTRIBUTION OF FORESTRY SECTOR TO GDP

Description

This indicator shows wood, non-wood products and services provided by forests, as well as the value they contribute to the gross domestic product.

Sub-indicators

Sub-indicator 6.1.1	**Wood products value**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations GDF Department of Combating Forest Pest registrations GDF Poplar and Fast-Growing Forest Trees Research Institute registrations
Responsible unit	GDF Forest Production and Marketing Department
Variables	6.1.1.1 Total wood sales value from state forests 6.1.1.2 Values of subsidies and discounts in wood sales 6.1.1.3 Value of unregistered wood production 6.1.1.4 Sales value of wood in private sector

Note: All state forest wood sales done with bidding, bargain, private placement, legal rights and those done at storage and ramp and the total value earned from the sales of the standing wood will be provided on a product-based (log, wooden pole, mine pole, wood for industry, wood for paper production, fibre-chip wood, woodfuel, long pole and stick) table showing the distribution of products. Data on standing sales will be shown exactly as reported to TURKSTAT.

Subsidies and discounts will be calculated according to type of products as specified below. In case the values of subsidy and discount are minus values, they will be assumed to be 0 (zero).

Log sales subsidy value (TOMSİNDD)

TOMİNDMK: Private placement, %25 rights of cooperatives, GDF consumption, Article 31 (tariff + operational cost included), Article 31-32(1/3 cost value), 43/C of Article 33(to disaster victims) amount of logs supplied-sold

TOMASFYT: Average log sales price for bidding

TOMİNDSD: Private placement, %25 rights of cooperatives, GDF consumption, Article 31 (tariff + operational cost included), Article 31-32(1/3 cost value), sales value of logs sold pursuant to 43/C of Article 33 (to disaster victims)

TOMSİNDD= (TOMİNDMK x TOMASFYT)-TOMİNDSD

Wooden pole sales subsidy value (TELSİNDD)

TELİNDMK: Amount of wooden pole sold to real and legal persons with private placement

TELASFYT: Average wooden pole sales price for bidding

TELİNDSD: Wooden pole sales value sold with private placement

TELSİNDD= (TELİNDMK x TELASFYT) - TELİNDSD

Mine pole sales subsidy value (MDNSİNDD)

MDNİNDMK: Amount of mine pole sold to local mines, TTK (Turkish Hard Coal Enterprises) and TKİ (Turkey Directorate General of Coal Enterprises) with private placement

MDNASFYT: Average mine pole sales price for bidding

MDNİNDSD: mine pole sales value sold with private placement

MDNSİNDD= (MDNİNDMK xMDNASFYT) - MDNİNDSD

Wood for industry subsidy value (SNYSİNDD)

SNYİNDMK: %25 rights of cooperatives, amount of wood for industry sold (with private placement)

SNYASFYT: Average wood for industry sales price for bidding

SNYİNDSD: %25 rights of cooperatives, village market sales (K.P.S.) wood for industry sales value sold (with private placement)

SNYSİNDD= (SNYİNDMK x SNYASFYT) - SNYİNDSD

Wood for paper production sales subsidy value (KAGSİNDD) KAGİNDMK:

Amount of wood for paper production sold with private placement KAGASFYT:

Average wood for paper production sales price for bidding KAGİNDSD: Wood

for paper production sales value sold with private placement KAGSİNDD=

(KAGİNDMK x KAGASFYT) - KAGİNDSD

Fibre-chip wood subsidy value (LİFSİNDD)

LİFİNDMK: Amount of fibre-chip wood sold with private placement and village market sales (K.P.S.) (with private placement)

LİFASFYT: Average fibre-chip wood sales price for bidding

LİFİNDSD: fibre-chip wood sales value sold with private placement and village market sales (K.P.S.) (with private placement)

LİFSİNDD= (LİFİNDMK x LİFASFYT) -LİFİNDSD

Woodfuel sales subsidy value (YKCKSİNDD)

YKCKİNDMK: Private placement, village market sales (K.P.S.), GDF consumption, Article 31 (tariff), Article 32 (If within forest, 1/3 cost value, if outside the forest, placement price specified) supplied-sold woodfuel amount

YKCKASFYT: Average woodfuel sales price for bidding

YKCKİNDSD: Private placement, village market sales (K.P.S.), GDF consumption, Article 31 (tariff), Article 32 (If within forest 1/3 cost value, if outside the forest, placement price specified) supplied-sold woodfuel sales value

YKCKSİNDD= (YKCKİNDMK x YKCKASFYT) - YKCKİNDSD

Standing sales subsidy value (DKLSİNDD)

DKLİNDMK: Amount of standing wood sold with private placement

DKLASFYT: Average standing wood sales price for bidding

DKLİNDSD: Private placement standing sales value

DKLSİNDD= (KAGİNDMK x KAGASFYT) - KAGİNDSD

Amount of wood cut without registration and estimated value of this wood will be used to calculate the amount of wood produced without registration. Wood sales value produced by private sector will be estimated by using the data on wood production by private poplar enterprises, private forests and afforestation areas. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 62: Wood Products Value

6.1.1 Wood Products Value	Sales value of product type	Unit	../..	2015	2016	2017	2018	2019
Total wood sales value from state forests	Log	TL						
	Wooden pole	TL						
	Mine pole	TL						
	Wood for industry	TL						
	Wood for paper production	TL						
	Fibre-chip wood	TL						
	Woodfuel	TL						
	Long pole	TL						
	Stick	TL						
	Standing sales	TL						
Values of subsidies and discounts in wood sales	Log sales subsidy value	TL						
	Wooden pole sales subsidy value	TL						
	Mine pole sales subsidy value	TL						
	Wood for industry sales subsidy value	TL						
	Wood for paper production sales subsidy value	TL						
	Fibre-chip wood sales subsidy value	TL						
	Woodfuel sales subsidy value	TL						
	Standing sales subsidy value	TL						
Value of unregistered wood production	Amount of wood obtained through unregistered felling	M^3						
	Estimated value of wood obtained through unregistered felling	TL						
	Amount of woodfuel obtained through unregistered felling	Quintal						
	Estimated value of woodfuel obtained through unregistered felling	TL						
Sales value of wood in private sector	Amount of production by private poplar enterprises	M^3						
	Estimated value of production by private poplar enterprises	TL						
	Amount of production from private afforestation	M^3						
	Estimated value of production from private afforestation	TL						
	Amount of production from private forests	M^3						
	Estimated value of production from private forests	TL						
TOTAL	Total value of wood products	TL						

Sub-indicator 6.1.2	Value of non-wood forest products
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Non-Wood Forest Products and Services registrations GDF Department of Nursery and Seed registrations GDF Department of Afforestation registrations GDF Department of Permission and Easement registrations Forest management plans CUFC registrations
Responsible unit	GDF Department of Non-Wood Forest Products and Services
Variables	6.1.2.1 Value of plant products 6.1.2.2 Value of animal products 6.1.2.3 Non-wood forest products revenue in private forests, afforestation areas and nurseries

Description: Values will be calculated for the last 10-year period year by year and reported on a table. Value of plant products will include the income from product-based tariffs and the sales of and ornamental plants, which will be shown on a year-specific table. An example table is provided below. Products that are not included in the table can be added depending on the presence of data. Total value of the non-wood forest products obtained from private afforestation areas can be also provided, or another table can be created for these products.

Sample Table 63: Value of Plant Products

Name of the Product	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Resin						
Levant storax						
Kindling and pine root with kindling						
Boxwood						
Laurel						
Thyme						
Sage						
Linden						
Mushroom						
Flower bulb						
Sumac						
Sweetgum						
Ornamental Plants						
Private Tree Production NWFP (Non-Wood Forest Products)						
TOTAL						

Sample Table 64: Value of Animal Products

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Revenue from the renting of water facilities within the forest						
Revenue from the permission and easement of water facilities within the forest						
Other revenues from the facilities within the forest						

Note: The calculation of the animal products will be done considering renting, permission and easement revenues etc. generated from the water facilities within forest.

Sample Table 65: Value of Non-Wood Forest Products from Private Forests, Private Afforestation Areas and Private Nurseries

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Revenue from the non-wood product collection certificate issued by private forests.						
Revenue from the non-wood product collection certificate issued by private afforestation areas.						
Revenue from the non-wood product collection certificate issued by private nurseries.						
TOTAL						

Non-wood forest product revenue from private forests, private afforestation areas and private nurseries refers to the revenue from the non-wood products collection certificates issued in these places.

Sub-indicator 6.1.3	**Forest tourism value**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations GDF Department of Forest-Village Relations GDF Strategy Development Department registrations GDF Department of Non-Wood Forest Products and Services registrations MAF GDNPNP Department of Natural Parks registrations MAF GDNPNP Department of Hunting Management registrations CUFC registrations
Responsible unit	GDF Department of Non-Wood Forest Products and Services
Variables	6.1.3.1 Permission and easement revenue from allocations to tourism sector 6.1.3.2 Revenues from ecotourism enterprises/supportive works 6.1.3.3 Hunting tourism revenues

Note: Permission and easement revenues from the areas allocated to tourism and also to ecotourism, if there is, and the revenue from the area guidance certificate in ecotourism areas will be taken into consideration to calculate forest tourism value

Hunting tourism value refers to the circulating capital income generated by the Ministry from documents, activities, fees, costs and charges such as temporary/foreigner hunting certificate, special hunting permission document, hunting permission fee, hunting tourism permission document, hunting organizer training, training course fee etc. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 66: Forest Tourism Value

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Permission and easement revenue from allocations to tourism sector						
Revenues from ecotourism enterprises/supportive works						
Hunting tourism revenues						
TOTAL						

Sub-indicator 6.1.4	**Recreation services revenue**
Unit of measurement	TL
Range of measurement	1 year
Data source	MAF GDNPNP Department of Management Services registrations GDF Department of Non-Wood Forest Products and Services registrations MAF GDNPNP Department of Hunting Management registrations
Responsible unit	GDF Department of Non-Wood Forest Products and Services
Variables	6.1.4.1 Revenue from utilization of recreation areas within forest 6.1.4.2 Revenue from renting of recreation areas within forest 6.1.4.3 Local hunting revenues 6.1.4.4 Revenues from other recreation services

Note: Usage charges such as entrance fees and parking charges collected from the visitors of the protected areas such as nature parks and natural parks directly by the institution (6.1.4.1) and income generated by annual renting fees of recreation areas (city forests included) and other protected areas paid by leaseholders (6.1.4.2), ratio of the amount of MAF circulating capital incomes generated by fees and charges paid for certificates and activities such as hunting certificates (for local hunters), hunting permission certificate, hunting permission fee and training course fees; to the size of the forest area (6.1.4.3), revenue generated by the usage of forest areas for recreation activities, except for the leaseholders who rent a certain recreation area within forest for enterprise (6.1.4.4). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 67: Recreation services revenue

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Revenue from utilization of recreation areas within forest						
Revenue from renting of recreation areas within forest						
Local hunting revenues						
Revenues from other recreation services						
TOTAL						

Sub-indicator 6.1.5	Water utilization revenue
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations MAF General Directorate of State Hydraulic Works registrations MAF GDWM
Responsible unit	GDF Department of Permission and Easement
Variables	6.1.5.1 Permission and easement revenues from spring water factories 6.1.5.2 Revenues from other water benefits

Note: Permission/easement revenues from spring water filling factories (6.1.5.1) and maintenance and administration costs of the forest areas allocated for the function of adjusting water regimes. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 68: Water utilization revenue

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Permission and easement revenues from spring water factories						
Revenues from other water benefits						
TOTAL						

Sub-indicator 6.1.6	Permission and easement revenues from other allocations
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Permission and Easement registrations
Responsible unit	GDF Department of Permission and Easement
Variables	6.1.6.1 Revenues from the allocations to mining 6.1.6.2 Revenues from the allocations to energy generation 6.1.6.3 Revenues from other allocations (education etc. allocations)

Note: Revenues refer to permission and easement revenues. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 69: Permission and Easement Revenues from Other Allocations

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Revenues from the allocations to mining						
Revenues from the allocations to energy generation						
Revenues from other allocations (allocations to education etc.)						
TOTAL						

Sub-indicator 6.1.7	**Grazing revenues**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Soil Conservation and Watershed Rehabilitation registrations GDF Department of Combating Forest Pest registrations
Responsible unit	GDF Department of Soil Conservation and Watershed Rehabilitation
Variables	6.1.7.1 Revenues from grazing permissions. 6.1.7.2 Grass and leaf value

Note: Grass and leaf value will be measured by calculating the number of animals allowed and the amount of the grass consumed considering the average amount of grass consumed by large and small ruminants per animal, individually for both types, and by multiplying the result by the value of 1 kg of grass. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 70: Grazing Revenues

Name of the Revenue	Revenue (TL)					
	../..	2015	2016	2017	2018	2019
Revenues from grazing permissions						
Grass and leaf value						
TOTAL						

Sub-indicator 6.1.8	**Biodiversity conservation value**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Foreign Relations, Training and Research Department registrations MAF GDNPNP Department of Biological Diversity registrations GDF Department of Non-Wood Forest Products and Services registrations
Responsible unit	GDF Foreign Relations, Training and Research Department
Variables	6.1.8.1 Total value of the support from international funds for biodiversity conservation

Note: Total value of the supports provided by externally/internationally funded projects in order to conserve biodiversity and genetic resources. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 71: Biodiversity Conservation Value

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Total value of the support from the international funds for biodiversity conservation						

Sub-indicator 6.1.9	**Financing of other sectoral productions in forest villages**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF ORKÖY Department registrations GDF Department of Afforestation registrations
Responsible unit	GDF ORKÖY Department
Variables	6.1.9.1 Supports given to forest villagers 6.1.9.2 Income of forest villagers from income-generating afforestation

Note: Annual total value of ORKÖY individual and cooperative credit/grant supports provided by GDF (grants given for private afforestation included) (6191). Annual total income of forest villagers from income-generating afforestation (private afforestation revenues included) (6192). A table will be prepared for both variables by years. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 72: Financing of Other Sectoral Productions in Forest Villages

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Supports given to forest villagers						
Income of forest villagers from income-generating afforestation						
TOTAL						

Sub-indicator 6.1A	**Value of forest industry products**
Unit of measurement	TL
Range of measurement	1 year
Data source	TURKSTAT
Responsible unit	GDF Forest Production and Marketing Department
Variables	6.1.A1 Value of timber products (Code 4407) 6.1.A2 Value of wood-based boards (Code 4408, 4410, 4411, 4412) 6.1.A3 Value of woodfuel and chips (Code 4401) 6.1.A4 Value of other items made of tree or tree products (Code other 44s) 6.1.A5 Value of products made of wood pulp and pulp of fibrous cellulosic substances (Code 47s) 6.1.A6 Value of products made of paper and carton, wood pulp (Code 48s) 6.1.A7 Value of wooden furniture products (Code 940330, 940340, 940350, 940360)

Note: GDF General Director of Forest Production and Marketing Department will identify these values by using the data from TURKSTAT only. (BEC or NACE2 classifications will be used which are accepted by TURKSTAT) Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 73: Value of Forest Industry Products

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Value of timber products (Code 4407)						
Value of wood-based board products (Code 4408, 4410, 4411, 4412)						
Value of woodfuel and chips (Code 4401)						
Value of other items made of tree or tree products (Code other 44s)						
Value of products made of wood pulp and pulp of fibrous cellulosic substances (Code 47s)						
Value of products made of paper and carton, wood pulp (Code 48s)						
Value of wooden furniture products (Code 940330, 940340, 940350, 940360)						
TOTAL						

INDICATOR 6.2: FOREST PRODUCTS SUPPLY DEMAND EQUILIBRIUM

Description

Ratio of national-base production value of forest products to their consumption value.

Sub-indicators

Sub-indicator 6.2.1	**Ratio of wood raw material production value to its consumption value**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations ORBİS TURKSTAT
Responsible unit	GDF Forest Production and Marketing Department

Note: Wood raw material production value will be the sum of the total value of GDF industrial and woodfuel production and the total value of private poplar enterprises wood production. Consumption value will be found by adding the values of industrial wood and timber wood import (goods with 4403 and 4407 codes) to this sum and subtracting the total export value of the same products, following which these two values will be proportioned to each other. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 74: Ratio of Wood Raw Material Production Value to Its Consumption Value

	(TL,%)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Wood raw material production value						
Wood raw material consumption value						
%						

Wood production and consumption values will be written in the relevant data areas in TL in a year-specific form and their proportional values will be calculated.

Sub-indicator 6.2.2	**Ratio of production value of NWFP to their consumption value**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Department of Non-Wood Forest Products and Services registrations ORBİS TURKSTAT
Responsible unit	GDF Department of Non-Wood Forest Products and Services

Note: Similarly, the ratio of production value to consumption value will be calculated by finding the ratio of NWFP production value to the value found by adding the import value of these products to this value and subtracting the export value. Values will be calculated for the last 10-year period year by year and reported on a table.

NWFP export and import codes are provided below (TURKSTAT).

Thyme (Sum of the products with the code no 09109931,09109933,09109939)

Rosemary (Sum of the products with the code no 09109991,09109999)

Linden (Sum of the products with the code no 121190850024, 121190850025)

Sage (Sum of the products with the code no 121190850026, 121190850027)

Other herbal teas (Sum of the products with the code no 121190850028, 121190850090)

Acorn, buckeye, fruit pulp except for grape (Sum of the products with the code no 23080040, 23080090)

Laurel (sum of products with the code no 09109950)

Licorice and ginseng root (Sum of the products with the code no 121190850018, 121120)

Lac; Gum, Resin and Other Herbal Essences and Extracts (Sum of the products with the code no 13)

Plant-Based Extracts Used in Tanning and Tannin and its Derivatives (Sum of the products with the code no 3201)

Substances Suitable for Weaving and other plant products (Sum of the products with the code no 14)

Sample Table 75: Ratio of Production Value of Non-Wood Forest Products to Their Consumption Value

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Production value of non-wood forest products						
Consumption value of non-wood forest products						
%						

Production and consumption values of non-wood forest products will be written in the relevant data areas in TL in a year-specific form and their proportional values will be calculated.

INDICATOR 6.3: THE SIZE AND QUALITY OF EMPLOYMENT IN FORESTRY SECTOR

Description

The size and quality of the employment created by the presence, protection, improvement and use of the forests on the national level.

Sub-indicators

Sub-indicator 6.3.1	**Employment in public forestry institutions**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Personnel Department registrations MAF General Directorate of Personnel registrations
Responsible unit	GDF Personnel Department
Variables	6.3.1.1 Number of employees in GDF 6.3.1.2 Number of employees working in relation to the protected areas in GDNPNP Central and Ministerial Regional Directorates 6.3.1.3 Number of employees in GDCDE

Note: Number of personnel at any status (officer, contract employee, permanent worker, temporary worker, temporary personnel) in General Directorate of Forestry and number of officers and workers in GDNPNP and GDCDE will be provided on a single table by years. An example table is provided below. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 76: Employment in Public Forestry Institutions

Name of the Institution/Organization	**Employment**	**Person**					
		../..	**2015**	**2016**	**2017**	**2018**	**2019**
GDF	Number of Officers						
	Number of Contract Employee						
	Number of Permanent Workers						
	Number of Temporary Workers						
	Number of Temporary Personnel						
GDNPNP	Number of Officers						
	Number of Workers						
GDCDE	Number of Officers						
	Number of Workers						

Sub-indicator 6.3.2	Employment in other public institutions
Unit of measurement	Quantity
Range of measurement	1 year
Data source	MAF registrations DSİ registrations General Directorate of Highways registrations General Directorate of Turkish State Railways registrations General Directorate of Land Registry and Cadastre registrations Universities Municipalities
Responsible unit	GDF Personnel Department
Variables	6.3.2.1 Number of those regularly employed in higher education institutions on forestry 6.3.2.2 Number of personnel employed for forestry in other public institutions

Note: Number of personnel employed in universities will be divided into two as academic and administerial (6.3.2.1). Number of forest engineers, forest industry engineers and forest technicians will be also specified in addition to the number of personnel working in relation to forestry in other public institutions and organizations (6.3.2.2). Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 77: Employment in Other Public Institutions

Other Institution/Organization	Person					
	../..	2015	2016	2017	2018	2019
Number of those regularly employed in higher education institutions on forestry						
Number of personnel employed for forestry in other public institutions						
TOTAL						

Sub-indicator 6.3.3	Employment created out of institution in forestry activities
Unit of measurement	Person/Ay
Range of measurement	1 year
Data source	GDF Regional Directorates registrations MAF GDCDE registrations MAF GDNPNP registrations
Responsible unit	GDF Strategy Development Department
Variables	6.3.3.1 Number of workers given share by unit price in production 6.3.3.2 Number of people employed through cooperatives 6.3.3.3 Number of people given job by village legal personality 6.3.3.4 Number of people working in standing wood sales and production process 6.3.3.5 Number of workers employed through İş-Kur (Turkish Employment Agency) under TYÇP (Working for the Benefit of Society Program) 6.3.3.6 Number of people employed through contractors (for the works of afforestation, pasture improvement, flood control, soil conservation etc.) 6.3.3.7 Number of people working owing to the employment created with the support of ORKÖY. 6.3.3.8 Number of people working in NWFP picking/harvest works 6.3.3.9 Number of people employed by GDCDE, GDNPNP as freelancer

Description: Data on the variables of this indicator will be collected from provincial units of General Directorate of Forestry, GDNPNP and GDCDE in coordination with GDF Strategy Development Department.
Convicts who are in prisons and detention houses but working in forestry activities will be added to the variable No. 6.3.3.5.
Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 78: Employment Created Out of Institution in Forestry Activities

	(Person/Month)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of workers given share by unit price in production						
Number of people employed through cooperatives						
Number of people given job by village legal personality						
Number of people working in standing wood sales and production process						
Number of workers employed through İş-Kur (Turkish Employment Agency) under TYÇP (Working for the Benefit of Society Program)						
Number of people employed through contractors (for the works of afforestation, pasture improvement, flood control, soil conservation etc.)						
Number of people working owing to the employment created with the support of ORKÖY.						
Number of people working in NWFP picking/harvest works						
Number of people employed by GDCDE, GDNPNP as freelancer						
TOTAL						

Sub-indicator 6.3.4	Other employment created in private sector with forest resources
Unit of measurement	Quantity
Range of measurement	1 year
Data source	Chamber of Forest Engineers registrations MAF GDNPNP Department of Hunting Management registrations MAF GDNPNP registrations GDF Department of Non-Wood Forest Products and Services registrations
Responsible unit	GDF Strategy Development Department
Variables	6.3.4.1 Number of employees in freelance forestry bureaus 6.3.4.2 Number of forest engineers working freelance 6.3.4.3 Number of employees in hunting tourism and ecotourism 6.3.4.4 Number of people employed by leaseholders in protected areas and recreation areas

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 79: Other Employment Created in Private Sector with Forest Resources

	(Person)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of employees in freelance forestry bureaus						
Number of forest engineers working freelance						
Number of employees in hunting tourism and ecotourism						
Number of people employed by leaseholders in protected areas and recreation areas						
TOTAL						

Sub-indicator 6.3.5	Employment in NGOs on the management of forest resources
Unit of measurement	Quantity
Range of measurement	1 year
Data source	Chamber of Forest Engineers registrations Association of Foresters in Turkey Association of Green Turkey Foresters Nature Conservation Centre Association for Protection of Turkey's Nature The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats and others
Responsible unit	GDF Strategy Development Department
Variables	6.3.5.1 Number of employees working in Professional associations on forest resources 6.3.5.2 Number of employees working in NGOs on forest resources

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 80: Employment in NGOs on the Management of Forest Resources

	(Person)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of employees working in Professional associations on forest resources						
Number of employees working in NGOs on forest resources						
TOTAL						

Sub-indicator 6.3.6	**Employment in private forests and forest products sector**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Department of Afforestation Registrations Union of Chambers and Commodity Exchanges of Turkey
Responsible unit	GDF Strategy Development Department
Variables	6.3.6.1 Number of employees working in private forests 6.3.6.2 Number of employees working in private afforestation areas and private nurseries 6.3.6.3 Number of employees working in companies that produce forest products and trade them

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 81: Employment in Private Forests and Forest Products Sector

	(Person)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of employees working in private forests						
Number of employees working in private afforestation areas and private nurseries						
Number of employees working in companies that produce forest products and trade them						
TOTAL						

Sub-indicator 6.3.7	**Employment in Forestry with international funds**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Foreign Relations, Training and Research Department Registrations MAF General Directorate of Foreign Affairs United Nations Turkey Office FAO Subregional Office The World Bank Turkey Office Offices of international organizations such as JICA, GIZ etc.
Responsible unit	GDF Foreign Relations, Training and Research Department
Variables	6.3.7.1 Number of employees working for externally funded projects 6.3.7.2 Number of employees working on forestry at international organizations in Turkey

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 82: Employment in Forestry with International Funds

	(Person)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of employees working for externally funded projects						
Number of employees working on forestry at international organizations in Turkey						
TOTAL						

Sub-indicator 6.3.8	**Some employment qualities for improvement of social welfare**
Unit of measurement	Quantity, %
Range of measurement	1 year
Data source	Sources provided under the indicator of The Size and Quality of Employment in Forestry Sector
Responsible unit	GDF Forest Production and Marketing Department
Variables	6.3.8.1 Employment rate of rural population (those living in forest villages) 6.3.8.2 Rate of women's employment 6.3.8.3 Rate of employees with social security 6.3.8.4 Number of occupational accidents and diseases in forestry sector

Note: Number of forest villagers employed will be also included besides the total data provided under the indicators no 6.3.3, 6.3.4 and 6.3.6 in order to form the variable no 6.3.8.1 by using the variables under the sub-indicator no 6.3.8. Number of women employers and those with social security will be specifically provided besides the total values, while summing the data of the variables related to the sub-indicators between 6.3.1-6.3.7 in order to form the variables no 6.3.8.2 and 6.3.8.4 under the same sub-indicator. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 83: Some Employment Qualities for Improvement of Social Welfare

	(Quantity, %)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Employment rate of rural population (those living in forest villages)						
Rate of women's employment						
Rate of employees with social security						
Number of occupational accidents and diseases in forestry sector						

INDICATOR 6.4: FINANCIAL BALANCE OF FORESTRY

Description

Any income and expense related to forests and forestry.

Sub-indicators

Sub-indicator 6.4.1	**Revenues from the forests in Turkey**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations MAF GDNPNP registrations MAF GDCDE registrations GDF Forest Production and Marketing Department registrations
Responsible unit	GDF Strategy Development Department
Variables	6.4.1.1 GDF Special Budget Incomes 6.4.1.2 GDF Circulating Capital Budget Incomes 6.4.1.3 Ministry's General Budget Incomes (GDNPNP, GDCDE, Protected Areas and Hunting Management) 6.4.1.4 Ministry's Circulating Capital Budget Incomes (Protected areas and hunting management) 6.4.1.5 Forestry incomes of the owners of private property (private forests, private afforestation areas, private nurseries, poplar enterprises)

Note: Values will be calculated for the last 10-year period year by year and reported on a table. This data will be gathered in coordination with GDF Strategy Development Department. An individual table will be prepared for each variable covering the last 10 years. Sample tables for GDF budgets are provided below. Similar tables can be also drawn for the Ministry's budget. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 84: GDF Special Budget Incomes

Revenue Item	**Unit**	**../..**	**2015**	**2016**	**2017**	**2018**	**2019**
Treasury grants	TL (Thousand)						
Revenue from afforestation	TL (Thousand)						
Revenue from developing forest villages	TL (Thousand)						
Revenues from permissions given in the forest areas	TL (Thousand)						
Other incomes from forestry	TL (Thousand)						
TOTAL	TL (Thousand)						

6.4.1.1 **Sample Table 85:** GDF Circulating Capital Budget Incomes

Revenue Item	Unit	../..	2015	2016	2017	2018	2019
Revenues from the sales of round wood	TL (Thousand)						
Revenues from the sales of sapling	TL (Thousand)						
Revenues from the sales of NWFP	TL (Thousand)						
Revenues from recreation areas	TL (Thousand)						
Interest and service revenues	TL (Thousand)						
Other revenues	TL (Thousand)						
TOTAL	TL (Thousand)						

Sample Table 86: Other Budget Incomes Related to Forestry

Revenue Item	Unit	../..	2015	2016	2017	2018	2019
Ministry's general budget incomes	TL (Thousand)						
Ministry's circulating capital incomes	TL (Thousand)						
Forestry incomes of the owners of private property	TL (Thousand)						
TOTAL	TL (Thousand)						

Sub-indicator 6.4.2	**Revenues from the exported forest wood and services**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations GDF Department of Non-Wood Forest Products and Services TURKSTAT ORBİS
Responsible unit	GDF Strategy Development Department
Variables	6.4.2.1 Revenues from the export of wood and wood products 6.4.2.2 Revenues from the export of non-wood forest products 6.4.2.3 Other export revenues (export of services included)

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 87: Revenues from the Exported Forest Products and Services

Revenue item	Unit	../..	2015	2016	2017	2018	2019
Revenues from the export of wood and wood products	TL (Thousand)						
Revenues from the export of non-wood forest products	TL (Thousand)						
Other export revenues (export of services included)	TL (Thousand)						
TOTAL	TL (Thousand)						

Sub-indicator 6.4.3	**Total value of the grants provided by national sources**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations
Responsible unit	GDF Strategy Development Department
Variables	6.4.3.1 Challenge grants given to GDF 6.4.3.2 Grants given to NGOs for forest resources

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 88: Total Value of the Grants Provided by National Sources

	(TL)					
	../..	2015	2016	2017	2018	2019
Challenge grants given to GDF						
Grants given to NGOs for forest resources						
TOTAL						

Sub-indicator 6.4.4	**Total value of the grants provided by international funds and other countries**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations GDF Foreign Relations, Training and Research Department registrations MAF GDNPNP MAF GDCDE
Responsible unit	GDF Strategy Development Department
Variables	6.4.4.1 International supports in GDF Special Budget 6.4.4.2 Other supports from international funds (those not included in GDF, GDNPNP, GDCDE and NGO budgets)

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 89: Supports from International Funds and Other Countries

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
International supports in GDF Special Budget						
Other supports from international funds (those not included in GDF, GDNPNP, GDCDE and NGO budgets)						
TOTAL						

Sub-indicator 6.4.5	**SFM Expenditures**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations MAF registrations GDF Forest Production and Marketing Department registrations
Responsible unit	GDF Strategy Development Department
Variables	6.4.5.1 GDF SFM expenditures (Activity costs and general management costs) 6.4.5.2 Ministry's General Budget SFM expenditures (GDNPNP, GDCDE, protected areas and hunting management) 6.4.5.3 Ministry's Circulating Capital Budget SFM expenditures (protected areas and hunting management) 6.4.5.4 Forestry expenditures of the owners of private property (private forests, private afforestation areas, private nurseries, poplar enterprises)

Note: Variables under this sub-indicator will be shown on tables covering the last 10 years. These graphs can be supported with graphs. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 90: SFM Expenditures

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
GDF SFM expenditures (Activity costs and general management costs)						
Ministry's General Budget SFM expenditures (GDNPNP, GDCDE, protected areas and hunting management)						
Ministry's Circulating Capital Budget SFM SOY expenditures (protected areas and hunting management)						
Forestry expenditures of the owners of private property (private forests, private afforestation areas, private nurseries, poplar enterprises)						
TOTAL						

Sub-indicator 6.4.6	Total value of imported forest products and services
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations TURKSTAT FAOSTAT
Responsible unit	GDF Forest Production and Marketing Department
Variables	6.4.6.1 Wood and wood products import expenditures 6.4.6.2 Non-wood forest products import expenditures 6.4.6.3 Other import expenditures (Service imports included)

Note: The data here will be provided in a year-specific form, using the same import and export codes. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 91: Total Value of Imported Forest Products and Services

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Wood and wood products import expenditures						
Non-wood forest products import expenditures						
Other import expenditures (Service imports included)						
TOTAL						

Sub-indicator 6.4.7	Total value of forestry supports to other countries
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations GDF Foreign Relations, Training and Research Department registrations MAF registrations Public Accounts Information System
Responsible unit	GDF Strategy Development Department
Variables	6.4.7.1 Value of the supports given to international funds and other countries (subscription, contribution etc.) by GDF 6.4.7.2 Value of the supports given to international funds and other countries by Ministry GDNPNP and GDCDE 6.4.7.3 Value of the forestry supports given to other countries by TICA 6.5.7.4 Other subscriptions related to forestry paid to international funds

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 92: Total Value of Forestry Supports to Other Countries

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Value of the supports given to international funds and other countries (subscription, contribution etc.) by GDF						
Value of the supports given to international funds and other countries by Ministry GDNPNP and GDCDE						
Value of the forestry supports given to other countries by TICA						
Other subscriptions related to forestry paid to international funds						
TOTAL						

INDICATOR 6.5: THE SHARE OF THE STATE'S BUDGET ALLOCATED FOR FORESTRY

Description

The amount of money allocated to forestry institutions and organizations from the State's budget and its ratio to the total budget.

Sub-indicators

Sub-indicator 6.5.1	**Ratio of the budget for forestry institutions to the State budget**
Unit of measurement	TL, %
Range of measurement	1 year
Data source	GDF Strategy Development Department registrations MAF registrations Public Accounts Information System
Responsible unit	GDF Strategy Development Department

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 93: Ratio of the budget for forestry institutions to the state budget

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Total state budget						
Total budget for forestry						
%						

INDICATOR 6.6: SIZE OF THE POPULATION DEPENDENT ON FOREST

Description

The size of the population whose life quality and welfare are dependent on the benefits from forest.

Sub-indicators

Sub-indicator 6.6.1	**Population of the communities dependent on forest by status**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF ORKÖY Department registrations ORBİS
Responsible unit	GDF ORKÖY Department
Variables	6.6.1.1 Number of forest villages
	6.6.1.2 Population of forest villages

Note: Total number and population of the Article 31 and 32 forest villages will be provided on a table. Fluctuations of population between years should be emphasized. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 94: Communities Dependent on Forests

	(Quantity)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of forest villages (those turned into neighborhoods included)						
Population of forest villages (those turned into neighborhoods included)						

Sub-indicator 6.6.2	Producers dependent on forest
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF ORKÖY Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Forest Production and Marketing Department registrations GDF Department of Afforestation registrations GDF Forest Regional and District Directorates CUFC ORBİS
Responsible unit	GDF ORKÖY Department
Variables	6.6.2.1 Number of the producers of wooden handicrafts, which are of cultural value 6.6.2.2 Number of beekeepers who produce honey based on forest 6.6.2.3 Number of suppliers of non-wood forest products 6.6.2.4 Number of the members to forest cooperatives 6.6.2.5 Number of forest villagers with the competence certificate issued by CUFC. 6.6.2.6 Number of wanderer villagers as forest workers 6.6.2.7 Number of settled forest villagers who live on forestry 6.6.2.8 Number of entrepreneurs in forest industry who buy products from forest enterprises 6.6.2.9 Number of real and legal persons doing private afforestation 6.6.2.A Number of people living on animal husbandry in migrant settler communities 6.6.2.B Suppliers of herbal materials for traditional foods

Note: Data under this sub-indicator will be compiled in coordination with GDF ORKÖY Department. The data that will be shown on a table should be verifiable. Estimated data will be specified separately. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 95: Producers Dependent on Forest

	(Quantity)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of the producers of wooden handicrafts, which are of cultural value						
Number of beekeepers who produce honey based on forest						
Number of suppliers of non-wood forest products						
Number of the members to forest cooperatives						
Number of forest villagers with the compete certificate issued by CUFC.						
Number of wanderer villagers as forest workers						
Number of settled forest villagers who live on forestry						

Number of entrepreneurs in forest industry who buy products from forest enterprises						
Number of real and legal persons doing private afforestation						
Number of people living in forest village (those turned into neighborhoods included)						
Number of people living on animal husbandry in migrant settler communities						
Suppliers of herbal materials for traditional foods						
TOTAL						

INDICATOR 6.7: BENEFICIARIES OF RECREATION SERVICES

Description

Number of those benefitting from recreation areas within forest and those hunting in forest

Sub-indicators

Sub-indicator 6.7.1	**Beneficiaries of recreation areas within forest**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Department of Non-Wood Forest Products and Services registrations MAF GDNPNP Department of Natural Parks registrations MEU General Directorate for Preservation of Natural Heritage registrations
Responsible unit	GDF Department of Non-Wood Forest Products and
Variables	6.7.1.1 Annual visitor number of recreation areas 6.7.1.2 Annual visitor number of protected areas 6.7.1.3 Number of recreational users in private environment conservation areas

Description: Data under this sub-indicator will be compiled in coordination with GDF Department of Non-Wood Forest Products and Services. The data that will be shown on a table should be verifiable. Estimated data will be specified separately. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 96: Beneficiaries of Recreation Areas within Forest

	(Quantity)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Annual visitor number of recreation areas						
Annual visitor number of protected areas						
Number of recreational users in private environment conservation areas						
TOTAL						

Sub-indicator 6.7.2	Those hunting in forest resources
Unit of measurement	Quantity
Range of measurement	1 year
Data source	MAF GDNPNP Department of Hunting Management registrations
Responsible unit	MAF GDNPNP Department of Hunting Management
Variables	6.7.2.1 Number of local hunters who are given opportunity by forest resources (those hunting with or without registration) 6.7.2.2 Number of foreigners hunting in forest resources with hunting tourism

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 97: Those Hunting in Forest Resources

	(Quantity)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Number of local hunters who are given opportunity by forest resources (those hunting with or without registration)						
Number of foreigners hunting in forest resources with hunting tourism						
TOTAL						

INDICATOR 6.8: TRANSFER OF INCOME FROM FORESTRY SECTOR TO FOREST VILLAGERS

Description

Revenues, support and subsidies given to forest villagers by forestry sector.

Sub-indicators

Sub-indicator 6.8.1	**Revenue transferred from forestry activities to forest villagers**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations GDF Department of Non-Wood Forest Products and Services registrations GDF Department of Afforestation registrations GDF Department of Soil Conservation and Watershed Rehabilitation registrations Department of Silviculture registrations GDF Department of Nursery and Seed registrations
Responsible unit	GDF Strategy Development Department
Variables	6.8.1.1 Revenue transferred to forest villagers from production 6.8.1.2 Revenue transferred to forest villagers from afforestation-pasture-soil-improvement-erosion control (Relevant data) 6.8.1.3 Revenue transferred to forest villagers from NWFP picking

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 98: Revenue Transferred from Forestry Activities to Forest Villagers

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Revenue transferred to forest villagers from production						
Revenue transferred to forest villagers from afforestation-pasture-soil-improvement-erosion control						
Revenue transferred to forest villagers from NWFP picking						
TOTAL						

Sub-indicator 6.8.2	GDF Subsidies
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations MEU General Directorate for Preservation of Natural Heritage registrations
Responsible unit	GDF Forest Production and Marketing Department
Variables	6.8.2.1 Discounts and subsidies in the sales of wood raw material 6.8.2.2 Subsidies for the restoration of cultural and natural heritage

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 99: General Directorate of Forestry Subsidies

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Discounts and subsidies in the sales of wood raw material						
Subsidies for the restoration of cultural and natural heritage						
TOTAL						

Sub-indicator 6.8.3	ORKÖY supports of GDF
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF ORKÖY Department registrations
Responsible unit	GDF ORKÖY Department
Variables	6.8.3.1 Total value of GDF's supports as credits and grants

Note: Credit supports and grants will be shown on individual tables in a year-specific form. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 100: General Directorate of Forestry ORKÖY Supports

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Credit supports given to forest villagers						
Grant supports given to forest villagers						
TOTAL						

INDICATOR 6.9: RESEARCH IMPROVEMENT EXTENSION AND TRAINING WORKS

Description

Cost of investments on research, improvement, extension and training works conducted in relation to forests.

Sub-indicators

Sub-indicator 6.9.1	**Cost of investments on research, improvement, extension and training works conducted in relation to forests.**
Unit of measurement	TL
Range of measurement	1 year
Data source	GDF Foreign Relations, Training and Research Department registrations MAF GDNPNP registrations MAF GDCDE registrations Registrations of professional organizations such as OMO, TOD, YTOD etc. Registrations of NGOs such as DKM, TEMA, TTKD etc.
Responsible unit	GDF Foreign Relations, Training and Research Department
Variables	6.9.1.1 R&D investment in public forestry institutions 6.9.1.2 R&D, training and extension costs of NGOs working on the management of forest resources 6.9.1.3 Average budget of forestry R&D projects

Note: Collection, compilation and tabulation of any data on this indicator will be done by the Directorate of Central Anatolia Forestry Research Institute under the supervision of GDF Foreign Relations, Training and Research Department. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 101: Costs of R&D Investments, Extension and Training

	(TL)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
R&D investment in public forestry institutions						
R&D, training and extension costs of NGOs working on the management of forest resources						
Average budget of forestry R&D projects						
TOTAL						

INDICATOR 6A: ACTIVITIES OF NGOs ON FORESTRY

Description

Annual number of activities related to SFM carried out by non-governmental organizations such as chamber, association, club, union etc. which are working on forestry.

Sub-indicators

Sub-indicator 6.A1	**Number of activities carried out by NGOs on forestry**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	Registrations of NGOs working on forestry
Responsible unit	GDF Foreign Relations, Training and Research Department

Note: Number of activities will be compiled for each year in an NGO-based form. Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 102: Activities Carried out by NGOs on Forestry

	(Quantity)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Annual number of activities related to SFM carried out by non-governmental organizations such as chamber, association, club, union etc. which are working on forestry.						

INDICATOR 6B: FOREST – SOCIETY CONFLICTS

Description

Number of appeals, bill of complaints, cases and forest crimes due to the problems of the interaction between forest resources and society.

Sub-indicators

Sub-indicator 6.B1	**Number of appeals or bill of complaints in relation to the management of forest resources**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Private Secretariat GDF Public Information Department GDF Office of the Legal Counsel MAF Private Secretariat MAF Public Information Department MAF Office of the Legal Counsel Registrations of other public forestry institutions and organizations
Responsible unit	GDF Strategy Development Department

Values will be calculated for the last 10-year period year by year and reported on a table.

Sub-indicator 6.B2	**Number of cases filed against the management of forest resources**
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Office of the Legal Counsel registrations MAF Office of the Legal Counsel registrations
Responsible unit	GDF Office of the Legal Counsel

Values will be calculated for the last 10-year period year by year and reported on a table.

Sub-indicator 6.B3	Number of cases filed by the management forest resources
Unit of measurement	Quantity
Range of measurement	1 year
Data source	GDF Office of the Legal Counsel registrations MAF Office of the Legal Counsel registrations
Responsible unit	GDF Office of the Legal Counsel

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 103: Forest-Society Conflicts

	(Quantity)					
	../..	2015	2016	2017	2018	2019
Number of appeals, bill of complaints, cases and forest crimes due to the problems of the interaction between forest resources and society.						
Number of cases filed against the management of forest resources						
Number of cases filed by the management of forest resources						
TOTAL						

Sub-indicator 6.B4	Size of the forest area where forestry activities cannot be carried out due to the inability to intervene because of the social pressure
Unit of measurement	Ha
Range of measurement	1 year
Data source	GDF Forest Production and Marketing Department registrations GDF Regional and District Directorates
Responsible unit	GDF Forest Production and Marketing Department

Values will be calculated for the last 10-year period year by year and reported on a table.

Sample Table 104: Social Factors

	(Ha.)					
	../..	**2015**	**2016**	**2017**	**2018**	**2019**
Size of the forest area where forestry activities cannot be carried out due to the inability to intervene because of the social pressure						

QUALITATIVE AND DESCRIPTIVE INDICATORS

Legal, political and institutional issues are key to sustainable forest management. The 6 criteria that have been determined for the national assessment of sustainable forest management are generally concerned with the status and functions of forests. The environment in which these governance conditions occur, laws, institutions and their capacities, financial opportunities and similar factors are very important for the assessments to be made. When the improvement in these conditions is associated with the change in 6 criteria, it will present clear findings for forward steps.

The SFM C&I model implemented in our country adopts the Forest Europe approach. The issues which are addressed with the name of "legal, political and institutional framework" in some processes, consist of a total of 11 qualitative and descriptive indicators, 5 general and 1 for each criterion, under the heading of "Forestry Policy and Governance" in Turkey National SFM C&I.

These are:

1. National forest programs or equivalents
2. Institutional framework
3. Legal and regulatory framework
4. Instruments of finance and economy
5. Information and communication

and under each criterion:

Policies, institutions and means

The unit responsible for the compilation and reporting of the data on these indicators is the General Directorate of Forestry (Strategy Development Department) on behalf of the Ministry of Agriculture and Forestry.

INDICATOR N1: NATIONAL FOREST PROGRAMS OR EQUIVALENTS

Agenda 21 Section 11 (Combating Deforestation); called for countries to prepare and implement national forestry action programs or plans for the conservation and sustainable management of forests. Following the Rio Summit (UNCED 1992) and in accordance with this call, the Intergovernmental Panel on forests (IPF) agreed that a detailed forest policy framework should be established to achieve sustainable forest management, and in this context, decided that every country should form national forestry programs in the framework of common approaches and principles and implement them. This decision is considered as one of the most important decisions of the international forestry process. The national forestry program alone is not seen as an ordinary program. This program reflects a paradigmatic shift in forestry macro planning with participation, integrity and cross-sectoral approach. All decisions taken during the international forestry process must be put into practice within the framework of this program.

What is meant by this indicator is the national forestry program (UOP) prepared in accordance with IPF demands or the plan or program with the same function.

Indicator should include the following information.

1. Presence of national forest program or an equivalent (Present/Not Present)
2. Start and end date
3. Approving authority (Ministry/ council of ministers/GNAT)
4. Full name and contact (e.g. WEB address)

Indicator should be supported with the following information.

- Plan and policy documents in our country: development plans, annual programs, forestry main plan, national, regional and institutional strategy documents and/or action plans etc.
- Whether forestry sector analysis is done
- NFP preparation process
- NFP content, sections, annexes if there are
- Whether there is a separate action plan, if NFP does not include action plan, w
- Detailed information on strategic plans
- If there is forestry policy document, information on it
- Other information deemed necessary by (CCAC)

INDICATOR N2: INSTITUTIONAL FRAMEWORK

The structure and capacity of the organization responsible for implementing the forestry management and forestry policy of the country plays a critical role in achieving the goals of sustainable forest management. In this indicator, information will be given about the organization. In this context, public institutions and organizations related to forestry, the institutional structure of the forest industry, universities, professional organizations, other non-governmental organizations' legal status, functions and capacity to carry out works should come to the fore. In addition, although it is not legal, committee, commission, union and similar coordination and advisory structures formed with protocols and similar arrangements, if any, are also included in this indicator.

Indicator should include information about the establishment, historical development, status, main functions and field of activity, capacities (professional staff, budget etc.) of the institutional structures, and the provincial organizations, if any, which are provided below as headings.

1. Ministry
2. General Directorates (departments and provincial organizations included)
3. Forestry higher education institutions (detailed information on academic staff can be seen under the criterion no 6, number of students should be included)
4. Research institutes
5. Unions, associations and similar structures representing the forest industry
6. Private sector (Forestry bureaus and if any, unions, associations and similar structures)
7. Non-governmental organizations (professional organizations included)
8. Committee, commission, coordination board, advisory board and similar mechanisms

formed with protocols and similar arrangements on forestry issues

9. International organizations or their offices which are functional in relation to forestry in Turkey, carrying out projects and financing them.

INDICATOR N3: LEGAL AND REGULATORY FRAMEWORK

This indicator was designed for the implementation of forest management and national forestry policies and it deals with the laws in force (including the establishment laws), decree laws, decrees and regulations and international treaties and agreements (those signed by Turkey). In addition to these, information can be given about the comprehensive notifications. The purpose, content (in headings) and the date of entry into force of each law, regulation, and if considered important, notification should be specified.

The indicator can be organized under the headings below.

1. Articles on forestry in the Constitution and a brief summary of them
2. Laws (establishment decrees included)
3. Decree laws (establishment decrees included)
4. Decisions of the Council of Ministers on Forestry
5. Regulations
6. Important notifications
7. Other articles in law that directly or indirectly affect forestry
8. International conventions or agreements accepted by our country
9. Other necessary regulations (national or international protocol, cooperation agreement, etc.)

INDICATOR N4: INSTRUMENTS OF FINANCE AND ECONOMY

Financing and economy of sustainable forest management are among the most discussed topics at the international level. This subject is among the topics (together with technology transfer) that have not been agreed yet in the IPF-IFF-UNFF process.

With this indicator, information about sustainable forest management financing model and the economy of forestry in our country will be given. General Budget, Special Budget and circulating capital budgets used for forestry activities, the structure and functioning of funds established in the past, abolished or still in effect, taxes and subsidies applied (Use the values under Criterion 6) should be explained. The economic structure of the forest industry should be summarized on the basis of relevant values under the Criterion 6.

The indicator can be organized under the headings below.

1. The structure of the general budget and the activities it is about
2. The structure of the special budget, revenues, the activities it is about and its difference from the General budget
3. Rationale of circulating capital budget and revenues
4. Taxes and deductions applied to special budget and circulating capital budget revenues
5. Structure and functioning of funds; taxes and deductions applied
6. The budgets used to manage public forestry institutions and organizations

7. Subsidies applied
8. Incentives applied
9. Economic structure of forest industry

INDICATOR N5: INFORMATION AND COMMUNICATION

It is stated in the International Forest Principles (1992) Article 2 paragraph (c) that "The provision of timely, reliable and accurate information on forests and forest ecosystems is essential for public understanding and informed decision-making and should be ensured." The issue of information and communication is important and underlined in the process of international forestry.

Maintaining a healthy flow of information among all stakeholders of sustainable forest management and keeping communication at a high level will enable many problems to be solved without worsening.

It is stated in the introduction of the European Union Forest Communication Strategy document that the value of the forests, their potential benefits and the services they provide for the environment that is being destroyed every day are quite high in number, but this situation is known only by a small forestry community, there is a big difference between the public perception and the facts, therefore it is necessary to put more efforts to explain the facts to the society.

Briefly, information and communication play an important role in providing timely and accurate information to stakeholders, industry, scientific circles and other sectors, as well as in bridging the gap between perceptions and facts.

This indicator provides information on the status of communication and information about forests and forestry and the tools used for this.

The indicator should include the information below.

Public institutions and organizations, forest industry, private sector, forestry faculties, research organizations, professional organizations and other non-governmental organizations are assessed for the following:

1. Periodical reports
2. Plans and programs
3. Broadcasts
4. Whether they provide information online (WEB page etc.)
5. Databases or information systems (open or restricted access)
6. Geographic information systems
7. People's other means of reaching information
8. Whether they have a broadcasting and publicity unit
9. Whether they have units of press and public relations
10. Broadcasts on TV such as documentaries or public service announcements
11. Usage of social media
12. The activities aimed at informing and raising awareness and the extent to which they are carried out

N6-N7-N8-N9-NA-NB INDICATORS: POLICIES, INSTITUTIONS AND INSTRUMENTS BASED ON CRITERIA

With these indicators, information is given about the policies that are being implemented within the scope of each criterion, the institutions, organizations or units responsible for the activities within this scope and the instruments (legal-economic) used.

The scope of the indicators is summarized as follows.

Indicator N6	**Policies, institutions and instruments to sustain and improve forest resources and their contribution to the global carbon cycle in an appropriate way**
Main Theme	Forest presence
Activities and Issues Under This Indicator	Conservation and expansion of the Forest Area and thus increasing the amount of stored carbon; forest cadastre to secure the borders of the forests; management and other planning that play an important role in the conservation and improvement of forest areas

Indicator N7	**Policies, institutions and instruments to maintain the health, vitality and integrity of forest ecosystems**
Main Theme	State of forest
Activities and Issues Under This Indicator	All kinds of factors (including biotic, abiotic, human, air pollution, climate change, forestry activities, permissions and easements) and the measures taken against them; ensuring the integrity, maintenance and regeneration of forests (silviculture)

Indicator N8	**Policies, institutions and instruments to maintain and promote the productive functions of forests**
Main Theme	Products and services
Activities and Issues Under This Indicator	Obtaining all kinds of wood and non-wood products and services from forests in a sustainable way; certifying forests.

Indicator N9	**Policies, institutions and instruments to sustain, protect and properly increase biodiversity in forest ecosystems**
Main Theme	Biological diversity
Activities and Issues Under This Indicator	Species diversity in forests, naturalness, natural regeneration, protected areas, threatened species, genetic resources in forests

Indicator NA	**Policies, institutions and instruments in forest management to maintain and properly improve the protective functions of forests**
Main Theme	Soil water conservation
Activities and Issues Under This Indicator	Conservation forests, erosion control works, watershed rehabilitation, roadside afforestation, forests of conservation characteristics, flood, avalanche, landslide, scrub prevention forests

Indicator NB	**Policies, institutions and instruments to maintain socioeconomic functions of forests**
Main Theme	Society and economy
Activities and Issues Under This Indicator	Contribution of forests to the national economy, employment created by them, forest industry, financing of forestry, services provided by the forest to the community, forest villagers, non-governmental organizations and participation, research, development and education, disputes and conflicts.

INFORMATION TO BE PROVIDED

The following information should be provided for each indicator and the information should be limited to the activities and issues covered by this indicator.

1. Policies and objectives in basic policy documents (national forestry program, forestry policy document, strategic plan, etc.)
2. When and how to achieve these policy objectives
3. Institutions, organizations or units responsible for the implementation of these policies and their capacities
4. Laws or articles of law entered into force for these issues, regulations prepared and notifications issued (their lists and brief summaries).
5. Special plans or programs that were implemented or are being implemented for these issues (names, main objectives, dates and durations of action plans, local and foreign projects etc.
6. The role of the private sector and non-governmental organizations in relevant matters
7. Incentives provided by legal regulations
8. Budget allocated to these activities and other financing instruments, if any

3. ASSESSMENT AND REPORTING

The main objective in the assessment and reporting of sustainable forest management criteria and indicators is to analyze the information required for informing and directing high-level policy-makers and decision-makers in a transparent and participatory system in which all stakeholders play an active role and report the results obtained. It is also to mobilize internal dynamics for problems that can be solved on-site or within the institution and, if possible, to cooperate with stakeholders at all levels.

Details on the assessment and reporting system is the most important part of SFM C&I implementation. The assessment and reporting mechanism developed for our country in the SFM C&I implementation model are provided in the section below.

A. MECHANISM

I. CENTRAL COORDINATION AND ASSESSMENT COMMITTEE

As mentioned earlier, the Ministry assigned General Directorate of Forestry for the implementation of Turkey SFM C&I. Therefore, the Central Coordination and Assessment Committee (CCAC) to be established will be located in the General Directorate of Forestry under the chairmanship of the General Manager. GDF Strategy Development Department will act as the Secretariat.

CCAC, chaired by the General Director of Forestry or chaired by the Deputy General Director of Forestry, who is responsible for the GDF Strategy Development Department, consists of the following members.

1. GDF Head of Strategy Development Department
2. GDF Head of Forest Management and Planning Department
3. GDF Head of Foreign Relations, Training and Research Department
4. A person at least at the level of department head assigned by GDNPNP
5. A person at least at the level of department head assigned by GDCDE
6. An authorized person on behalf of CFE
7. An authorized person on behalf of CUFC
8. A person on behalf of forest industry sector
9. A representative of NGOs on forestry

CCAC may invite non-governmental organizations related to natural resources (AFT, TEMA, DKM, TTKD etc.) and private sector representatives working in the field of forestry as observers when deemed necessary.

CCAC meets at least once a year, all correspondence related to CCAC is made and filed by GDF Strategy Development Department. The relevant branch manager of GDF Strategy Development Department attends CCAC meetings as a reporter. The CCAC meeting agenda is communicated to CCAC members at least 15 days in advance, and meeting results or reports are made available to all stakeholders on the GDF official website.

CCAC is expected to perform the following functions.

1. To determine the implementation units for assessments to be made at the local level
2. To prepare the workshop program for implementation units
3. To support and coordinate the workshop preparations
4. To ensure participation of at least one CCAC member in the implementation unit assessment workshops
5. To assess the implementation unit workshop reports
6. To provide the necessary coordination for the collection of data and information at the national level
7. To prepare the national report (biennial) based on the implementation unit workshop reports and the information collected from the center.
8. To organize well-attended national SFM C&I assessment workshops to be held every 4-6 years and present the workshop results for the opinions and attention of all stakeholders.

CCAC may set up sub-working groups for specific tasks when it deems necessary and may ask them to submit their work reports to CCAC meetings.

CCAC can authorize GDF Strategy Development Department to perform one or more of the above functions.

I. PROCESS

Criteria and indicators for sustainable forest management implementation in Turkey is an open-ended and dynamic process. The assessment and reporting period in our country's model is 2 years. This period starts with the official announcement of the Administration and ends with CCAC's reporting on its assessment based on implementation unit workshop reports and the data collected at the national level. The administration can make a general assessment with a well-attended workshop every 4-6 years and the workshop report is presented to the attention of stakeholders at national and international level.

This process is summarized as below.

1. CCAC determines the assessment and reporting period start date, implementation level units and workshop schedule
2. Official announcement of the beginning of Turkey SFM C&I assessment and reporting period
3. At the national level, the responsible units provided in Section 1 collect data about the indicators or sub-indicators they are responsible for from the data sources specified in the same section and compile and send them to the CCAC secretariat (GDF SDD).
4. At the implementation unit level, the coordinating unit collects and compiles data and prepares presentations in accordance with the workshop schedule
5. Conducting workshops at implementation unit level, sending workshop reports to CCAC secretariat
6. CCAC secretariat consolidates reports from implementation unit workshops and prepares summary note
7. CCAC secretariat organizes data collected at national level in accordance with SFM C&I format and makes preliminary assessments (creates working groups where necessary)
8. The CCAC secretariat prepares a draft report based on the national SFM C&I data set and summary note containing the results of workshops, taking into account working group reports, if any.
9. CCAC meets at the end of the term and evaluates the draft report prepared by the secretariat, creates working groups for more detailed assessment if needed.
10. CCAC sends the report containing national SFM C&I data and the assessments made, for the opinion of the stakeholders, and revises and publishes it, when necessary.

II. IMPLEMENTATION UNIT AND WORKSHOP ORGANIZATION

Implementation units are units operating in the field of forestry in the countryside. The units to carry out SFM C&I assessment does not have to be of a certain size. However, it would be appropriate to establish it at a size that it, at least, covers a management directorate. In some cases, an implementation unit can be created at the provincial level.

If the implementation unit consists of more than one forest management directorate or other forestry units, one of them is assigned by the CCAC as the coordinating unit. The coordinator unit is responsible for coordinating data collection and compilation activities, ensuring the preparation of workshop presentations, organizing the workshop, and preparing and sending the workshop report.

Workshops to be held at the implementation unit level are expected to last for 1 day. Morning sessions will be reserved for criterion presentations and discussions and assessments will take place in the afternoon. The limited time makes it necessary to prepare the program very carefully and to use the time efficiently. For this reason, it is important to compile the collected data regarding the indicators, sub-indicators and variables and forward them to the participants of the workshop beforehand.

Potential participants are public institutions and organizations, non-governmental organizations (cooperatives, unions, associations, foundations, etc.), private sector representatives, forest industry representatives, clergymen, officials in educational institutions, village mukhtars and other stakeholders whose participation is deemed appropriate.

Participation in the workshop should be encouraged as much as possible, especially forest village mukhtars and similar distant participants should be assisted in reaching the workshop locations. The workshop should be promoted, information about the workshop should be given via a web page, if available, or other means, and local media organs should be invited to the workshop.

The following agenda is recommended for workshops to be held at the implementation level.

HOUR	AGENDA	DESCRIPTION
09.00	*Registration*	Registration of participants (name, title, unit represented, contact information)
09.30	Opening speeches	Coordinator chief or a higher chief, or a staff member appointed by them, CCAC representative
10.00	Introduction and presentations	Moderator or facilitator gives information about the working method to be applied in the workshop
10.10	Election of the management of the workshop	Election of workshop chairman, deputy chairman and reporter
10.20	Presentations	Presentation of Criterion 1 with the invitation of the chairman of the workshop
10.45	*Break*	
11.00	Presentations continue	Criteria 2,3,4,5,6
12.30	Lunch	
13.30	Panel discussions	If there are issues that cannot be agreed upon during the discussions, two working groups should be set up to address them.
15.30	*Break*	
15.45	Working groups come together and elaborate on the issues identified	If there is no need to create working groups, the panel discussion continues.
17.15	Working groups present their reports	Decisions taken by unanimity or majority vote
17.30	Closure	Summarizing the results of workshops

B. ASSESSMENT

Assessing the criteria based on indicators has always been a hot topic. The approach of making assessments over certain threshold values and setting target values for indicators is generally found impractical. No results have been scientifically proven or agreed upon in any of the numerous researches or studies conducted on target values (Rametsteiner, 2001). As for threshold values, it is preferred to take the average values of the previous year or years as reference values and to evaluate the trend accordingly.

One of the most important issues to be considered during the assessment is the bias that a criterion consists entirely of the indicators ("data availability bias"). While determining the indicators, naturally, data supply, practicality, economy and similar conditions are taken into consideration. In this case, it is obvious that some indicators that may be important for a criterion will be missing. Therefore, when assessing any criterion, revealing the picture consisting of indicators and identifying the trend in an objective manner should be at the forefront, rather than reaching categorical results such as good or bad. In this way, solutions can be produced by the common mind to address current or potential problems.

The assessment to be made at the national level will be made in a way to cover all indicators and in detail. On the other hand, in the assessment to be made at the implementation unit level, local issues that come to the fore within the boundaries of the relevant unit will be highlighted. Still, at both levels, all available data on the SFM C&I set will be provided and made available to stakeholders.

The issues suggested to be highlighted in the assessments to be made for each criterion at the national and implementation unit levels are summarized below.

CRITERION 1: FOREST RESOURCES AND THEIR CONTRIBUTION TO GLOBAL CARBON CYCLE

At the National Level

The first three indicators of the forest resources and their contribution to the global carbon cycle are directly interrelated. The assessment should include explanations regarding the supply and reliability of data on these indicators. It should be reminded that especially the information about the forest area and planted growing stock are obtained from the management plans (it can also be noted at what stage the national forestry inventory is at). It should be underlined that the management plans are updated periodically (usually every 10 years) and roughly 1/10 of the country's forests are planned every year. As a natural consequence of this, 1/10 of the data regarding the indicators with the codes 11, 12 and 13 will be up to date. However, it is accepted that the available data provide adequate information about the forest area and the trend of the planted growing stock.

It is the main axis of the assessment that the forest area has increased or decreased significantly compared to the data of the last 10 years. In which forests the changes occurred (ownership status, function, natural / artificial, normal closure / covered with spaces, forest type) will be shown and whether there is a transition between them will be revealed and their reasons will be explained. For example, whether the area increases occurred due to afforestation or natural reasons should be identified, or if there is a decrease in the area, the reasons for this should be examined. These explanations should also be associated with data on variables coded 1414 and 1416 (2-B and NCA).

It should be noted whether the change observed in the forest area and the corresponding planted growing stock and increment are proportional to each other. If there is a disproportion, the reasons for this should be evaluated. It should be noted how the carbon calculation is made and to what extent it is reliable. In the assessment to be made, it should be stated that efficient production forests store more carbon and the carbon sequestration is higher in forests at the regeneration phase, which should be taken into consideration in the assessment to be made.

Cadastral issues should also be addressed in this section, cadastral work done in the last year should be assessed comparatively with other years, if this study cannot be done at a desired rate, the reasons should be explained. Information should be given about management plans, integrated and model plans. If any, the proportion of the forest areas, of which plans have not been renewed although expired should be stated. Information should also be given on other plans for forests.

The last part of the assessment section should reveal the general opinion regarding the criterion, and if there is a negative situation or future threat in relation to the indicators for this criterion, advices on it should be provided in bullet points.

At the Implementation Unit Level

Forest existence is central to this criterion. In the assessment to be made, whether the forest area in general has decreased or increased and the reasons for it, estimations for future and the measures to be taken should be mainly focused on. Since the data on forest assets will be obtained from the current management plans, assessment will only be made by comparing these figures with the data obtained from the previous management plans. In this context, if there are significant positive or negative changes between the forests with normal canopy cover and the covered forests with spaces according to the previous data, the reasons for this should be analyzed.

The distribution of the forest area into the forest types in terms of their functions will be mostly addressed in the national assessment. However, if there is a significant change in functions within the boundaries of the implementation unit, information should be provided on this issue and the reason for this should be explained. In most European implementations, this indicator is addressed under the headings of forests with and without production. In the implementation in our country, the closest classification to this is forests with economic functions and forests with ecological and socio-cultural forests.

The same situation applies to the growing stock and increment of forests. Detailed analysis of this indicator will be done at the national level. Information should be given on the distribution of the planted tree volume by age classes, and if there is an obvious deviation, it should be explained.

The amount of carbon is one of the important indicators under this criterion that will be followed in detail at the national level. At the implementation unit level, this indicator can be taken into consideration only if there is sufficient data for carbon calculation in the present management plans. In this case, it should be reminded that plants play an important role in reducing climate change by storing carbon.

Adequate time should also be allocated to cadastral issues. Information on cadastral works, current problems and their causes, areas taken out of the forest and NCA should be given and a situation assessment should be made. If the ratio of the forest area of which cadastre has been completed to the registered forest area is low, the reasons for this should be explained.

CRITERION 2: HEALTH VITALITY AND INTEGRITY OF FORESTS

At the National Level

Sources that provide data on the health, vitality and integrity of forests should be introduced, and information should be given on the level 1, level 2 trial areas, particularly in the context of the forest ecosystem monitoring program and ICP. In addition, projects that have been completed or those still being carried out on this issue should be introduced.

The 7 indicators under this criterion concern different fields. Therefore, these indicators should be analyzed under separate headings, especially the trend of data related to human-induced factors causing damage should be examined. If there is a situation that will trigger a negative or future concern in this area, priority measures and needs should be identified, and strategies to ensure the change should be clearly laid out. The measures to be taken must be practical, effective and economical.

Silviculture sub-indicators and variables should be compared with data from previous year. While making the assessments for this area, it should be examined whether they are at a level that will ensure the integrity of the forests. The size of regeneration and rehabilitation areas and the success rate of them should be underlined.

The problem of uncontrolled grazing, if any in our country, should be clearly expressed, and recommendations on planning, management, monitoring and assessment should be developed to overcome this problem. Problems in obtaining data on this indicator should be reminded, and concrete steps should be put in place to take precautions for the next SFM C&I assessment and reporting periods.

Permits and easements and forest roads and facilities should be analyzed in a way that does not allow any misunderstanding. It should be reminded that the public interest arising from permits and easements is addressed in criterion 6. It should be noted that the permits and easements granted for the forest are legal, forest roads and facilities should be built to carry out forestry activities, but the loss of forests resulting from them inevitably occurs. There is no threshold value to clearly demonstrate the extent of negativity of the trend in these indicators, and At the National Level it does not seem possible to set a target for this. On the other hand, the assessments on this issue at the implementation unit level workshops can give a clearer idea. These assessments and recommendations developed based on the consensus of stakeholders should be taken into consideration in the national assessment.

Forest fires are a public concern. Therefore, a comprehensive and clear assessment should be made about the destruction caused by forest fires and efforts to combat forest fires.

At the Implementation Unit Level

The focus of the criteria for the health, vitality and integrity of forests is the state of forests. Even if the state of the forests is protected spatially, the health of the forests, the damage caused by natural factors or human-induced factors and the regeneration reliability are still important issues.

Indicator 2.6, "Impact of air pollution and climate change on forests", which will be assessed with data from level 1 and level 2 trial areas, will not be considered at the implementation level (all indicators will be monitored and evaluated in detail at the national level). Data on the indicator no 21 “Forests affected by natural factors” will be presented as for informational purposes. The success rates in the “Silvicultural activities” indicator no 2.2 will be highlighted. The indicator no 2.3 “damages by human induced factors” is the one to be examined the most. The underlying causes of these losses and the measures to be taken against them should be discussed at the implementation unit level workshops and suggestions should be developed on this issue.

“Damage due to grazing” no 2.4 is a very important indicator, however, there may be problems with reaching reliable data on this indicator. Therefore, it is important that the data used in the assessments to be made at the implementation level can be verified. When assessments based on estimated data are made, this situation should be explained clearly, and it should be emphasized that the data are estimated.
In the assessment of the indicators "Permits and easements" no 2.6 and "Forest roads and facilities" 2.7, a perception that these activities are wrong should be prevented, and the fact that both activities are legal should be reminded, but the damage and destruction caused by these activities should be presented to the stakeholders. The socio-economic benefits arising from these activities are the subject of Criterion 6. Therefore, it should not be agenda under this criterion.

CRITERION 3: PRODUCTION CAPACITY AND FUNCTIONS OF FORESTS

At the National Level

Under this criterion, the production capacity of the forests in terms of amount of wood, non-wood products and services will be assessed. Wood product has a dominant role in forestry, and it is well-known that that statistics on wood production have been kept for many years. Assessments regarding wood production should be under the headings of industrial wood and woodfuel. If there is a significant increase or decrease observed in terms of production in the analyzes to be made, it should be stated whether this is due to biological reasons or other reasons such as economy.

A special paragraph for the increment-production balance. It is necessary to consider the increment in the production forests to identify the increment rate of the wood produced.

Non-wood forest products are gradually gaining importance. It is known that there are some difficulties in obtaining data on these products. However, it is possible to reveal the production trend with available data. In the assessments, the focus should be on the amount of non-wood products produced, not on their economic value (their economic values are discussed under Criteria 6).

There is also a shortage of data about the services obtained from the forests. For this criterion, the areas of the city forests, recreation areas and similar areas of which borders are set and used for recreational purposes should be discussed. It is known that people also benefit from recreation and similar services in forest areas which not reserved for this purpose. Estimated data on this issue which is based on the reports of the workshops conducted at the implementation unit level can be presented, but it should be emphasized that the source of the data is estimations.

The reason for the problems regarding the supply of data for both non-wood products and services should be stated, and recommendations should be developed for the measures to be taken to overcome these problems.

At the Implementation Unit Level

This criterion focuses on the trend in products and services provided by forests. Considering that statistics on wood production have been kept for many years, it is anticipated that there will be no problem with the data. There may be slight fluctuations in wood production over the years, but if there is a marked deviation from the average for many years, it should be explained. Increment balance in production and production areas should be emphasized.

It is considered that there may be a shortage of data in non-wood forest products. The data in the official presentation or reports must be obtained from verifiable sources, and the estimated data must be presented verbally or the fact that they are based on estimations must be expressed. Economic values of non-wood products will not be subject to this criterion. What is important is the downward or upward trend in the supply of non-wood products obtained from forests in the implementation unit. The state, potential and production of important non-wood products, which come to the fore in the implementation units, should be emphasized more.

Although the services provided from the forests are important, it is clear that there is a data shortage. The number of services that can be measured is small. For this reason, this indicator is limited to the services given in the sample table. However, there may be areas in the implementation units that regularly provide recreational, sports, entertainment and similar services to the public. Such areas should be included in the assessment to be made (if their borders and area are known). The number of visitors or revenues made through these areas are the subject of a different criterion. Under this criterion, numerical and spatial data regarding forests offering these services and the decrease or increase in these data should be discussed, suggestions or cooperation proposals from stakeholders should be discussed to increase these services.

If there is a certified forest in the implementation unit, stakeholders should be informed about this issue, and ideas for the future should be shared with them.

CRITERION 4: FOREST BIODIVERSITY

At the National Level

This criterion is about biodiversity in forest areas. Our forests are known to be rich in biodiversity. However, it should be noted that the data on this subject are predominantly derived from management plans, so reaching regular information on many biodiversity parameters is limited. Information should be given about the works that are currently being done or planned to be carried out for this issue in the future.

Assessments should be made through available and verifiable data. Detailed information on the naturalness, tree species and stand structures of the forests in our country.

Opinion should be given on the extent to which regeneration works can be carried out. Information about gene sources should be given and their competencies should be evaluated. The fragmentation of the forests should be explained; if the forests are quite dispersed and fragmented, whether this is due to natural or human causes should be stated. The issue of how this fragmentation affects natural life should be addressed, and if ecological corridors have been established in the region, they should be specified.

The state of endemic species should be mentioned, and suggestions should be made for their conservation or improvement.

While discussing the protected forests, biodiversity conservation areas should be underlined, and the data related to these areas should be examined in detail.

At the Implementation Unit Level

Biodiversity loss is one of the most important environmental problems at the global level. Forests cover a very important part of biodiversity. By using the indicators identified for this criterion, an opinion about the state of biological diversity will be formed. Tree species specific to the region, forests without human intervention, gene resources and protected areas are among the indicators expected to come to the fore.

It is to be reminded that the fragmentation may be led by natural causes as well as human interventions considering the indicator 4.7 “Forest fragmentation”. In terms of biodiversity, fragmentation is important as it limits pollination, seed propagation, wildlife migration and reproduction. Also, the gaps between the parts create a favorable habitat for alien and invasive species. It should be highlighted is the non-existence of connection between parts and impairment of ecosystem integrity. The severity of this can be demonstrated by the size, number and shape of the parts. The most practical measure to be taken in the short term is the creation of ecological corridors. Cooperation opportunities on this issue should be reviewed, and recommendations should be noted.

In the evaluations to be made, the opinions of the experts working on biodiversity should be noted, and solutions should be developed with the related non-governmental organizations to address the problems to be identified.

CRITERION 5: PROTECTIVE FUNCTIONS OF FORESTS

At the National Level

All forests, with their existence, protect soil and water resources, infrastructures such as factories, roads, and residential areas. However, there is limited data on the extent to which this is achieved and is sustainable. Therefore, assessments under this criterion will include the forest areas with defined borders and reserved or managed for soil, water and infrastructure protection.

Information should be given about soil conservation works, erosion control projects and pasture improvement projects. In recent years, the soil protection functions of forests can be assessed in the projects of balancing soil destruction.

In terms of water conservation, the importance of drinking water conservation forests should be underlined. Information should be given about reforestation projects in dams, ponds and watersheds.

Forest areas reserved for their conservation characteristic and not open to any activity will be assessed under this criterion.

It should be noted what measures should be taken to overcome the difficulties in providing data on soil-water conservation and infrastructure protection forests.

At the Implementation Unit Level

The focus of this criterion is the forests' function of protecting the other resources. Soil and water are the primary resources in this regard. If there is a significant increase or decrease in the areas of forests with a defined border and area, which are reserved for or managed for the conservation of soil or water resources, the reasons for this should be explained, and if there is a negative trend, measures to be taken at the implementation unit level should be identified. Suggestions from stakeholders to. cooperate for land and water conservation should be taken into consideration.

While explaining the section about this criterion with the presentation to be made, the following points should be underlined so as not to cause any misunderstandings.

- Protection of forest resources is the subject of a different criterion, the main subject of this criterion is the protection of forest and other resources
- All forests naturally protect soil, water and infrastructure, but indicators under this criterion cannot reveal how much soil, water or infrastructure forests protect
- The purpose of the criterion is to monitor the defined borders and areas of certain forest areas that are specifically reserved for these purposes or managed for these purposes.
- Data on forest areas that are not specified as reserved for protection purposes in management plans or similar plans and that actually serve these purposes cannot be assessed within the scope of this criterion since there is no verifiable data.

If there are forests that are reserved or managed for the purpose of protecting infrastructure such as roads, factories and residential areas against natural disasters, stakeholders should be informed about the number and area of these forests and their opinions should be noted.

In many places, there may be forests reserved for more than one protection purpose, for example a certain forest area may be reserved to protect a residential area against both flood, avalanche and landslide. In this case, the primary purpose should be considered.

If there is a variable other than the variables specified under the indicators within the boundaries of the implementation unit, and it is appropriate for the stakeholders to monitor, this variable can be added to the SFM C&I set (for example, a forest area to protect a certain historical artifact or geological structure).

CRITERION 6: SOCIOECONOMIC FUNCTIONS OF FORESTS

At the National Level

The main theme of this criterion is made up of the contributions of forests to the economy and society. Therefore, the importance of forests in the national economy and their indirect economic contributions to the society and their contribution through income transfer, employment and recreation will be the main axis of the assessment.

The state of the forest industry should be presented in as much detail as possible, and suggestions on the measures to be taken for the development of the industry should be made.

It should be emphasized that the financial power balance ratio indicator of forestry developed for the continuity of financing of SFM is based on the rights and responsibilities of the country and should set an example to other countries.

An emphasis will be put on the relations of forest administration with society and non-governmental organizations, and the state of the private sector engaged in forestry will be explained. What should be done to increase cooperation with non-governmental organizations and to develop the private sector should be stated.

Information will be given about the priceless products and services that forests offer to the national economy and society, and steps - such as cooperation with academic circles - to be taken for these products and services to be measurable will be identified.

Education in forestry will be discussed under a separate heading, opinions about the state of forestry faculties will be expressed and information will be given on research and development.

At the Implementation Unit Level

The criterion "socio-economic functions of forests" is one of the most comprehensive criteria. There are certain difficulties in collecting data on indicators, sub-indicators and variables under this criterion. The limited time in the workshops to be held at the implementation unit therefore requires an approach that prioritizes the indicators which are corresponding most to the characteristics of the criterion, to assess indicators, sub-indicators and variables under this criterion.

Although not binding, the focus of the workshop is recommended to be on:

- The value of the products produced in the implementation unit (under the heading of wood and non-wood products)
- The value of the services produced (recreation etc.)
- Capacity of forestry units within the boundaries of the implementation unit (technical, staff)
- Expenditures
- Permits and easements in the implementation unit
- Employment created
- Forest villager (size, economic contribution, credits and subsidies)
- State of forest industry
- Non-governmental organizations, cooperation
- Communities dependent on forest specific to region

Since the data (related to the indicators, sub-indicators and variables) included in the criteria and indicators set will be sent to the participants before the workshop, there is no obligation to comply with the same format in the presentation to be made before the assessment. The presentation can be structured in accordance with the above points and other issues that the implementation unit deems appropriate.

QUALITATIVE AND DESCRIPTIVE INDICATORS

Assessment of qualitative and descriptive indicators will be done at the national level. In the workshops to be held at the implementation unit level, brief information about the structure and capacity (technical, personnel, etc.) of forestry units within the boundaries of the implementation unit can be provided.

Indicator N1: National forest programs or equivalents

The first part of the assessment should be related to NFP. In this context, answers to the following questions should be sought at a minimum:

- To what extent does NFP cover internationally agreed concepts (such as SFM) and decisions?
- Does it emphasize the role of forests in sustainable development?
- Does it clearly state what needs to be done in the forestry sector and beyond for the purpose of conservation and sustainable management of forests?
- Has it established the coordination platform between sectors and stakeholders?
- Does it include issues of capacity building and creating participatory mechanisms?
- Does it indicate the necessary measures to implement the activities included in the program?
- Has it established a mechanism for monitoring and assessment?
- Has it proposed measures to strengthen forest-related institutions and organizations, NGOs and the private sector?

The second part of the assessment should be on the impact of NFP in our country's forestry. Whether NFP acts as a guide in the improvement and implementation of forestry policy and whether it does this with a participatory and cross-sectoral approach should be evaluated. Activities and projects that can be given as examples of these effects can be discussed in this section. Finally, up-to-dateness of NFP and whether it needs to be renewed, and the general opinion on this matter should be expressed.

Indicator N2: Institutional framework

The main point in the assessment of this indicator is the adequacy of the institutional framework in the formulation and implementation of the national forestry policy. The capacity of each institutional structure listed in the indicators to perform its expected functions should be identified, and solution suggestions should be made on the basis of consensus to eliminate the identified problems. Answers to the following questions for each organization should be sought at a minimum:

- Is it properly organized to perform its duties?
- Is the central organizational structure and provincial organizational structure, if any, suitable?
- Is there a need for revision in the organization?
- Does it have technical and administrative staff in adequate numbers?
- Is there a norm staff or similar practice?
- Are the staff qualified?
- Are the training programs implemented adequate?
- Are the duties and powers of the staff clearly stated?
- Are there overlapping duties between public institutions and organizations?
- Is coordination between public institutions and organizations and university, forest industry, private sector and NGOs adequate?
- Is there a participatory mechanism established between these structures?
- Are committees, commissions, coordination committees, advisory boards and similar mechanisms formed with protocols and similar arrangements functional?
- Are structures created for coordination and cooperation with international organizations functional?

While making these assessments, the conclusions to be reached should be based on consensus, and cause-effect relationships should be put forward in an objective manner. If any, publications, researches, articles and similar sources that will support the identified result (either positively or negatively) can be cited as a reference.

Indicator N3: Legal and regulatory framework

The competence and effectiveness of the legislation binding forests and forestry directly or indirectly in Turkey is central to the assessment of this indicator. In the assessment, laws, decrees, regulations and other similar legislation will not be addressed individually. Whether these regulations are competent enough on the basis of forestry activity areas, the reasons for this, problems and overlaps, if any, arising from the implementation of these regulations, and activity areas or subjects that are not yet covered by any legal regulation will be elaborated on. However, in cases where a specific result (positive or negative) is discussed, the related legal regulation can be referred to.

Problems encountered in the implementation of ratified international conventions or agreements and the measures to be taken to eliminate them are also the subject of this assessment.

Considering the legal and regulatory framework as a whole, answers to the following questions should be sought at a minimum:

- Are the current regulations adequate for SFM?
- Are the current regulations effective for SFM?
- Is there any SFM area not covered by the current regulations?
- Which regulations need changes?
- If new regulations are necessary, in which areas should they come into force?
- Is there a problematic area in the implementation of international conventions or agreements?
- Is it necessary to make regulations in the law to overcome these problems?
- Is there an SFM problem arising from legislation not on forestry?
- What measures should be taken to eliminate them?

Assessments should be consensus-based, objective and concise. The frequency of changes such as annulment, addition, amendment in current laws and in which areas they are generally made can be pointed out. Recommendations agreed upon as a result of the assessment should be provided in bullet points addressing the relevant authority.

Indicator N4: Instruments of finance and economy

In the assessment of this indicator, functional issues such as the functioning, competency and efficiency of the financial model will be discussed. Data on budget sizes, income and expense balance are included under Criterion 6. This data can be referred to, but repeated assessments should be avoided.

The assessment should focus on the following questions.

- Are the general budget appropriations adequate in the organizations managed with the general budget?
- If the general budget is not adequate, to what extent are the SFM activities disrupted?
- Are general budget appropriations, adequate or not, used efficiently or not?
- Are the special budget appropriations in the institutions managed with a special budget adequate?
- If the special budget is not adequate, to what extent are the SFM activities disrupted?
- Are special budget appropriations, adequate or not, used efficiently or not?
- What is the treasury grant - own-source revenue ratio in special budgets?
- Is it possible to increase or diversify own-source revenue?
- Are circulating capital budget revenues adequate for the activities provided to be carried out under this budget?
- Are circulating capital revenues used efficiently?
- Is it possible to increase or diversify circulating capital revenues?
- Are taxes and deductions applied to revenues high?
- What is the proportion of the subsidies applied?
- What are the positive or negative impacts of the subsidies applied, on SFM?
- Are there any incentive(s) applied for the protection and improvement of forests?
- What is the size of the economy of the forest industry?
- What are the most important economic problems of the forest industry?
- What measures can be proposed to reduce the number of these problems?

Indicator N5: Information and communication

In the assessment of this indicator, the subjects of the information instruments will be only categorically addressed, without going into much detail. The main tool of the assessment is the adequacy and effectiveness of the system and instruments established for accessing quality and useful information on any subject. In particular, the extent to which technology can be used should be discussed in detail. The efficiency of broadcasting and publicity units and press and public information units should be discussed, and measures should be proposed to reduce the number of problems, if any. The assessment should seek for the answers to the below questions in relation to public institutions and organizations, forest industry, private sector, forestry faculties, research organizations, professional organizations and other non-governmental organizations:

- Are periodic reports, publications, plans and programs easily accessible?
- Are these in an order that can be understood by stakeholders? Are their summaries available?

- Is reporting to international organizations made timely and appropriately?
- Are publications and reports of international organizations on forests and forestry being followed up? Are these publications and reports translated into Turkish and made available to stakeholders?
- Is the internet used efficiently? Are their WEB pages user friendly?
- Are databases and information systems adequate? Are they accessible to stakeholders and the community? Are inquiry applications practical and easy?
- If available, are geographic information systems available to stakeholders and the public? Are they easy to use?
- Are information requests of stakeholders and people on forests, forestry and management met? Is there a system for this? Is the system efficient?
- If available, are press and public information, and broadcasting and publicity units efficient? If not, what should be done to increase efficiency?
- Are there documentaries or public service announcements on TV that inform or raise awareness about forestry? Are they enough? Are they effective?
- Is the social media used effectively?
- Are the activities for informing and raising awareness about forests and forestry adequate? If not, what is recommended for increasing or diversifying them?

Indicators N6-N7-N8-N9-NA-NB: Policies, institutions and instruments based on criteria

In the assessment to be made, attention should be paid to the scope of the indicator and the answers to the following questions should be sought in relation to the scope of the indicator.

- Are the policy objectives in these areas realistic?
- What are the most important problems to be encountered in achieving these goals?
- What measures should be taken to address these problems?
- Are the institutions, organizations or units responsible for these areas adequate in capacity?
- Is there a need for any changes and a new structure in the organizational structuring?
- Are the legal instruments implemented competent and effective?
- Are there other legal regulations needed? If yes, what kind of a regulation is recommended?
- Have plans, programs or projects - already carried out or ongoing - on these issues produced results?
- Are there other projects or action plans needed?
- If any, are legal encouragements adequate?
- Is the potential of private sector and non-governmental organizations used efficiently?
- Is financing adequate for activities related to these areas? From which sources can additional funding be obtained if it is not adequate?

A. REPORTING

As an active member of the Forest Europe process, our country tries to comply with the reporting norms accepted in this process. Accordingly, reports should include the development of sustainable forest management based on collected, compiled and assessed data on forests and forestry for the purpose of improving decision making at all levels.

Our country aims at determining the problematic areas of sustainable forest management through the reports to be prepared within this framework and revealing how the current state or implementation in these areas is. Reports can go a step further and offer solutions to address these problematic or gray areas. Reports should be balanced, objective, acceptable and in a structure that allows their use by decision makers.

There are basically two reporting mechanisms in the implementation model for Turkey SFM C&I Workshop reports at the implementation unit level and national report.

I. IMPLEMENTATION UNIT WORKSHOP REPORTS

The reports of the workshops to be conducted at the implementation level are one of the most essential tools of Turkey SFM C&I implementation. These reports include the workshop findings and suggestions based on the data covered by the implementation unit level SFM C&I set, assessing the situation, developments, achievements and problems related to forests and forestry, where appropriate suggestions are made and cooperation opportunities are created with stakeholders when necessary. These reports highlight priorities at the local level and issues specific to regions. Just as they are intended to inform the local community, they contribute to assessments to be made at the national level. It ensures that the views and perceptions at the grassroots become highly visible in high-level bureaucracy. It is a means to reach a wider stakeholder audience.

Following format is recommended to be used for implementation unit workshop reports.

HEADING	DESCRIPTION
Introduction	Introduction of the implementation unit (Forestry organizations, area, information about forests, etc.) Preparations before the workshop (coordinating unit, data supply, distribution, announcements and notices) Venue, date and duration of the workshop Number and short introductions of the participants (Public institutions, NGOs etc.) Introduction of the chairman, his deputy, reporter and moderator Presentations made in the workshop (subjects of the presentations and introduction of the presenters) Creation of the panel, introduction of the panelists If working groups have been created, introduction of their chairmen and reporters
Presentation of the Criteria	A short summary for each criterion
Assessment	Summary of the discussion, outstanding views and ideas
Recommendations	In bullet points
Conclusion	Summary of the assessments made during the workshop, issues agreed upon, cooperation agreements, if any, future prospects and commitments

Appendices	Workshop agenda List of participants SFM C&I tables and information Presentations made Report on the working group meetings, if any Cooperation minutes or protocols, if any

NOTE: Requests for report format and reporting will be made by CCAC. The above format is only suggested.

I. NATIONAL REPORT

SFM C&I national reports will be prepared by the CCAC at the end of each term (every two years). For the preparation of the national report, the reports from the workshops conducted at the implementation unit level must be already examined (CCAC secretariat) and the points that come to the fore in these reports must be previously prepared in the form of information notes. Also, under each criterion, the units responsible for the data related to the indicators and sub-indicators should be already done with collection and compilation of the relevant data as well as submission to the secretariat. CCAC secretariat can make the working groups it will create, when it deems necessary, pre-assess the data. The secretariat prepares a draft report based on the information note on workshops and SFM C&I national set data and submits it to CCAC.

At the final stage, CCAC should meet and review the draft report and receive the opinion of NGO representatives who participate in this meeting as observers and finalize the report. The report should be submitted for opinions and published after necessary revisions are made.

The following format is recommended for the national report.

HEADING	DESCRIPTION
Introduction	Introduction to Turkey's forests (area, distribution, characteristics) Brief introduction to the legal framework for forest management (Constitution, relevant laws) Introduction to Forestry Public institutions and organizations Summarizing the process of establishing the international forestry regime Preparation process of SFM C&I National set (a brief history) Information on the workshops conducted at the implementation unit level (number, participants, etc.) Data collection process at the national level (problems encountered etc.) Preparation process of the national report (CCAC, working group meetings etc.)
Criteria	Each criterion will be organized as subheadings, the data on the indicators under this criterion will be given in tables, and graphs will be prepared for the data groups that are considered important. Based on the data, the trend will be interpreted, and the general opinion will be stated. If any, problematic areas will be specified, the reasons behind negative situations will be explained. If any, current or planned studies, plans and projects in relation to the relevant data group will be introduced.
Recommendations	Recommendations requiring legal change will be grouped into expectations from other sectors and internal regulations, recommendations will be provided in bullet points.
Conclusion	Summary overview (findings, trends, recommendations) future expectations and commitments.
Appendices	Complete list of attendees of implementation level workshops SFM C&I Set (only numbers) Other appendices considered appropriate by CCAC

4. APPENDICES

GLOSSARY FOR TERMS AND DEFINITIONS OF SUSTAINABLE FOREST MANAGEMENT CRITERIA AND INDICATORS

Abiotic

- Not biotic.
- Nonliving: abiotic damage = damages caused by non-living agents (snow, storm etc.)
  (Source: European Forest Institute (EFI) Forest Glossary, 2001)

Unspecified/mixed damage

Forest or other wooded land damaged by more than one group of causing agents (e.g. both biotic and abiotic) and/or identification of primary cause not possible. (Source: Forest Europe, 2015b)

Tree

A perennial woody plant with a single main stem has a crown that is more or less obvious in the form of coppice with several stems. Includes: Bamboos, palm trees and other woody plants meeting the above criteria.

(Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Plantation

These are not considered as forest until the forest is established by planting and / or deliberate seeding in the field.

Explanatory Note:

1. It refers to the transformation of land use from outside the forest to the forest. (Source: Forest Resources Assessment (FRA), 2015)

Other Wooded Land

Land considered as "Other land", that is predominantly agricultural or urban lands use and has patches of tree cover that span more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity. It includes both forest and non-forest tree species.

Explanatory Notes:

1. The difference between Forest and Other land with tree cover is the land use criteria.
2. Includes groups of trees and scattered trees (e g trees outside forest) in agricultural landscapes, parks, gardens and around buildings, provided that area, height and canopy cover criteria are met.
3. Includes tree stands in agricultural production systems, for example in fruit tree plantations and agroforestry systems when crops are grown under tree cover. Also includes tree plantations established mainly for other purposes than wood, such as oil palm plantations
4. Excludes scattered trees with a canopy cover less than 10 percent, small groups of trees covering less than 0.5 hectares and tree lines less than 20 meters wide. (Source: Forest Resources Assessment (FRA), 2015).

Growing Stock

Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher). Includes the stem from ground level up to a top diameter of 0 cm, excluding branches.

Explanatory Notes:

1. Diameter breast height refers to diameter over bark measured at a height of 1.3 m above ground level, or above buttresses, if these are higher.
2. Includes living trees that are lying on the ground.
3. Excludes smaller branches, twigs, foliage, flowers, seeds, and roots..

(Source: Forest Resources Assessment (FRA), 2015).

Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and planting materials

This division includes the manufacture of wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, and prefabricated wood buildings. The production processes include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that may then be cut further, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers.

With the exception of sawmilling, this division is subdivided mainly based on the specific products manufactured.

This division does not include the manufacture of furniture (3100), or the installation of wooden fittings and the like (4330). The major categories covered by this class are:

- 161 Sawmilling and planing of wood,
- 162 Manufacture of products of wood, cork, straw and plaiting materials. (Source: International Standard Industrial Classification, 2008; Forest Europe 2015b).

Management plan or equivalent

This term refers to a written plan of forest management, which aims at management objectives identified and is periodically revised. (Source: Forest Europe, 2015b).

AOT40 Accumulated amount of ozone

The amount of ozone accumulated over the 40 ppb threshold of the concentration. It is calculated considering the growing season of vegetation in terms of time and calculated only for daytime. The unit of measurement is ppb · hour (abbreviated as ppb · h) (Source: Forest Europe, 2015b)

Land

For the purposes of the United Nations Convention to Combat Desertification (UNCCD), "land" means terrestrial bio-productive system that comprises soil, vegetation, other biota and ecological and hydrological processes that operate within the system.

(Source: United Nations Convention to Combat Desertification (UNCCD), 1994)

Land degradation

For the purposes of the United Nations Convention to Combat Desertification (UNCCD) "land degradation" Reduction or loss of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as:

- Soil erosion caused by wind and/or water;
- Deterioration of the physical, chemical and biological or economic properties of soil
- long-term loss of natural vegetation

(Source: United Nations Convention to Combat Desertification (UNCCD), 1994)

MCPFE 2002 - MCPFE classes defined by the MCPFE assessment guidelines for protected and protective forest and other wooded land in Europe

MCPFE Class 1.1: Main Management Objective Biodiversity "No Active Intervention"

- The main management objective is biodiversity
- No active, direct human intervention is taking place
- Activities other than limited public access and non-destructive research not detrimental to the management objective are prevented in the protected area.

MCPFE Class 1.2: Main Management Objective Biodiversity "Minimum Intervention")

- The main management objective is biodiversity
- Human intervention is limited to a minimum
- Activities other listed below are prevented in the protected area:
  - Ungulate/game control
  - Control of diseases/insect outbreaks (Note: In case of expected large disease/insect outbreaks control measures using biological methods are allowed, provided no other adequate control possibilities in the buffer zone are feasible)
  - Public access
  - Fire intervention
  - Non-destructive research not detrimental to the management objective
  - Subsistence resource use (Note: subsistence use to cover the needs of indigenous people and local communities, in so far as it will not adversely affect the objectives of management)

MCPFE Class 1.3: Main Management Objective Biodiversity "Conservation Through Active Management"

- The management objective is biodiversity

- A management with active interventions directed to achieve specific conservation goal of the protected area is taking place
- Any resource extraction, harvesting, silvicultural measures detrimental to the management objective, as well as other activities negatively affecting the conservation goal, are prevented in the protected area

MCPFE Class 2: Main Management Objective "Protection of Landscapes and Specific Natural Elements"

- Interventions are clearly directed to achieve the management goals landscape diversity, cultural, aesthetic, spiritual and historical values, recreation, specific natural elements
- The use of forest resources is restricted
- A clear long-term commitment and an explicit designation as specific protection regime, defining a limited area is existing
- Activities negatively affecting characteristics of landscapes or/and specific natural elements mentioned are prevented in the protected area

MCPFE Class 3: Main Management Objective "Protective Functions"

- The management is clearly directed to protect soil and its properties or water quality and quantity or other forest ecosystem functions, or to protect infrastructure and managed natural resources against natural hazard
- Forests and other wooded lands are explicitly designated to fulfil protective functions in management plans or other legally authorised equivalents
- Any operation negatively affecting soil or water or the ability to protect other ecosystem functions, or the ability to protect infrastructure and managed natural resources against natural hazards is prevented (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003)

Even-aged Stand

A stand, in which no or relatively small age differences exist among individual trees within it, usually less than 20% of rotation length. Defining an average stand age is meaningful. (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Equivalent Connected Area (ECA)

ECA index is defined as the size of a single patch (maximally connected) that would provide the same probability of connectivity than the actual habitat pattern in the landscape. ECA index is calculated for each 50 km of area based on the grid system.

Data input to calculate ECA index: Multiple temporal raster layers of Pan-European compatible forest maps (FMap 1990,FMap2000,FMap2006) are automatically received from Landsat ETM+(30 m was sampled again and reduced to 25 m), Then it is processed for each region and land pattern pixelization is done.. RMS has error at a rate of 95% with a geometric accuracy rate less than 25 m. Thematic definition and accuracy: Forest areas are forest trees consisting of natural or exotic coniferous and / or broadleaf forest trees and areas covered with a woody vegetation. The forest is defined as in CLC terminology (Pekkarinen et al, 2009 doi: 10.1016 / j.isprsjprs.2008.09.004); The definition of forest is based on the forest cover class rather than the land use class. The forest excludes areas covered with trees less than 5 meters in length, forest nurseries, and areas at development phase where closure falls below 30% due to fire or forest road construction. Forests in transition zones with high tree density can be included in the forest area. Forest layers can be verified against the FAO definition using NFI sample data.

- Analysis unit: 50 km. grid (INSPIRE standards)
- NUTS 2/3 vector layer for overlay.

Note Method: Theory on graphing land uses a network-based habitat presence approach that combines the concept of probability connectivity model and habitat availability.

It is based on the mathematical relationships between the characteristics of the patches in which there are species with a certain distribution in the forest and the distances between the patches.

Each link between every two patches is characterized by a probability of dispersal, obtained as a function of distance (a decreasing exponential function of the Euclidean (straight-line) edge-to-edge distance, matching to a probability of 0.5 for the average dispersal distance at focus. Dispersal distances are 1, 5, 10 and 25 km. The matrix (non-forest landscape) is first treated as homogeneous. Precisely, the method used the Equivalent Connected Area (ECA) index, which is a modification of the Probability of Connectivity index (Saura, Estreguil et al, 2010 (accepted) based on an adapted version of the software Conefor Sensinode (Saura and Torne, 2009 at http://www.conefor.udl.es).

In addition to the state in connectivity at one point in time, changes in connectivity are also quantified and directly

compared with the temporal changes in forest habitat area. The method was already applied at broader scale (25ha MMU) for European forests in the period 1990-2000 (Source: Saura, Estreguil et al., 2010; Estreguil ve Mouton, 2009; Forest Europe, 2015b)

Coppice sprouting

The regrowth from coppice stools after the previous stand has been cut. (Source: Temperate and Boreal Forest Resources Assessment, 2000)

Biological diversity

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Source: Forest Resources Assessment, 2015; Convention on Biological Diversity, 1992).

Conservation of biodiversity

Forest area designed primarily for the conservation of biological diversity. It is not limited to the areas determined for the conservation of biological diversity within the protected areas. (Source: Forest Resources Assessment, 2015)

Covered forest with spaces

They are the forests with a crown closure less than 10%. (Source: General Directorate of Forestry (GDF), 2014). In terms of area inventory, stands with a crown closure of 1-10% are referred to as covered forest with spaces (Source: General Directorate of Forestry (GDF), 2017)

Explanatory notes:

- Data from Turkey's forest inventory suggests that the size of covered forest with spaces in Turkey is 10,119,466 ha (Source: General Directorate of Forestry (GDF), 2014).
- The main reasons for the increase in growing stock and area include afforestation, keeping annual production low, migration of the people living in the forest and its vicinity to cities, improvement of covered forests with spaces and differentiation of inventory techniques and tools. (Source: General Directorate of Forestry (GDF), 2014).
- Total biomass and carbon amounts above ground are calculated separately for forests with normal closure and covered forests with spaces. (Source: General Directorate of Forestry (GDF), 2017).
- In principle, covered forest with spaces and treeless forest soils are given as afforestation areas. (Source: General Directorate of Forestry (GDF), 2017)

Subnational forest policy/strategy documents or statements

Forest policy document or statement referring to subnational forest administration units (Source: Forest Europe, 2015b)

Briquette

Densified biofuel made in a cubic or cylindrical form, either pressed or unpressed. It is obtained by compressing pulverized biomass. The raw material for the manufacture of briquettes can be woody biomass and is usually produced by a hydraulic pressing process. The total moisture of the biofuel briquettes is generally less than 15% of the woody biomass. (The JWEE 2011 accepts water content as 8%) (Source: United Nations Economic Commission for Europe (UNECE)/Food and Agriculture Organization of the United Nations (FAO), 2011)

Gross Value Added

Gross Value Added (GVA) measures the contribution of each producer, industry or sector to the economy at basic prices in the country. Data for GVA for each industry sector should be taken from the National Accounts prepared by the country's national statistical agency. (Source: Forest Europe, 2015b)

Chips and particles

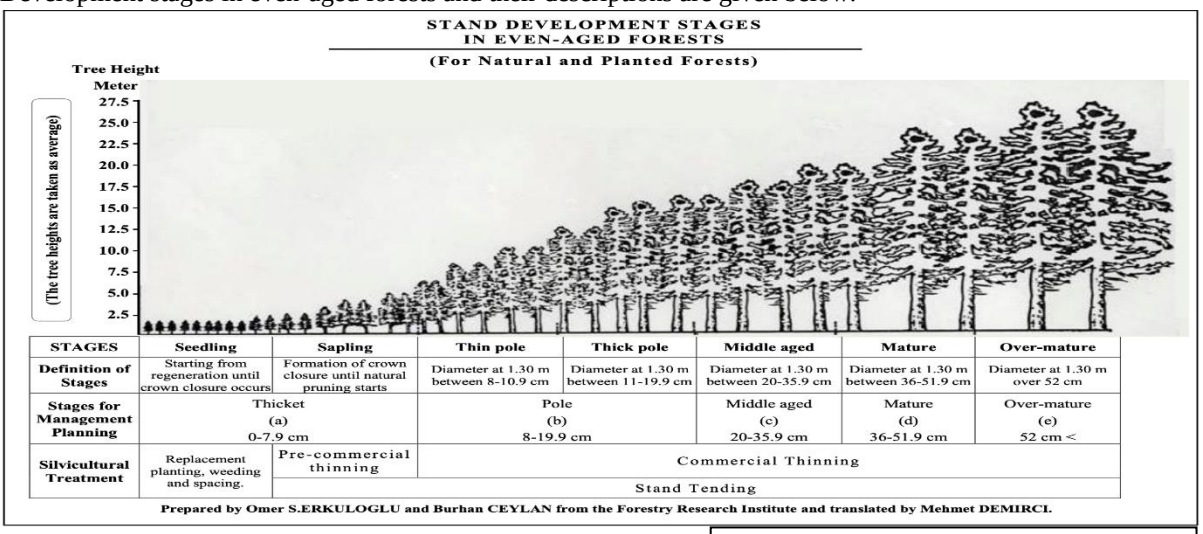
Wood that has been deliberately reduced to small pieces during the manufacture of other wood products and is suitable for pulping, for particle board and fibreboard production, for use as a fuel, or for other purposes. It excludes wood chips made directly. It is reported in cubic metres solid volume excluding bark. (Source: United Nations Economic Commission for Europe (UNECE)/Food and Agriculture Organization of the United Nations (FAO) / EUROSTAT / The International Tropical Timber Organization (ITTO), 2008;

http://timber.unece.org/fileadmin/DAM/other/definitions-e-2008a.doc

Phase class (Stage)

(Source: Genç, 2007 ve 2008) According to silvicultural discipline, stand development stages are Seedling and Sapling phases, Thin pole phase, Thick pole-middle aged and Mature phases and Regeneration (Over-mature – Silvicultural Maturity) phase.

Development stages in even-aged forests and their descriptions are given below.



STAGES	Seedling	Sapling	Thin pole	Thick pole	Middle aged	Mature	Over-mature
Definition of Stages	Starting from regeneration until crown closure occurs	Formation of crown closure until natural pruning starts	Diameter at 1.30 m between 8-10.9 cm	Diameter at 1.30 m between 11-19.9 cm	Diameter at 1.30 m between 20-35.9 cm	Diameter at 1.30 m between 36-51.9 cm	Diameter at 1.30 m over 52 cm
Stages for Management Planning	Thicket (a) 0-7.9 cm		Pole (b) 8-19.9 cm		Middle aged (c) 20-35.9 cm	Mature (d) 36-51.9 cm	Over-mature (e) 52 cm <
Silvicultural Treatment	Replacement planting, weeding and spacing.	Pre-commercial thinning	Commercial Thinning				
		Stand Tending					

Prepared by Omer S.ERKULOGLU and Burhan CEYLAN from the Forestry Research Institute and translated by Mehmet DEMIRCI.

Figure 1. Stand Development Stages in Even-Aged Forests (Source: Genç 2007 ve 2008)

Diameter class

Any of the intervals into which the range of stem diameters of trees or logs is divided for classification and use. Also the trees or logs falling into such an interval (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Diameter distribution

The manner in which the trees in a stand are distributed over diameter classes (Source: International Union of Forest Research Organizations(IUFRO), 2000)

Deposition

It is defined as the detection of sediments and pollutants carried by the precipitation water accumulated in open areas and undergrowth precipitation samplers. (Source: Zengin, M., Duyar, A., Kiniş, S., 2014)

Explanatory notes:

Application, sampling and analysis of the disposition measuring apparatus are made according to the principles specified in the ICP Forests application guidelines.

1. It is based on taking samples from established observation areas, performing some analyzes and accumulating data.
2. It provides important biochemical data about precipitation and atmospheric pollutants in forests (Source: Zengin, M., Duyar, A., Kiniş, S., 2014)

Desertification

Under the United Nations Convention to Combat Desertification (UNCCD), "desertification" means land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. (Source: United Nations Convention to Combat Desertification(UNCCD), 1994)

Combating desertification

Under the United Nations Convention to Combat Desertification (UNCCD), "combating desertification" includes activities which are part of the integrated development of land in arid, semi-arid and dry sub-humid areas for sustainable development which are aimed at:

(i) prevention and/or reduction of land degradation

(ii) rehabilitation of partly degraded land; and

(iii) reclamation of desertified land

(Source: United Nations Convention to Combat Desertification (UNCCD), 1994)

Uneven aged stand

Consisting of trees of a range of age classes, with age differences which are significant in relation to the stand structure management and rotation length. Stand with trunks of different ages and diameters within a certain area. It is not meaningful to determine the average stand age. Implemented or expected stand management relies heavily on the presence of permanent forest cover. In the management of these stands, selection cutting, shelterwood, open small field regeneration etc. are applied.

Explanatory notes:

1. It includes:
   a. areas where forest management activities are abandoned or support this process, and preserved forests and recreation areas, etc., where the process of the formation of uneven-aged structures continue,
   b. Formerly even-aged stands where active management practices (conscious or unconscious) were abandoned, and stands where uneven-aged stand formation process started as a result, areas where the site and stand structure are suitable for the continuation of this process, and where the management goal is to maintain this process or is not known.
2. It excludes even-aged stands with both mature and young trees, where regeneration is conducted. (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Government revenues

All government revenue collected from the domestic production and trade of forest products and services. For this purpose, revenue include:

- Goods: roundwood; sawnwood; biomass; wood-based panels; pulp and paper; and non-wood forest products.
- Services: including concession fees and royalties, stumpage payments, public timber sales revenue, taxes and charges based on forest area or yield, taxes on domestic trade and export of forest products, special levies on forestry activities and payments into forest-related funds, other miscellaneous inspection, licence and administrative fees levied by forest administration, permit and licence fees for recreation and other forest related activities.

Explanatory notes:

1. It excludes: taxes and charges generally collected from all individuals and enterprises (e.g. corporate taxes, payroll taxes, income taxes, land and property taxes, sales or value-added taxes); import taxes or duties levied on forest products; repayments of government loans to individuals and enterprises engaged in the production of forest products and services. (Source: Forest Resources Assessment (FRA), 2015).

Government expenditures

All government expenditure on forest related activities.

Explanatory notes:

1. Correspond to the total budget allocated and spent by all concerned institutions
2. Include expenditures for administrative functions, reforestation funds, direct support to forest sector (e.g. grants and subsidies) and support to other institutions (e.g. training and research centres).
3. Exclude expenditures in publicly owned business entities. (Source: Forest Resources Assessment (FRA), 2015)

Other wooded land

Land not defined as "Forest", spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes:

1. The definition above has two options:
   a. The canopy cover of trees is between 5 and 10 percent; trees should be higher than 5 meters or able to reach 5 meters.
   or
   b. The canopy cover of trees is less than 5 percent but the combined cover of shrubs, bushes and trees is more than 10 percent. Includes areas of shrubs and bushes where no trees are present
2. Includes areas with trees that will not reach a height of at least 5 meters and with a canopy cover of 10 percent or more, e.g. some alpine tree vegetation types, arid zone mangroves, etc
3. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met. (Source: Forest Resources Assessment (FRA), 2015)

Other land

All land that is not classified as forest or other wooded land. (Source: Forest Europe, 2015b)

Explanatory notes:

1. Includes agricultural land, meadows and pastures, built-up areas, barren land, land under permanent ice, etc.
2. Includes all areas classified under the sub-category "Other land with tree cover" (Source: Forest Resources Assessment (FRA), 2015)

Growing stock

Planted growing stock is the total of the volumes of trunks above a certain breast-high diameter that live and produce at a the time when forest is measured. Growing stock is the sum of the cylindrical body volumes of the trees with a trunk at a breast-high diameter of 8 cm and above. (in m^3) (Source: General Directorate of Forestry (GDF), 2014)

Explanatory notes:

1. Planted stem volume reached at the end of each period (5 or 10 years) is calculated with the Leibniz Formula given below. (Source: Kalıpsız,1988; Asan, 1995)

$GSVs = GSVb \times (1 + (p/100))^n$

In the formula; GSVs shows the growing stock reached at the end of the period, followed by GSVb, existing planted growing stock per period; p, volume increment rate and n, the length of the period (Year). (Asan, 1995)

2. Planted growing stock is calculated by using the stem volume including bark and the unit is m^3.

1. The coefficients used to convert the planted stem biomass into total biomass were determined as 1.20 for coniferous high forests, 1.25 for leafy high forests and 1.40 for coppices. (Source: Asan, 1995)

Planted forest

Planted forests are composed of trees established through planting and/or deliberate seeding of domestic or foreign species. The establishment, as far as it is known, is formed by forest plantation on a non-forest land or by reforesting the former forest land.

Planted forests are composed of semi-natural forests established for efficient and protective purposes and planted components in forest plantations. According to the logic of the newly applied grouping, it is not materially different from forest plantations in terms of planted component of semi-natural forest and intense silvicultural interventions with similar establishment patterns. The scope of planted forests within the continuity of forest types is provided in this source. (Source: Food and Agriculture Organization of the United Nations(FAO), 1996; http://www.fao.org/forestry/plantedforests/67504/en/).

For dynamic soil models

Dynamic models are needed to evaluate the time losses of recovery in regions where the exceeding of critical loads are halted, and the time losses in regions where critical loads continue to exceed. The VSD and SAFE models are defined in the ICP Modeling and Mapping Manual (www.icpmapping.org). As another approach, these will also be calculated for ICP forests Level I and II trial sites. (Source: Forest Europe, 2015b)

Natural disaster

In its broadest sense, events that harm people are called Natural Disasters. In other words, they are phenomena that cause loss of life and property. (Source: http://www.icisleriafad.gov.tr/dogal-afet)

Explanatory notes:

1. Disaster is natural and causes loss of life-property
2. It occurs in a very short time and is very difficult to block after it starts.
3. It is known where some disasters occur more on earth. For example, the results of earthquake, landslide, avalanche, flood, frost and some disasters appear directly and immediately, as in an earthquake.
4. But, as in drought, the consequences of some are seen after a long time and indirectly.

Natural regeneration

Re-establishment of a forest stand by natural means, i.e. by natural seeding or vegetative regeneration. It may be assisted by human intervention, e.g. by scarification or fencing to protect against wildlife damage or domestic animal grazing (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Natural (annual) losses

The average annual losses in the growing stock during a given reference period are found by measuring the minimum diameters determined for the growing stock. The growing stock reduces by natural death or diseases, insect infestation, fire, felling by wind or other physical damage, other than felling by man. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Naturalness

Naturalness is specified under the classes below:

Undisturbed by men (forest/other wooded land)

Forest/other wooded land which shows natural forest dynamics, such as natural tree composition, occurrence of dead wood, natural age structure and natural regeneration processes, the area of which is large enough to maintain its natural characteristics and where there has been no known significant human intervention or where the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment(TBFRA), 2000)

Semi-natural forest/ other wooded land

Forest/other wooded land which is neither "forest/other wooded land undisturbed by man" nor "plantation" as defined separately.

(Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Plantation

Forest stands established by planting or/and seeding in the process of afforestation or reforestation. They are either: of introduced species (all planted stands) (see description and indicator 4.4), or intensively managed stands of indigenous species which meet all the following criteria: one or two species at plantation, even age class, regular spacing.

Explanatory notes:

1. Excludes: Stands which were established as plantations but which have been without intensive management for a significant period of time. These should be considered semi-natural. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Direct wood fibre sources

Any wood fibre entering energy production without any further treatment or conversion. It comprises removals from forests and outside. This comprises also any wood coming from other wooded land and trees outside forest. It comprises any woody biomass from any land use and covers amongst others infrastructure maintenance (roads, railway, power transmission lines, pipelines, etc.), hedgerows, agricultural residues from fruit tree orchards, wood from gardens and parks, etc. It comprises any form of woody biomass, such as green chips, roundwood or split, stacked or loose from any part of the trees such as roots, stemwood and branches, fruits and shells.

(Source: http://www.unece.org/fileadmin/DAM/timber/wood_energy/jwee-2011-eng.xlsx and

http://www.unece.org/fileadmin/DAM/timber/wood_energy/JWEE2011manual.pdf)

Vulnerable

An ecosystem is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for VU, and is then considered to be at a high risk of collapse (Source: International Union for Conservation of Nature (IUCN), 1998/2016; Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003)

Education

Basic levels of International Standard Classification of Education applied based on data for 1998 are as follows:

- ISCED 0 – Pre-primary education
- ISCED 1 – primary education or first stage of basic education
- ISCED 2 – lower secondary education or second stage of basic education
- ISCED 3 – upper secondary education
- ISCED 4 – post-secondary non-tertiary education
- ISCED 5 – first stage of tertiary education (not leading directly to an advanced research qualification)
- ISCED 6 – second stage of tertiary education (leading to an advanced research qualification)

(Source: International Standard Classification of Education (ISCED), 1997;
http://www.unescobkk.org/fileadmin/user_upload/aims/ISCED_A.pdf).

Regeneration by planting and/or seeding

The act of establishing a forest stand (e.g. plantation) or re-establishing a forest stand by artificial means, either by planting of seedlings or by scattering seed. The material used may be of indigenous or introduced origin. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000; Forest Resources Assessment (FRA), 2015)

Payment for ecosystem services (PES)

PES can be defined as payment for an environmental service, a voluntary transaction in which a well-defined environmental service (or land use) is purchased only by at least one buyer from at least one provider that provides supply assurance. (Source: Wunder, 2005; Forest Europe 2015b)

Payment for Ecosystem Services are direct or indirect payments made by individuals or organizations using this service to the service provider. In this way, it is believed that incentives can be provided through PES to individuals or organizations that protect the ecosystem or ensure its sustainability. In contrast to the "Polluter pays principle", the "beneficiary pays principle" applies to the Ecosystem Services Payments mechanism. (Görücü, 2017; Eker, 2018; United Nations Development Programme (UNDP), 2018)

Ecosystem based functional forest management plan

It is the plan that enables the management of forests by combining their economic, technical, social and biological ecosystem components with the help of working groups based on target functions. (Source: General Directorate of Forestry (GDF), 2017.

Explanatory notes:

1. A table is prepared in which stand types are introduced and expected functions and silvicultural practices are explained. In this table, each sub-compartment is handled separately from the first stand of the first compartment to the last stand of the last compartment, and the spatial forest functions that stand out in each of them are identified. (Source: General Directorate of Forestry(GDF), 2017)
2. In the compartments and sub-compartments with more than one function, all the positional functions are listed, and the main and side functions are identified.
3. In functional planning, the separation of areas without tree cover is just as important as the separation of forest areas.
4. It is important to identify the forest functions in functional planning. Therefore, regardless of how the forest functions are grouped, the ultimate goal in dividing functional areas is to consider these areas as separate working groups. Since the basis of the “Ecosystem Based Functional Planning” approach, which constitutes the main framework of the regulation, is hidden in this assessment, the accurate division of functional areas is extremely important in terms of both management goals and conservation targets and working group division that will be made accordingly. (Source: General Directorate of Forestry (GDF), 2017).

Industrial wood

It includes tall tree and logs, poles, industrial wood, paperwood, pole, stick and fiber, chips and similar wood obtained from forests or places that are not considered forests. (Source: General Directorate of Forestry (GDF), 2004)

Explanatory notes:

1. Industrial woods exclude woodfuel. (Source: General Directorate of Forestry (GDF), 2004).
2. It is the wood produced in natural forests or industrial plantations.

Industrial roundwood removals

The wood removed for production of goods and services other than energy production (woodfuel).

Explanatory notes:

1. The term “removal” differs from “felling” as it excludes trees that were felled but not removed.
2. It includes removals from fellings in earlier period and from trees killed or damaged by natural causes.

(Source: Forest Resources Assessment (FRA), 2015)

Integrated management plan

Each watershed is a complex system that includes its own natural, socio-cultural and economic characteristics, as well as various ecosystems. In this context, the integration of habitats, integration of disciplines and actors, integration of financial resources and management tools are involved in integrated watershed management; and these cyclical processes, including the characterization of the watershed, the establishment of the watershed information system, the use of decision support systems and implementation and scrutiny processes are called integrated management plans. (Source: Tanık, 2015)

Explanatory notes:

1. In integrated management plans, the basic principles are the initiation and development of the cooperation and coordination process between the institutions responsible for water resources, environmental management, agriculture, etc., the establishment of management authorities and the enhancement of institutional capacities, the involvement of stakeholders in management, the participation and awareness of the public. (Tanık, 2015).

2. An integrated plan prepared by considering the protection-use balance in order to ensure the protection and improvement of the water, soil and biodiversity resources and their existence and habitat in a watershed. (Source: Ministry of Forestry and Water Affairs, 2014).
3. It covers spatial and geographic analysis and decision support systems, where all the spatial and non-spatial data will be hosted/integrated at the watershed level by improving the connections and integration between the databases of different institutions working in the watersheds and the monitoring-evaluation systems. (Source: Ministry of Forestry and Water Affairs, 2014).
4. It involves the preparation and implementation of large-scale integrated and participatory watershed rehabilitation projects in cooperation with the relevant institutions in watersheds suitable for the implementation of watershed protection and rehabilitation activities, along with the activities for the improvement of the living and income conditions of the low-income people who put pressure on natural resources.
(Source: Ministry of Forestry and Water Affairs, 2014)

Area managed for ex-situ genetic conservation

A dynamic conservation area (ex-situ) composed of forest trees, meeting the minimum requirements of Pan-European forests. Moreover, static ex-situ areas and long-term origin trials may also be included in this definition (short-term trials for biomass production should be excluded from this definition) (Source: http://portal.eufgis.org)

Ex-situ conservation

Conservation of all elements of biological diversity outside their natural habitat (Source: Convention on Biological Diversity (CBD), 1992)

Factor income

Factor income measures the remuneration of all factors of production (land, capital, labour) and represents all the value generated by a unit engaged in a production activity.

It can be derived from Gross Value Added (GVA) by deducting fixed capital consumption (depreciation) to get net value added, and then adjusting from basic prices to factor cost by subtracting any taxes on production and adding any subsidies on production. (Source: Forest Europe, 2015b)

FSC certification.

Forest area certified under the Forest Stewardship Council certification scheme. (Source: Forest Resources Assessment (FRA), 2015)

Gross domestic product

Gross Domestic Product (GDP) is the total market value of all final goods and services produced in a country in a given year. It is equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports. For the estimation of an industry's contribution to GDP, data on Gross Value Added (GVA) should be used. The link between GVA and GDP can be defined as: GVA + taxes on products - subsidies on products = GDP (Source: Forest Europe, 2015b)

Development phase-intermediate phase

Even-aged stand that is beyond the regeneration phase and has not reached "mature phase" yet. (Source: Forest Europe, 2015b)

Development phase-mature phase

Even-aged stand with a growing stock mature enough for immediate final felling and of an age that is at least 90% of the recommended rotation length on the site.

Explanatory notes:

1. Includes stands classified as over-mature.
2. Underproductive forests (i.e. commercial forest lands not meeting minimum stocking standards) where the recommended operation is immediate regeneration should be classified as mature only if the growing stock is mature for final felling with respect to age and/or mean diameter. Otherwise underproductive forests should be classified as regeneration or intermediate phase. (Source: Forest Europe, 2015b)

Development phase-regeneration phase

Even-aged stand where the mean diameter of the growing stock is below industrial roundwood size and the age of which lower than 20% of the recommended rotation length on the site.

Explanatory notes:

Includes temporarily unstocked forest areas. (Source: Forest Europe, 2015b)

Development phase – unspecified

Stands, that are classified as even-aged, for which the concept of development classes is irrelevant, e.g. energy plantations. (Source: Forest Europe, 2015b).

Regeneration

Reconstruction Re-establishment of a forest stand by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, e.g. fire or storm

Explanatory notes:

1. Implies no change of land use
2. Includes planting/seeding of temporarily unstocked forest areas as well as planting/ seeding of areas with forest cover.
3. Includes coppice from trees that were originally planted or seeded. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000; Forest Resources Assessment (FRA), 2015)

Genetic resources

Genetic resources means genetic material of actual or potential value (Source: Convention Biological Diversity (CBD), 1992)

Broadleaved

All trees classified botanically as Angiospermae. They are sometimes referred to as "non-coniferous" or "hardwoods**".** (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Area primarily designated or managed for public recreation

Forest area designated or managed to provide an opportunity for public recreation.

Explanatory notes;

1. Includes forest areas where recreational hunting or collection edible or non-timber forest products are allowed, but specifically excludes areas where these are collected for sale or subsistence.
2. Includes forest areas designated in management plans, or be provided for in national legislation that allows free access of the public to land for recreation, on public, private or communal lands. (Source: Forest Resources Assessment (FRA), 2015)

Coniferous

All trees classified botanically as Gymnospermae. They are sometimes referred to as "softwoods". (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Exports

The export of wood and products obtained from wood is calculated according to the formula below:

X = X(RW)+X(SW)*RWEc + X(WBP)*RWEc + X(Pulp)*RWEc + X(Paper)*RWEc

In the formula above:

• X = Export

• RW = Round wood (industrial wood and woodfuel)

• SW = Solid wood

• WBP = Wood based panel

• RWEc = Round wood equivalent coefficient

Default values of the RWEc are for:

SW = 1,89 RWE / m³,

WBP = 1,64 RWE / m³,

Wood pulp = 3.86RWE / mt,

Paper = 3,60 RWE / mt

(Source: Forest Europe, 2015b).

Area managed for in-situ gene conservation

A dynamic conservation area (in-situ) composed of forest trees, meeting the minimum requirements of Pan-European forests. Data on this component is obtained from the database of EUFGIS. (Source: http://portal.eufgis.org)

In-situ conservation

On-site conservation, protection of ecosystems and natural habitats, and ensuring the maintenance and improvement of living populations of species in their natural environment. It also refers to the conservation of domesticated or bred species, where the species develop their distinctive features. (Source: Convention on Biological Diversity (CBD), 1992)

ISIC/NACE (International standard industrial classification of all economic activities/Nomenclature of economic activities)

ISIC is the International Standard Industrial Classification of All Economic Activities. NACE is the equivalent Statistical Classification of Economic Activities in the European Community.

In ISIC Rev 4 (2008) and NACE Rev 2 (2008), the following categories cover forest industries:

02: Forestry and logging.

16:. Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

17: Manufacture of paper and paper products

In the previously used ISIC Rev 3.1 (2004) and NACE Rev 1.1 (2002), the corresponding categories were: 02, 20 and 21 (with some minor additions / subtractions). For the reporting years 1990, 2000 and 2005 the corresponding former NACE/ISIC categories 02, 20, 21 can be used. Adjustments from the old to the new NACE/ISIC are not needed. (Source: Forest Europe, 2015b)

Invasive introduced tree species

Invasive introduced tree refers to an alien tree species whose introduction and spread threaten ecosystems, habitats or species with socio-cultural, economic and/or environmental harm, and/or harm to human health

(Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; United Nations Environment Programme (UNEP)/Convention on Biological Diversity (CBD)/COP6, 2002)

Occupational accident

This term refers to events caused by the work or occurred while working, as a result of which the followings occur:

- Fatal occupational injury;
- Non-fatal occupational injury. (Source: International Labour Organization (ILO), 1998)

Energy from processed wood based fuels

Secondary (processed) biofuels in the form of solids (e. g. charcoal), liquids (e. g. alcohol, vegetable oil), or gases (e. g. biogas as a mixture of methane and carbon dioxide), can be used for a wider range of applications with higher efficiency rates on average, including transport and high-temperature industrial processes. (Source: United Nations Economic Commission for Europe(UNECE)/ Food and Agriculture Organization of the United Nations (FAO), 2011;

http://www.unece.org/fileadmin/DAM/timber/wood_energy/JWEE2011manual.pdf)

Job characteristics

Those who own and operate their own business or professional practice, sometimes in conjunction with a partner, are considered as self-employed. The Labour Force Survey (LFS) asks a number of questions to establish a person's employment status; this is based on a respondent's own opinion of whether they are an employee or self-employed. If a different source is used, a relevant distinction is that employees work for wage or salary (in cash or kind) while the self-employed work for profit or family gain (in cash or kind). Family workers are persons doing unpaid work for a business they own or for a business that a relative owns.

Explanatory note:

1. For the purpose of this reporting unpaid family workers should be included in self-employed. (Source: Forest Europe, 2015b)

Labour force survey

The Labour Force Survey (LFS) is a sample survey carried out in many European countries by interviewing individuals about their personal circumstances and work. Because the LFS is a sample survey, results are subject to sampling error, i.e. the actual proportion of the population in private households with a particular characteristic may differ from the proportion of the LFS sample with that characteristic.

The LFS defines employment as those people aged 16 and over who did at least one hour's paid work in the reference week (either as an employee or self-employed); those who had a job which they were temporarily away from (on holiday for example); those participating in government training and employment programmes; and those doing unpaid family work. (Source: Forest Europe, 2015b)

Imports

The import of wood and products obtained from wood is calculated according to the formula below:

M = M(RW)+M(SW)*RWEc + M(WBP)*RWEc + M(Pulp)*RWEc + M(Paper and board)* RWEc

The terms are;

M = Import

RW = Round Wood (industrial wood and woodfuel)

SW = Solid Wood

WBP = Wood Based Panels

RWEc =Round wood equivalent coefficient

For default values of RWEc: SW = 1.89 RWE / m^3, WBP = 1.64 RWE / m^3, Wood pulp = 3.86 RWE /

mt, Paper and board = 3.60 RWE / mt

The imports and exports are expressed in m^3 roundwood equivalent and value. A m^3 roundwood equivalent expresses the amount of roundwood needed to produce a m^3 of a certain wood product.

By expressing the trade in m^3 roundwood equivalents, volumes of products with different properties such as sawnwood and panels or different measurement units such as m^3 (sawnwood) and mt (paper and board) can be summed together. In addition, by expressing trade in m^3 roundwood equivalents, the relationship between the volume of roundwood traded and the removals from the forest can be expressed (Source: Forest Europe, 2015b)

Permits and easements

"Permits and easements" refers to the temporary allocation of the limited use right of the forest areas to the institutions or persons, determined by the administration according to Articles 16, 17, 18 and 115 of the Forest Law No. 6831. (Source: Ministry of Environment and Forestry, 2007)

Explanatory notes:

(ISIC / NACE 17) Manufacture of paper and paper products

This division includes the manufacture of pulp, paper and converted paper products. The manufacture of these products is grouped together because they constitute a series of vertically connected processes. More than one activity is often carried out in a single unit. There are essentially three activities: The manufacture of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacture of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques, including coating and laminating activities. The paper articles may be printed (e.g. wallpaper, gift wrap etc.), as long as the printing of information is not the main purpose. The production of pulp, paper and paperboard in bulk is included in ISIC Code - 1701, while the remaining classes include the production of further-processed paper and paper products. (Source: International Standard Industrial Classification (ISIC), 2008)

Public expenditure

Public expenditure refers to all government expenditures on forest related activities. It corresponds to the total budget allocated and spent by all concerned institutions. It includes expenditures for administrative functions, reforestation funds, direct support to forest sector (e.g. grants and subsidies) and support to other institutions (e.g. training and research centers). It excludes expenditures in publicly owned business entities. Where it is impossible or inappropriate to separate the activities of publicly owned business entities from other public sector activities in forest sector, this should be noted and expenditure of the entities should be included here. (Source: Forest Europe, 2015b)

Public ownership

Forest owned by the State; or administrative units of the Public Administration; or by institutions or corporations owned by the public administration

Explanatory notes:

1. Includes all the hierarchical levels of Public Administration within a country, e.g. State, Province and Municipality.
2. Shareholder corporations that are partially State-owned, are considered as under public ownership when the State holds a majority of the shares
3. Public ownership may exclude the possibility to transfer. (Source: Forest Resources Assessment (FRA), 2015b)

Publicly owned forest

Forest owned by the State; or administrative units of the Public Administration; or by institutions or corporations owned by the Public Administration.

Explanatory notes:

1. Includes all the hierarchical levels of Public Administration within a country, e.g. State, Province and Municipality..
2. Shareholder corporations that are partially State-owned, are considered as under public ownership when the State holds a majority of the shares.
3. Public ownership may exclude the possibility to transfer. (Source: State of Europe's Forests (SoEF), 2015)

Carbon stock

The amount of carbon that has ben sequestered from the atmosphere at a given time (Source: International Panel on Climate Change (IPCC), 2001; https://www.ipcc.ch/ipccreports/tar/)

Unregistered wood production value

Explanatory notes:

It is expressed as the financial value of wood production activities that are not registered through official records, are not documented with legal documents, cannot be controlled by the authorized public body within normal rules, are not taken into account in domestic income calculations and cannot be calculated correctly.

(http://www.akademiktisat.net/calisma/tr_iktisat_genel/tr_kdisi_ekonomi_ggonca.htm)

Explanatory notes:

1. The management of non-wood forest products in natural forests with biological richness and ecological diversity is very complicated, and these products are left out of management plans. Thus, the necessary attention has not been paid to the inventory, management, protection of these products, and to keeping healthy records of them. (Source: Kurt, R., Çabuk Y., Karayılmazlar, S., 2011).
2. The main reason for the emergence of the informal economy is the unlimited human needs and the scarcity of resources to meet these needs. People prefer to spend more or save money instead of sharing the money they earn with the state. Because as they enter the registry, their spendings or savings will decrease as the tax burden on them will increase or begin. This situation will also vary according to the marginal consumption and saving trends of a person. (http://www.akademiktisat.net/calisma/tr_iktisat_genel/tr_kdisi_ekonomi_ggonca.htm)
3. Despite the positive effects brought about by the informal economy, it is clear that it will cause problems that are difficult to address, in the long run. The most important of these is the decrease in the tax revenues of the state and the actual wood production value cannot be reflected in the national accounting systems.

It is impossible to fully measure the informal economy since the data on informal economy is not included in official records which results in estimation of values based on various assumptions and using various methods. (Source: http://www.akademiktisat.net/calisma/tr_iktisat_genel/tr_kdisi_ekonomi_ggonca.htm

Felling (annual)

Average annual standing volume of all trees, living or dead, measured overbark to a minimum diameter of 0 cm (d.b.h.) that are felled during the given reference period, including the volume of trees or parts of trees that are not removed from the forest, other wooded land or other felling site.

Includes: Silvicultural and pre-commercial thinnings and cleanings left in the forest and natural losses that are recovered (harvested). (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

(Apparent) consumption per head

(Apparent) consumption is calculated by adding imports to a country's production and subtracting exports. (Apparent) consumption volumes are not adjusted for levels of stocks. It is a proxy for "demand" and "use". Primary processed products (i.e. sawnwood, wood based panels, pulp, paper and board) as well as wood used in the rough and energy wood should be included. Secondary process products (e.g. furniture, paper products, joinery) should not be included to avoid double counting and because of problems with conversion factors.

(Apparent) consumption per head of wood and products derived from wood is calculated according to the formula:
AC per head = [AC(SW)* RWEc + AC(WBP)* RWEc + AC(Paper and board)*RWEc + AC(Fuelwood) + R (Other Industrial Roundwood)] / Total population (in corresponding year)

The terms used here are described below:
AC (Apparent consumption) = production + imports – exports
R = Removal
SW = Sawnwood
WBP = Wood-based Panels
RWEc = roundwood equivalent coefficient
The default values of the RWEc are for: SW = 1.89 RWE / m^3, WBP = 1.64 RWE / m^3, Paper and board = 3.60 RWE / mt

The (apparent) consumption is expressed in m³ roundwood equivalent. A m³ roundwood equivalent expresses the amount of roundwood needed to produce a m³ of a certain wood product. By expressing consumption in m³ roundwood equivalents, volumes of products with different properties such as sawnwood and panels or different measurement units such as m³ (sawnwood) and (metric) tonne (mt) (paper and board) can be summed together. In addition, by expressing the (apparent) consumption in m³ roundwood equivalents the relationship between the volume of roundwood consumed and the removals from the forest can be expressed. (Source: Forest Europe, 2015b)

Protected forest

See MCPFE Class 1.1, 1.2, 1.3 and Class 2 (The MCPFE Assessment Guidelines for Protected and Protective Forest and Other Wooded Land) (Source: Forest Europe, 2015b).

Protection

The function of forest and OWL in providing protection of soil against erosion by water or wind, prevention of desertification, the reduction of risk of avalanches and rock or mud slides; and in conserving, protecting and regulating the quantity and quality of water supply, including the prevention of flooding. Includes: Protection against air and noise pollution (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Protective forest

See MCPFE Class 3 (The MCPFE Assessment Guidelines for Protected and Protective Forest and Other Wooded Land) (Source: Forest Europe, 2015b)

Trees with cultural and spiritual values

This category includes individual veteran trees, heritage trees, champion trees, and trees associated with religious and spiritual practices and beliefs. It also includes groups of trees that are too small to be classed as 'Forested landscapes', such as hedges, avenues and groves. Veteran (or ancient) trees can be defined as trees that are old relative to others of the same species, and are of 208 interest biologically, aesthetically or culturally because of their age. For example, a birch tree may be considered to be a veteran at 200 years old, while a yew may have to survive for at least 1,000 years before it can be considered ancient. Veteran 'working trees' include those that were coppiced, pollarded, shredded etc, as part of historical management practices. Heritage trees can be defined as trees that are revered for their historical, cultural or botanical significance, for example because they are very old, have interesting historical associations, e.g. 'witness trees' that were present at the scene of notable historic events or 'champion trees' with record dimensions (girth, height, amount of timber, etc). (Source: State of Europe's Forests (SoEF), 2011)

Forested landscapes with cultural and spiritual values

'Forested landscapes with cultural and spiritual values' may also be referred to as 'cultural landscapes' in area where forest or other wooded land is the primary component. The term encompasses a wide range of manifestations of the interaction between humankind and its natural environment. Such landscapes fall into three main types:

a) landscape designed and created intentionally by humans, often for aesthetic reasons, including historical and contemporary designed forested landscapes
b) organically evolved landscape, either 'relict' (or fossil), in which an evolutionary process came to an end at some point in the past, or 'continuing', i.e. a landscape that retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress
c) associative cultural landscape, which is recognised primarily for its religious, artistic or cultural associations with the natural element rather than any material cultural evidence (Source: United Nations Educational, Scientific and Cultural Organization (UNESCO), 2008; http://www.unesco.org/new/en/natural-sciences/).

All three types may be recognised for their contemporary aesthetic, amenity or recreational values. This category includes sites with geological and other non-biological natural elements of recognised cultural and spiritual value, such as mountains and waterfalls. All the area reported under the MCPFE Protected Forest Class 2 (Protection of Landscape and Specific Natural Elements) should be recorded here in numbers like the other areas which are not under protection with similar values. (Source: State of Europe's Forests (SoEF), 2011)

Critical level

The level showing concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur.

(Source: http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.html)

Critical load

A quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur. (Source: Nilsson and Grennfelt, 1988; http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.html)

Note: Under the LRTAP Convention, Simple Mass Balance (SMB) model is used as a standard to measure critical loads for terrestrial ecosystems. (Sverdrup et al. 1990, Sverdrup and De Vries1994). SMB model is a single layer model. (ICP Modelling and Mapping Chapter V "Mapping Critical Loads"; www.icpmapping.org).

Critically endangered; CR

A taxon is critically endangered when it is facing an extremely high danger of extinction in the wild in the immediate future. This is defined through the criteria from A to E by IUCN (1998) (Source: Forest Europe, 2015b)

An ecosystem is Critically Endangered when the evidence indicates that it meets any of the criteria A to E for CR. It is then considered to be at an extremely high risk of collapse. (Source: International Union for Conservation of Nature (IUCN), 2016),

Institutional framework

Institutional framework essentially refers to the organizational structure of forestry policy in a country. It also includes formal coordination mechanisms between forestry policy and organizational structure. (e.g. national forest program process). (Source: Forest Europe, 2015b)

Cultural and spiritual values

It includes "cultural heritage", "forested landscapes", "trees" and "other sites", known for their unique cultural and spiritual values. Cultural heritage sites can either be forests in terms of historical management or can be found in forests that do not have a significant historical association surrounding it. Forest areas with cultural and spiritual values are called "cultural areas" where forest or other woodlands are the primary component. Trees with cultural and spiritual values include ancient and heritage trees. Other sites include areas with contemporary artistic features, wooded cemeteries and demonstration or ceremonial areas. (Source: State of Europe's Forests (SoEF), 2011)

Cultural heritage

The category 'Cultural heritage' includes archaeological sites and features associated with human artefacts, and historical sites and features such as the remains of old buildings and monuments and also locations of historical importance (e.g. battle sites) even if no remains are present. There is no widely agreed difference between the terms "Archaeological" and "Historical", which are two terms used in this context. Therefore, these two sites of fields are combined in reporting.

Cultural heritage sites can be divided into two as "of the forest" and "in the forest". Cultural heritage sites outside the forest include monuments, buildings or other historical artifacts associated with the history of the forest. In the reporting form, these areas are referred to as "forests associated with historic forest management". Examples for this includes the following: boundary banks and dykes, charcoal-burning platforms, saw pits, some bloomery and blast furnace sites, tar production sites, kilns, water mills and lades, features associated with game management and for transporting forest products. The forest was an essential component in their use, and they would not have been created if the forest had not existed. The kinds of historic forest management that these sites were associated with may include ancient wood pastures, historic planted forests, and stands of old industrial or pre-industrial coppice, coppice with standards, pollards, shredded or other 'working trees' for the production of acorns, fodder, tar, resins and other products. Evidence of such management may be found in 'organically evolved landscapes' within the category 'Forested landscapes' (See the definition of "Forested landscapes with cultural and spiritual values").

Cultural heritage sites 'in the forest' include all other archaeological and historical sites, where the forest itself is not an important aspect of its heritage value. Often, such sites may predate the forest, which has subsequently grown up around it. Examples include: ancient settlements, fortifications, burial mounds, earthworks, field systems and other evidence of historic farming practices, standing stones, and military, funerary, industrial and domestic monuments, churchyards, crosses and memorials, battle sites, historic places of assembly or ceremony, castles, bridges, roads and transport structures. (Source: State of Europe's Forests (SoEF), 2011).

Other sites with cultural and spiritual values

'Other sites with cultural and spiritual values' include sites of contemporary cultural and spiritual importance, such as venues for cultural performances, ceremonies or gatherings, sites of sculptures and other installation art, and sites of recent woodland burial. Such sites may have historical associations, but they are recorded under this category rather than under 'Cultural heritage' if their current use is recognized as more important than their historic use (Source: State of Europe's Forests (SoEF), 2011)

Occupational disease

The term "occupational disease" covers any disease contracted as a result of an exposure to risk factors arising from work activity. (Source: International Labour Organization (ILO), 1998)

Stand

A community of trees possessing sufficient uniformity in composition, age, arrangement or condition to be distinguishable from the forest or other growth on adjoining areas, thus forming a temporary silvicultural or management entity. (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Endangered

A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the criteria (A to E) defined by IUCN (1998). (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; International Union for Conservation of Nature (IUCN), 1998)

Net revenue

The net revenue of forest enterprises includes all sources of income of the forest owner directly related to forestry, including subsidies, excluding taxes. (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2002)

Net entrepreneurial income

Net entrepreneurial income measures the return to the forestry business owner, and consists of the compensation of unpaid labour, remuneration from land belonging to units and the yield arising from the use of capital. It can be derived from factor income by subtracting compensation of employees to get operating surplus, and then adding any interest received by forestry units organized as companies and deducting any rent and interest payments. (Source: Forest Europe, 2015b)

Net annual increment

Average annual volume over the given reference period of gross increment less that of natural losses on all trees to a minimum diameter of 0 cm. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000; Forest Resources Assessment (FRA), 2015)

Wood residues

The volume of roundwood that is left over after the production of forest products in the forest processing industry (i.e. forest processing residues) and that has not been reduced to chips or particles. It includes sawmill rejects, slabs, edgings and trimmings, veneer log cores, veneer rejects, sawdust, residues from carpentry and joinery production, etc. It excludes wood chips made either directly (i.e. in the forest) from roundwood or made from residues (i.e. already counted as pulpwood, round and split or wood chips and particles). It is reported in cubic metres solid volume excluding bark.

(Source: United Nations Economic Commission for Europe(UNECE) / Food and Agriculture Organization of the United Nations (FAO) / EUROSTAT / The International Tropical Timber Organization(ITTO), 2001; http://timber.unece.org/fileadmin/DAM/other/definitions-e-2008a.doc)

Wood resources

According to the Joint UNECE/FAO/Eurostat/ITTO Forest Sector Questionnaire (2001)

"wood resources" are defined as the sum of the following items:

Charcoal

Wood carbonized by partial combustion or the application of heat from external sources. It includes charcoal used as a fuel or for other uses, e.g. as a reduction agent in metallurgy or as an absorption or filtration medium. It is reported in metric tonnes (Source: UNECE/FAO/EUROSTAT/ITTO, 2001;

http://timber.unece.org/fileadmin/DAM/other/definitions-e-2008a.doc)

Nonwood goods

Goods derived from forests that are tangible and physical objects of biological origin other than wood.

Explanatory notes:

1. Generally includes non-wood plant and animal products collected from areas defined as forest (see definition of forest).
2. Specifically includes the following regardless of whether from natural forests or plantations: gum arabic, rubber/latex and resin; Christmas trees, cork, bamboo and rattan.
3. Generally excludes products collected in tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover.
4. Specifically excludes the following:
   - woody raw materials and products, such as chips, charcoal, fuelwood and wood used for tools, household equipment and carvings;
   - grazing in the forest
   - fish and shellfish (Source: Forest Resources Assessment (FRA), 2015)

Wood pellets

Cylindrical products which have been agglomerated either directly by compression or by the addition of a small quantity of binder, having a diameter not exceeding 25 mm and a length not exceeding 45 mm. (Source: Forest Europe, 2015b)

Wood consumption

The use of timber and/or wood through utilisation and burning. (Source: IUFRO, 2000)

Forest available for wood supply

Forests available for wood supply are forests where there are no environmental, social or economic restrictions that could have a significant impact on wood supply. These restrictions could be based on legal acts, managerial owners' decisions or other reasons.

Explanatory notes:

- Environmental restrictions should consider: protected areas, protected habitats or species, and also those protective forests meeting the above requirements. Age or diameter class restriction should not be taken into account (except in the case of protected ancient forest).
- Social restrictions include restrictions to protect aesthetic, historical, cultural, spiritual or recreational values as well as areas where the owner has made the decision to cease wood harvesting in order to focus on other goods and services (e.g. leisure, landscape, aesthetic value).
- The economic restrictions are considered as those affecting the economics value of wood utilisation (profitability). These includes: accessibility, slope and soil condition. Short-term market fluctuations should not be considered. (Source: Forest Europe, 2015b).

[Note: FAWS reference definition, which includes details on restriction classes as well as international definitions and a series of advices for assessments in relation to results in the European context, is recommended to be made under the COSTFP1001 framework program.)]

Operational expenditure

Operational expenditure is all government expenditure on public institutions solely engaged in the forest sector. Where the forest administration is part of a larger public agency (e.g. department or ministry), this should only include the forest sector component of the agency's total expenditure. As far as possible, this should also include other institutions (e.g. in research, training and marketing) solely engaged in the forest sector, but it should exclude the expenditure of publicly owned business entities. Where it is impossible or inappropriate to separate the activities of publicly owned business entities from other public sector activities in forest sector, this should be noted and expenditure of the entities should be included in the table. In this case, please specify in the space left for comments which institutions you included (or not). Operational expenditure includes expenditure on: personnel; materials; operating costs; and capital investment (e.g. buildings, equipment, tools, vehicles and machinery), whether funded by domestic or external sources of finance. It includes expenditure on contract or outsourced activities. It also includes the operating costs associated with any forest sector incentive schemes. It excludes expenditure on: marketing; trade facilitation; general research, education, training; or development projects, where forest is not the main focus of activities. (Source: State of Europe's Forests (SoEF), 2015)

Forest

Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

Explanatory notes:

1. Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters.
2. Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of at least 10 percent and tree height of 5 meters or more. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.
3. Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.
4. Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.
5. Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of at least 10 percent and tree height of at least 5 meters.
6. Includes areas with mangroves composed of water-resistant trees in tidal zones, where fresh and salt water meets each other, regardless whether this area is classified as land area or not.
7. Includes rubberwood, cork oak and Christmas tree plantations.
8. Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.
9. Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry systems such as the "Taungya" system where crops are grown only during the first years of the forest rotation should be classified as forest.

(Source: Forest Resources Assessment (FRA), 2015).

Forest management

The processes of planning and implementing practices for the stewardship and use of forests and other wooded land aimed at achieving specific environmental, economic, social and /or cultural objectives. It includes management at all scales such as normative, strategic, tactical and operational level management. (Source: Forest Europe, 2015b)

Forest management plan

Information (in the form of text, maps, tables and graphs) collected during (periodic) forest inventories at operational forest units level (stands, compartments), and operations planned for individual stands or compartments to reach the management goals. It has two categories:

1. Which production will be done: Forest management plan is predominantly focused on production.
2. Which protection will be done: Forest management plan is predominantly focused on protection.

Equivalent of forest management plan

"Information collected on forest area, at forest management or aggregated forest management unit level (forest blocks, farms, enterprises, watersheds, municipalities, or wider units), and strategies/management activities planned to reach the management or development goals". (Source: State of Europe's Forests (SoEF), 2007; Forest Resources Assessment (FRA), 2015)

Reforestation

Re-establishment of forest through planting and/or deliberate seeding on land classified as forest.

Explanatory notes:

1. Implies no change of land use.
2. Includes planting/seeding of temporarily unstocked forest areas as well as planting/ seeding of areas with forest cover
3. Includes coppice from trees that were originally planted or seeded
4. Excludes natural regeneration of forest. (Source: Forest and Resource Assessment (FRA), 2015).

Forest land degradation

According to the definition (Article 1) provided in the United Nations Convention to Combat Desertification (UNCCD), "land degradation" means reduction or loss, in arid, semi-arid and dry subhumid areas, of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as:

- soil erosion caused by wind and/or water;
- deterioration of the physical, chemical and biological or economic properties of soil; and
- long-term loss of natural vegetation (Source: Forest Europe, 2015b)

Natural Expansion of Forest

Expansion of forests through natural succession on land that, until then, was under another land use (e.g. forest succession on land previously used for agriculture).

Explanatory note:

1. Implies a transformation of land use from non-forest to forest. (Source: Forest Resources Assessment (FRA), 2015)

Carbon in litter

Carbon in all non-living biomass with a diameter less than the minimum diameter for deadwood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil. Carbon litter also includes leaf litters

Explanatory note:

1. Fine roots of less than 2 mm (or other value chosen by the country as diameter limit for belowground biomass) above the mineral or organic soil are included in the litter because they cannot be distinguished from it empirically. (Source: Forest Resources Assessment (FRA), 2015)

Forest genetic resources

Forest genetic resources are the heritable materials maintained within and among tree and other woody plant species that are of actual or potential economic, environmental, scientific or societal value. (Source: Food and Agriculture Organization of the United Nations (FAO), 2014).

Forest expansion

Expansion of forest on land that, until then, was not defined as forest. (Source: Forest Resource Assessment (FRA), 2015)

Forest services

Forest services include the followings:

- Protection (against soil erosion caused by air or water, avalanches, mud and rock slides, flooding, air pollution, noise etc.)
- Social and economic values (e.g. hunting and fishing, other leisure activities, including recreation, sport and tourism)
- Aesthetic, cultural, historical, spiritual and scientific values (including landscape and amenity) (Source: Forest Resource Assessment (FRA), 2000)

Forest ecosystem goods and services

Forest ecosystems are known for the importance of the products and services they provide to human communities on a global scale. These products include marketed and non-marketed products, as well as services. Examples of products and services provided by forest ecosystems are given in the table below. (Source: Millennium Ecosystem Assessment, 2005; Forestry Commission Research Note, 2015)

Table 1: Forest Ecosystem Goods and Services

Provisioning Services	
Food	Mushrooms, wild fruits and etc.
Wood products	Wood products, paper etc. obtained through forestry activities
Fuel	Biological materials serving as sources of energy
Genetic resources	Services provided by using the genetic variety of the all the living species in forest ecosystems.
Biochemicals	Medicines, additives, etc. obtained from living species in the forest ecosystem.
Regulating Services	
Air quality maintenance	Absorption of chemicals in the atmosphere by forests.
Climate regulation	Regulating both temperature and precipitation depending on forests at a local scale; sequestration or release of greenhouse gases by forest ecosystems and thus regulation of the climate at the global scale.
Water regulation	Regulating the flow of water in the forests, reducing the risk of flooding in the lower part of the watershed in case of floods.
Water purification	The role of forests in the purification of fresh water sources of trees and forests from pollutants and cleaning of water in this way.
Disease control: pests	Forest ecosystems that provide a habitat for living creatures fed with pests.
Pollination	The contribution of the species of forest ecosystems to pollination.
Cultural Services	
Recreation and tourism	Different types of ecotourism and recreation activities that people perform in forests (e.g. hiking, nature observation etc.)
Spiritual/religious values	Spiritual values that people attribute to forest ecosystems, the species they host, or natural areas.
Educational and inspirational values	Providing inspiration on many different areas from people's intellectual development to art, folklore and architecture
Aesthetic values	The importance given to the landscape beauty in forest ecosystems by people.
Supporting Services	
Soil formation	Contribution to soil formation by fragmentation by leaves and accumulation of leaves.
Primary production	Enabling the plants to grow and producing oxygen by the fixation of carbon dioxide through photosynthesis.
Nutrient cycling	Movement and recycling of food between litter, soil and air in forest ecosystems.

Water cycling	Contributing to the continuous cycling of water between the atmosphere and the earth by water retention and transpiration.

(Source: Millennium Ecosystem Assessment, 2005; Forestry Commission Research Note, 2015).

ISIC/NACE 02 (Forestry and logging)

This division includes the production of roundwood for the forest-based manufacturing industries as well as the extraction and gathering of wild growing non-wood forest products. Besides the production of timber, forestry activities result in products that undergo little processing, such as fire wood, charcoal, wood chips and roundwood used in an unprocessed form (pulpwood etc.). These activities can be carried out in natural or planted forests.

This class includes the following categories

- 021 Silviculture and other forestry activities
- 022 Logging
- 023 Gathering of non-wood forest products
- 024 Support services to forestry

(Source: International Standard Industrial Classification (ISIC), 2008)

Employment in forestry and logging

Employment in activities related to production of goods derived from forests. This category corresponds to the ISIC/NACE Rev. 4 activity A02 (Forestry and logging). (Source: Forest Resources Assessment (FRA), 2015)

Forest cadastre

Explanatory notes:

Law on forest (act or code)

Set of rules enacted by the legislative authority of a country regulating the access, management, conservation and use of forest resources. (Source: Forest Europe, 2015b)

Institutional framework on forestry

Institutional framework is understood to refer mainly to the organizational setup of forest policy in the country. It further comprises formal coordinating mechanisms between these (including e.g. national forest programme process). (Source: Forest Europe, 2015b)

Forest ownership

Generally refers to the legal right to freely and exclusively use, control, transfer, or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations, and inheritance. (Source: Forest Europe, 2015b)

Explanatory note:

Forest ownership refers to the ownership of the trees growing on land classified as forest, regardless of whether or not the ownership of these trees coincides with the ownership of the land itself.
(Source: Forest Resources Assessment (FRA), 2015)

GENERAL DIRECTORATE OF FORESTRY

Forest fragmentation

Forest fragmentation refers to any process that results in the conversion of formerly continuous forest into patches of forest separated by non-forested lands. (Source: https://www.cbd.int/forest/definitions.shtml)

Forest fragmentation

When analyzed in terms of spatial structure, it is the degradation of forest integrity due to natural regeneration, afforestation works, intensive forest use, illegal use, increase of residential areas and infrastructural developments in relatively flat areas. (Source: Kadıoğulları, A.İ., Başkent, E.Z., 2006)

Explanatory notes:

Average forest piece area is shown by the largest patch index and number of patches. (Source: Kadıoğulları, A.İ., Başkent, E.Z., 2006)

1. Remote Sensing (RS) techniques determine the change in forest ecosystem in terms of quantity and fragmentations relying on satellite images, and provide information in a way that prevents future discussions in the making process of future plans.
2. Gradually decreasing forest areas and degradation of their structures and breaking them into small pieces cause degradation of ecosystem balance. With this awareness, conservation of biological diversity, protection of ecosystem health and integrity, including increasing water resources and water quality, reducing soil erosion, are only possible with more realistic forest management planning approaches. (Source: Kadıoğulları, A.İ., Başkent, E.Z., 2006)
3. Since 2000s, the most used index in landscape fragmentation analysis made from local to regional or even continental level is the Effective Mesh Size. The index is based on the possibility of two randomly selected points in any landscape to be in the same spot. As the barriers increase in the landscape, the probability of the two points being connected will decrease (see Figure). These two points may be the female and male individuals of a species, and they may not come together in the reproductive period due to fragmentation. With this analysis, the probability of encounters of individuals is converted into a field measure called Effective Mesh Size and its unit can be ha or km^2. Effective Mesh Size decreases as the probability of encounters decreases - that is, as the barriers increase or the utilization of the area changes from the natural area to another land use - (Jaeger, 2000).

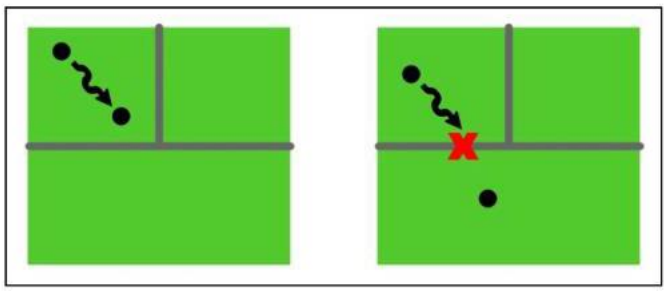


Figure. 3. Probability of two points chosen randomly in a region will be connected (Girtevz, 2007).

This issue is address in Terms and Definitions of Forest Europe as follows: “Forest fragmentation refers to any process that results in the conversion of formerly continuous forest into patches of forest separated by non-forested lands.” (Source: https://www.cbd.int/forest/definitions.shtml)

Although this term and the term fragmentation of forests specified in the SFM C&I set seem to mean the same thing, our definition refers to the fragmentation of the forest with destructive elements, while the definition in Forest Europe refers to the splitting of the forest into small patches. Therefore, there are differences between the cause and purpose of fragmentation.

Fragmentation is becoming an increasingly important issue globally and is considered as one of the main factors threatening biodiversity (Forman 1995; Noss and Cooperrider 1994). Landscape fragmentation may occur as a result of natural fires, floods, earthquakes or volcanic eruptions, as well as human activities such as industry, agriculture, settlement, mining, and transportation. Among these factors, especially highways come to the fore; Due to their linear and continuous characters, highways make permanent changes to the landscapes at large scales

Forest policy

A set of orientations and principles of actions adopted by public authorities in harmony with national socio-economic and environmental policies in a given country to guide future decisions in relation to the management, use and conservation of forest and tree resources for the benefit of the society. (Source: Forest Resources Assessment (FRA), 2015)

Forest holding

One or more parcels of forest and other wooded land which constitute a single unit from the point of view of management or utilization. For State-owned forest and other wooded land a holding may be defined as the area forming a major management unit administered by a senior official, e.g. a Regional Forestry Officer. For forest and other wooded land that is owned publicly, other than by the State, or owned by large-scale forest owners, e.g. forest industries, a holding may constitute a number of separated properties which are, however, managed according to one corporate strategy. Under any category of ownership, other than Stateowned, one holding may be the property of one or several owners (Source: Temperate and Boreal Forest Resources Assessment (TBFRA9, 2000; State of Europe's Forests (SoEF), 2007)

Forest sector

- ISIC/NACE 02.0 (Forestry, logging and related services)
- ISIC/NACE 16 ff (Manufacture of wood and articles in wood)
- ISIC/NACE 17 ff (Manufacture of paper and paper products) (Source: Forest Europe, 2015b)
-

Forest types

Forest types are classified as follows, based on EUNIS Top Level and TBFRA 2000:

- predominantly broadleaved woodland: Forest/other wooded land on which more than 75 percent of the tree crown cover consists of broadleaved species
- predominantly coniferous woodland: Forest/other wooded land on which more than 75 percent of the tree crown cover consists of coniferous species
- mixed broadleaved and coniferous woodland: Forest/other wooded land on which neither coniferous, nor broadleaved species account for more than 75 percent of the tree crown cover. (Source: State of Europe's Forests (SoEF), 2003)

Forest types are classified in Status & Trends in Sustainable Forest Management in Europe as follows: (Source: Forest Europe 2015b; UNECE and FAO, 2011)

Table 2: European forest types classes

1	**Boreal forest**	Forests dominated by *Picea abies* and *Pinus Sylvestris*, including large boreal species. Deciduous trees including birches (Betula spp.), aspen (Populus tremula), rowan (Sorbus aucuparia) and willows (Salix spp.) tend to occur as early colonisers of bare ground or in the early stages of forest succession.
2	**Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest**	They include the latitudinal mixed forests located in between the boreal and nemoral forest zones. A slightly higher variety of tree species, including temperate deciduous trees such as *tilia cordata, Fraxinus excelsior, Ulmus glabra* and *Quercus robur*. Also include: pure and mixed forests dominated by coniferous species such as *Pinus sylvestris*, *Pinus nigra*, *Pinus pinaster*, *Picea abies, Abies alba*.
3	**Alpine coniferous forest**	High altitude vegetation belts of central and southern European mountain ranges covered with *Picea abies, Abies alba, Pinus sylvestris, Pinus nigra, Larix decidua, Pinus cembra* and *Pinus mugo*. Birch forests of the boreal region are also included.
4	**Acidophilous oak and oak-birch forest**	Forests spread over less fertile soils of the temperate forest zone. In terms of wood type composition; forests where steppe oak species *(Q. robur, Q. petraea)* and birch (Betula pendula) have low proportion but dominant in the area.

5	**Mesophytic deciduous forest**	Deciduous forest that develops in habitats with normal conditions in terms of water supply. Related to the medium / rich soils of the temperate zone; The forest composition is characterized by mixed and relatively broad-leaved deciduous trees: *Carpinus betulus, Quercus petraea, Quercus robur, Fraxinus, Acer* and *Tilia cordata.*
6	**Beech forest**	Beech forest commonly found on low altitude flat terrain and mountain slopes. *Fagus sylvatica* and *Fagus orientalis* are the dominant species. Another regionally important species is *Betula pendula*.
7	**Mountainous beech forest**	In the mountains of Europe there is a broad-leaved deciduous and coniferous vegetation zone. Species composition; Forest type with some species, including *Picea abies, Abies alba, Betula pendula*, and mesophytic deciduous species. It also includes stands, where mountain firs are commonly found.
8	**Thermophilous deciduous forest**	The forests where the thermophile species of the Mediterranean Region and the deciduous and semi-deciduous species are predominantly distributed; There are *Acer, Ostrya, Fraxinus, Carpinus* species as secondary tree species. It also includes the forest where *Castanea sativa* dominates.
9	**Broadleaved evergreen forest**	The evergreen forest, mainly found in the Macaronesia region covering the Azores and Madeira of Portugal and Canary volcanic islands of Spain and the Mediterranean region, mainly oak species.
10	**Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions**	Coniferous forests in various groups from the coast to high mountains in the Mediterranean, Anatolian and Macaronesia regions. Dry and generally weak soils restrict tree growth. It includes *Pinus, Abies* and *Juniperus* species as well as some endemic species.
11	**Mire and swamp forest**	Swamp forests developing on peat soils commonly found in Boreal region. Water and plant nutrients identify dominant tree species: *Pinus sylvestris, Picea abies* and *Alnus glutinosa.*
12	**Floodplain forest (riparian)**	Forest with tree species with different characters on the riverbed or riverside and enriched and characterized by different groups of *Alnus, Betula, Populus, Salix, Fraxinus* and *Ulmus species.*
13	**Non riverine alder, birch, or aspen forest**	Pioneer forests dominated by *Alnus, Betula* and *Populus.*
14	**Plantations and self sown exotic forest where non-site-native species have a wide distribution other than the above categories**	Foreign tree species can be defined at the regional (recommended) and national level and include: • Tree species not specific to Europe (e.g. *Eucalyptus spp., Robinia pseudoacacia, Acacia dealbata, Ailanthus altissima, Prunus serotina, Quercus rubra, Fraxinus alba, Picea sitchensis, Pinus contorta, Pinus banksiana, Pseudotsuga menziesii, Tsuga heterophylla);* • Endemic tree species in Europe, but not naturally found within the borders of all countries; • Tree species endemic to certain areas of a country.

(Source: Forest Europe 2015b, UNECE and FAO, 2011);

Total atmospheric deposition on to the forest

Wet-only + dry deposition to the canopy excluding internal ion exchange process. Only for sodium and sulphur throughfall+stemflow is considered to be equal to total deposition.(Source: Forest Europe, 2015b).

Species in the forest

A forest species is a forest-dependent species for reproduction needs and for all or part of daily living needs. Therefore, even if it is an animal species that has not spent most of its life in the forest, it can be considered as a species in the forest. (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Convention on Biological Diversity (CBD), 2001)

Damage to forest

Disturbance to the forest which may be caused by biotic or abiotic agents, resulting in death, or a significant loss of vitality, productivity or value of trees and other components of the forest ecosystem. (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Forest governance

Comprises processes, and institutions (formal and informal) through which government agencies, citizens and other groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences. It is geared to the management of the resources of the sector to sustain and improve the welfare and quality of life for those whose livelihood depends on the sector. (Source: Forest Europe, 2015b)

The term is widely associated with principles such trasparency, participation and accountability. In the context of international development, the notion of good governance is commonly seen as critical foundation for achieving positive social, environmental and economic outcomes (Source: Davis et al. 2013)

Forest governance can be described as the modus operandi by which officials and institutions acquire and exercise authority in the management of forest resources. Good forest governance is characterized by predictable, open and informed policymaking based on transparent processes; a bureaucracy imbued with a professional ethos; an executive arm of government accountable for its actions; and a strong civil society participating in decision related to the sector (Source: Forest Europe, 2015b).

Forest governance encompasses decision-making processes and institutions at local, national, regional and global levels, such as:

- Who decides what about forests
- How they make decisions
- How they implement and enforce policies, laws and rules
- How they are held accountable

Forest governance is important to local communities because it directly affects their livelihoods. Forest governance is important to regional and international communities because of the role of forests in carbon and water cycles. However, many countries manage forests mainly as state resources, granting rights to exploit them to private entities

Governance is a way of execution of policies which is focused on cooperation, whereby the representatives of the government, market and civil society participate in mixed public and private networks. Apart from referring to a new form of steering the government, the term also indicates an increasing interaction between government, market and civil society.

Governance is the whole of public as well as private interactions that are initiated to solve societal problems and to create societal opportunities. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them. (Source: Forest Europe, 2015b)

Mean defoliation

The average defoliation calculated on the basis of defoliation values for individual trees, scored according to the following classification (Source: International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests (ICP), 2010)

Table 3: Degrees of Defoliation by Needle and Leaf Loss

Degree of defoliation	Needle / leaf loss
0	0
5	> 0 to 5%
10	> 5% to 10%
15	> 10% to 15%
….	….
95	>90% to 95%
99	>95 to <100 %
100	100

(Source: ICP, 2010).

Grass and leaf value

Explanatory notes:

Deadwood

All non-living woody biomass not, either standing, lying on the ground, or in the soil, exceeding a certain diameter size.

Explanatory note:

1. Deadwood excludes the biomass in litter, stumps and dead roots (Source: Forest Europe, 2015b).

Carbon in deadwood

Carbon in all non-living woody biomass not contained in the litter either standing, lying on the ground, or in the soil. Deadwood includes wood lying on the surface, dead roots, and stumps; larger than or equal to 10 cm in diameter or any other diameter used by the country.

Explanatory note:

1. The country may use another threshold value than 10 cm, but in such a case the threshold value used must be documented. (Source: Forest Resources Assessment (FRA), 2015).

Primarily damaged by fire

Forest and other wooded land, the vegetation on which, including the trees, has been wholly or largely destroyed by fire. (Source: Ministerial Conference on the Protection of Forests in Europe(MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000).

Primarily damaged by insects and disease

Forest and other wooded land where insect attack or disease has been identified as the primary cause of damage (Source: Ministerial Conference on the Protection of Forests in Europe(MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000).

Primarily damaged by storm, wind, snow or other identifiable abiotic factors

Forest and other wooded land on which the trees have been felled or damaged by storm, wind, snow or other abiotic factors such as avalanches, landslides or flooding. (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000).

Primarily damaged by wildlife and grazing

Forest and other wooded land where damage has been caused by wildlife or grazing by domestic animals. Includes: Grazing or browsing of young plants, preventing or delaying the establishment or regeneration of the stand (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000).

Primarily damaged by human induced factors

Damage primarily human induced – Forest operations: these include damages incurred in the process of the road building and landings setting, or harvesting damage, incl. through skidding tracks, hauling and transport. Damage primarily human induced - Other: these include e.g. damage from visitors to forests; vandalism, etc. Note that human induced fire is not to be reported in this class. (Source: Ministerial Conference on the Protection of Forests in Europe (MCPFE), 2003; Temperate and Boreal Forest Resources Assessment (TBFRA), 2000).

Private ownership

Forest owned by individuals, families, communities, private cooperatives, corporations and other business entities, private religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions. (Source: Forest Resources Assessment (FRA), 2015)

Marketed forest services

Marketed forest services comprise recreational, environmental and protective services that are forestdependent or mainly forest-related, but are not necessarily marketed by forest owners. (Source Forest Europe, 2015b). The services are provided in the table below.

Table 4: Marketed forest services

Ecological services	Marketed ecological services include those related to indicators 5.1 and 5.2 (soil, water and other environmental functions as well as infrastructure and managed natural resources) on a voluntary contractual basis with compensation or other payments from private or public bodies.	Water conservation Soil conservation Health conservation Infrastructure protection
Biospheric services	Marketed biospheric services include services related to indicator 4.6 (in-situ or ex-situ gene conservation of genetic resources) as well as indicator 4.9 (protected forest area) e.g. nature protection on a voluntary contractual basis with compensation or other payments from private or public bodies (this includes Natura 2000). This class also includes carbon-sequestration related afforestation projects in the context of the Kyoto Protocol – should such projects be included, please specify the amount under "country comments".	Biodiversity conservation Climate regulation
Social services	Marketed social services include e.g. hunting or fishing licences, renting of huts and houses as well as forest-based leisure, sport and outdoor adventure activities and educational services that are not free of cost to consumers (the public, schools,..).	Tourism Recreation Sports Activities
Amenity services	Amenity services include those related to spiritual, cultural and historical functions, e.g. sacred, religious, or other forms of spiritual inspiration, sites of worship , landscape features (mountains and waterfalls), "memories'' in the landscape from past cultural ties, aesthetic enjoyment and inspiration, historic artefacts.	Spiritual Services Historical Services Cultural Services

Other marketed products	Other marketed services include e.g. payments to woodland owners for licences for gravel extraction, telecommunication masts, wind farms and electricity distribution.

Note: The above terms & definitions were formulated in the process of the elaboration of the MCPFE 2007 Enquiry on the basis of existing definitions in different processes. (Source: Forest Europe, 2015b).

Marketed non-wood forest goods

"Marketed" roundwood comprises all non-wood goods sold on markets. It excludes goods harvested for self-consumption (subsistence) and other forms of uses without market transaction. (Source: State of Europe's Forests (SoEF), 2007)

It is also defined as the appreciation of external products and services produced from forests such as carbon, water, hunting and wildlife and recreation. (Source: Görücü,1997/2011/2017)

For the purpose of reporting on this variable, value is defined as the commercial market value at the forest gate.

Explanatory note:

1. If values are obtained from a point further down the production chain, transport costs and possible handling and/or processing costs should be subtracted whenever possible. (Source: Forest Resources Assessment (FRA), 2015)

Marketed roundwood

"Marketed" round wood includes all round wood sold in the markets. Round wood that is harvested for a person's own consumption (subsistence) and is not traded in the market is not included. (Source: State of Europe's Forests (SoEF), 2007)

Programme for the endorsement of forest certification

Forest area certified under the Programme for the Endorsement of Forest Certification scheme. (Source: Forest Resources Assessment (FRA), 2015)

Reference period

The year or years during which the national forest inventory or other method of collection of the data reported in the forest resources assessment was carried out. (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Recreation

Any physical or psychological revitalisation through the voluntary pursuit of leisure time. Forest recreation includes the use and enjoyment of a forest or wildland setting, including heritage landmarks, developed facilities, and other biophysical features (Source: Forest Europe, 2015b)

Access for recreation

This area comprises the area with a legal right of access available to the public for recreational purposes, as well as areas with no formal legal right, but with customary rights or other de-facto forms of access available to the public. Areas to be excluded are those where access is legally forbidden, and areas with no formal legal right that are also not accessible in practice. (Source: Forest Europe, 2015b)

Recreational forest

Forest managed primarily to provide recreational opportunities. (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Unknown ownership

Forest area where ownership is unknown, includes areas where ownership is unclear or disputed. (Source: Forest Resources Assessment (FRA), 2015)

Black liquor

Alkaline spent liquor obtained from digesters in the production of sulphate or soda pulp during the process of paper production, in which the energy content is mainly originating from the content of lignin removed from the wood in the pulping process.

(Source: Forest Europe, 2015b;
http://www.unece.org/fileadmin/DAM/timber/wood_energy/JWEE2011manual.pdf)

Water use income

The cost or revenue that individuals, institutions and companies which produce water collected in mountainous water basins for drinking water, water for agricultural and energy production purposes (hydroelectric) obtain from the consumers of this water. (Source: Görücü, 2017; Eker 2018). A part of this income is spent on rehabilitation, restoration, management and renewal of these water production basins.

Explanatory notes:

1. When evaluated within the context of forestry, water is defined as a non-wood, exogenous, direct and indirect use of forest output with a public quality and no market. (Source: Görücü 2017; Geray, 2004; Eker, 2005)
2. Water is a regulatory ecosystem service provided by forests. (Source: Eker, 2018)
3. The lack of a water market within the scope of ecosystem services should not mean that there is no cost in the production of this resource. (Source: Görücü, 2017)
4. As an ecosystem service in both the regulatory and provisioning services group in terms of ecosystem service groups and types, the cost of water produced from forests can be calculated with the Expense Method. (Source: Eker, 2005)
5. Another misconception about the value of water and water within the scope of free goods is the idea that no costs are incurred while obtaining water in lakes, streams or rivers, and therefore there is no need to pay the resource. However, in order to provide continuous and high-quality water from forest ecosystems, there are many management works that forest managements carry out regarding the water production such as breaking the stand closure, extending the rotation period, understory cleaning, tree species change, pre-commercial thinning, maintenance of waterways and removal of wood raw materials at a limited amount. There are costs incurred for conservation and water resources development. (Source: Eker, 2005; Gülcü et al. 2008; Görücü 2017)
6. Afforestation, erosion control, pasture improvement, conservation and rehabilitation works are carried out in the remaining non-forested areas, except for settlements and agricultural areas (Mızraklı et al 2008). Such forestry interventions also affect the water quality positively, reducing the water treatment costs of many municipalities significantly. (Source: Görücü 2017)

Policies supporting sustainable forest management

Policies or strategies that explicitly promote sustainable forest management. (Source: Forest Resources Assessment (FRA), 2015)

Near Threatened

An ecosystem is Near Threatened when it has been evaluated against the criteria but does not qualify for CR, EN or VU, but it is close to qualifying for or is likely to qualify for a threatened category in the near future. (Source: International Union for Conservation of Nature (IUCN), 2016)

Endangered

An ecosystem is Endangered when the evidence indicates that it meets any of the criteria A to E for EN, and is then considered to be at a very high risk of collapse. (Source: International Union for Conservation of Nature (IUCN), 2016)

Area managed for seed production

Seed gardens and seed stands that produce selected, qualified or tested forest regeneration material. Stands that produce material of known origin should not be reported unless specifically managed for seed production. The data of this component are usually obtained from national records. (Source: Forest Europe, 2015b)

Seed collection stand

Selected seed source that fulfils certain requirements. As a rule, the stand should be autochthonous or its origin must be known, and above all it should be superior to average stands. On occasion, non-indigenous stands showing excellent features are also chosen. Seed collection stands are accepted and registered by the national authority. (Source: European Forest Institute (EFI), 2001)

Total (national) primary energy supply

It represents domestic demand only and is detailed to show power generation, other energy sectors and total final consumption. This only shows domestic demand and excludes energy procurement of international maritime and aviation. Source: http://www.iea.org/glossary/glossary_T.asp)

Total wood removals

The total of industrial round wood removals and woodfuel removals. (Source: Forest Resources Assessment (FRA), 2015)

Carbon in below-ground biomass

All biomass of live roots. Fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.

Explanatory notes:

1. Includes the below-ground part of the stump.
2. The country may use another threshold value than 2 mm for fine roots, but in such a case the threshold value used must be documented. (Source: Forest Resources Assessment (FRA), 2015)

Carbon in above-ground biomass

All biomass of living vegetation, both woody and herbaceous, above the soil including stems, stumps, branches, bark, seeds, and foliage.

Explanatory note:

1. In cases where forest understorey is a relatively small component of the aboveground biomass carbon pool, it is acceptable to exclude it, provided this is done in a consistent manner throughout the inventory time series.

(Source: Forest Resources Assessment (FRA), 2015)

Soil nutrification and acidity

Changes in nutrient balance and acidity over the past 10 years (pH/CEC/C/N ratio) in humus and top soil (-20 cm) level using ICP Forests and its definitions (Vanmechelen et al., 1998) (Source: Vanmechelen et al, 1997)

Soil carbon

Organic carbon in mineral and organic soils (including peat) to a soil depth of 30 cm.

Explanatory note:

1. Fine roots of less than 2 mm (or other value chosen by the country as diameter limit for below-ground biomass) are included with soil organic matter where they cannot be distinguished from it empirically. (Source: Forest Resources Assessment (FRA), 2015)

Transfer payments

Transfer payments refer to all government expenditure on direct financial incentives paid to nongovernment and private-sector institutions, enterprises communities or individuals operating in the forest sector to implement forest related activities. It includes cash grants and subsidies. It excludes tax incentives; government loans; benefits in kind (free or subsidized materials and/or advice). It also excludes direct financial incentives available to all individuals and enterprises or not specifically related to forest related activities (e.g. relocation grants, employment subsidies, general training grant schemes). (Source: State of Europe's Forests (SoEF), 2015)

Extinct

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form. (Source: International Union for Conservation of Nature (IUCN), 2016)

Post-consumer recovered wood

It comprises wood from construction or civil engineering works. Post-consumer wood from construction or demolition of buildings or civil engineering works. (Source: Forest Europe, 2015b) http://www.unece.org/fileadmin/DAM/timber/wood_energy/JWEE2011manual.pdf).

International forest management certification

Forest area certified under an international forest management certification scheme with published standards and is independently verified by a third-party. (Source: Forest Resources Assessment (FRA), 2015).

National forest policy/strategy documents or statement

It describes the objectives, priorities and means for implementation of the forest policy. (Source: Forest Europe, 2015b).

National forest programme

According to the MCPFE approach (Vienna resolution 1), a national forest programme (Nfp) is a participatory, holistic, inter-sectoral and iterative process of policy planning, implementation, monitoring and evaluation at the national and/or subnational level in order to proceed towards the further improvement of sustainable forest management as defined in Helsinki Resolution H1, and to contribute to sustainable development.

The principles of Nfps in Europe are:

- Participation
- Holistic and inter-sectoral approach
- Iterative process with long-term commitment
- Capacity building
- Consistency with national legislation and policies
- Integration with national sustainable development strategies
- Consistency with international commitments recognising synergies between international forest related initiatives and conventions
- Institutional and policy reform
- Ecosystem approach
- Partnership for implementation
- Raising awareness (Source: Forest Europe, 2015b).

Introduced species

A species, subspecies or lower taxon, occurring outside its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could occupy without direct or indirect introduction or care by humans

Explanatory notes:

1. Species occurring outside their natural biotope in past or present.
2. Tree species occurring outside their natural vegetation zone, area or region. Includes hybrids.

Synonyms: non-indigenous, exotic species, alien species, species outside their natural range. (Source: Forest Resources Assessment (FRA), 2015)

Alien or alien species

Alien or alien species refers to a species, subspecies or lower taxon, introduced outside its normal past or present normal distribution; includes any part, gametes, seeds, eggs, or propagates of such species that might survive and subsequently reproduce. (Source: United Nations Environmental Programme (UNEP)/Convention on Biological Diversity (CBD)/COP6, 2002; https://www.cbd.int/doc/decisions/COP-06-dec-en.pdf).

Harvested wood products

Harvested Wood Products (HWPs) are wood-based materials harvested from forests, which are used for products such as furniture, plywood, paper and paper-like products, or for energy. In principle, other fiber products from based on non-wood sources such as rattan or bamboo can also be considered as wood products. Source: United Nations Framework Convention on Climate Change (UNFCCC, 2003; https://unfccc.int/process/transparency-and- reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories/submissions-of-annual-greenhouse-gas-inventories-for-2017/submissions-of-annual-ghg-inventories-2003).

Classification of wood products is as follows:

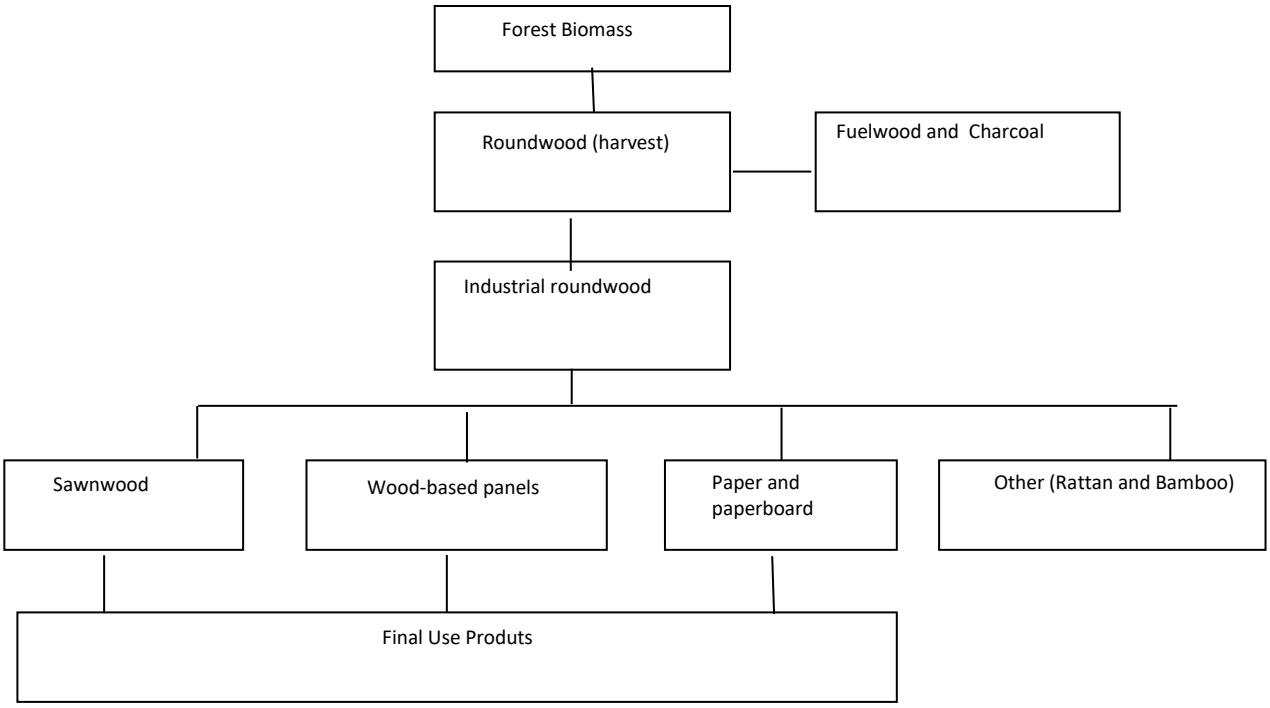


Figure 2. Wood Products Classification (Source: Forest Europe 2015b)

The FAO defines roundwood as "wood in the rough", which includes all wood in its natural state, as felled or harvested. It may or may not have bark and may come in any shape (round, split, roughly squared and others). Roundwood may be used as raw material for wood products or for energy production.

The proportion of roundwood used for the production of wood commodities, known as industrial roundwood, is further converted into sawnwood, wood-based panels or paper and paperboard:

a) Sawnwood is roundwood that is sawed lengthways or by profile chipping, to produce planks, beams, joists, sleepers and lumber.
b) Wood-based panels include veneer sheets, plywood, particle board and fibreboard.
c) Paper and paperboard include newsprint, printing and writing paper, and other products, which are usually manufactured in strips and rolls more than 15 cm wide. Paper and paperboard are produced from pulp, a fibrous material prepared from pulpwood, wood chips, wood residues and/or recovered paper.

Other materials harvested from forests or other wooded lands that accumulate carbon in their biomass, include natural cork, bamboo and rattan. Bamboo and rattan are often used for furniture and construction.

Another definition of HWP is: HPW referred all wood material harvested and transported from forest and utilised either for energy or as other material commodity. HWP also include wood fibre products like paper. It does not include carbon in harvested trees that are left at harvest (Source: Forest Europe, 2015b)

Woodfuel (including wood for charcoal))

Roundwood that will be used as fuel for purposes such as cooking, heating or power production. It includes wood harvested from main stems, branches and other parts of trees (where these are harvested for fuel) and wood that will be used for charcoal production (e.g. in pit kilns and portable ovens). The volume of roundwood used in charcoal production is estimated by using a factor of 6.0 to convert from the weight (mt) of charcoal produced to the solid volume (m^3) of roundwood used in production. It also includes wood chips to be used for fuel that are made directly (i.e. in the forest) 19 from roundwood. It excludes wood charcoal. It is reported in cubic metres solid volume underbark (i.e. excluding bark) (Source: Forest Europe, 2015b).

Woodfuel removals

The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

Explanatory notes:

1. Includes all wood collected or removed for energy purposes, such as fuelwood, wood for charcoal production, harvesting residues, stumps, etc.
2. Includes removals from fellings in an earlier period and from trees killed or damaged by natural causes.
3. Excludes woodfuel which is produced as a by-product or residual matter from industrial processing of roundwood. (Source: Forest Resources Assessment (FRA), 2015)

Age class

Any interval into which the age range of trees, forests, stands, or forest types is divided for classification, e.g. 1, 5, 10 or 20 year age classes, as used in inventory or management (Source: International Union of Forest Research Organizations (IUFRO), 2000)

Age class distribution

The area and/or proportionate representation of different age classes in a forest (Source: International Union of Forest Research Organizations (IUFRO), 2000).

Defoliation

The crown condition is assessed in terms of defoliation. This parameter describes the lack of foliage for each sample tree (Source: Forest Europe, 2015b). The extent of visually assessed defoliation of trees, as developed by the International Co-operative Programme (ICP Forests) of the Executive Committee for the Convention on Long-range Transboundary Air Pollution in Europe. – Estimated based on method by ICP Forests 2010 Defoliation classes are provided below.

Table 5: Defoliation Classes

Damage Class	Needle/Leaf Loss	Degree of Defoliation
0	<10%	No needle defoliation
1	11-25%	Slight defoliation (warning)
2	26-60%	Moderate defoliation
3	61-99%	Severe defoliation
4	100%	Completely defoliated

(Source: Forest Europe, 2015b).

Common forest bird species

The number and population status of common bird species in the forest ecosystem. Changes in population status and distribution of common forest bird species associated with forest ecosystems. (Source: Forman, R.T.T., 1995; Noss R.F., Cooperrider A.Y., 1994).

Explanatory notes:

1. In monitoring this issue through an indicator, how to create information about how the population sizes of common forest bird species change and how to take action in which areas line with strategic goals are determined (e.g. determining which type of forest ecosystems change is related to and developing management suggestions accordingly).
   (Source: Forman, R.T.T., 1995; Noss R.F., Cooperrider A.Y., 1994).
2. Birds are among the leading indicator species groups that are used to monitor changes in nature. Compared to "rare" bird species with limited distribution that are specific to certain habitats, "common birds" face a wide range of threats. Therefore, monitoring the change in the number of common birds provides an understanding of the impact of large-scale threats (e.g. climate change) on wildlife. In this context, an approach related to the monitoring of common birds and data collection within this scope were developed in Europe and the methods have been standardized. The indices prepared based on the numbers of common birds are accepted by the European Union as official indicators today. There is no study carried out at national level for monitoring of common birds in Turkey.
3. In general, woodpecker (Picidae) and wallcreeper (Certhiidae) reflect the condition of high stands and old stands. Warbler (Sylviidae) species reflect the condition of layers predominated by shrubs. Various other singing birds reflect the state of covered stands with spaces. However, which bird species will be included in the monitoring program should be clarified at the end of an optimization process by considering, such as niche characteristics, population size, prevalence, and ease of diagnosis.
4. . The locations where the monitoring study for selected species will be conducted can be selected from existing Level II areas (ICP Forest), or it can be located in areas to be newly identified to represent forest ecosystems at the national scale. Monitoring record should be carried out by by experienced observers by performing point count or transect count at a standard time and/or distance. It is essential that the monitoring efforts are carried out during the breeding season between March and June and are repeated at intervals of 1 to 3 years. (Source: Forman, R.T.T. 1995; Noss R.F., Cooperrider A.Y., 1994)

Common mammal species

Refers to the number and population status of common mammal species in the forest ecosystem. (Source: Forest Europe, 2015b; International Union for Conservation of Nature (IUCN), 1998/2016)

Recovered paper

Waste and scraps of paper or paperboard that have been collected for re-use as a raw material for the manufacture of paper and paperboard. It includes paper and paperboard that has been used for its original purpose and residues from paper and paperboard production. It is reported in metric tonnes (Source: Forest Europe, 2015b)

Renewable energy

It is the energy obtained from natural processes (such as sunlight and wind) that are renewed at a higher rate than their consumption. Solar, wind, geothermal, hydro and biomass are common renewable energy sources. (Source: http://www.iea.org/glossary/glossary_R.asp).

Annual gross increment

Average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for "growing stock".

Explanatory note:

Includes the increment of trees being felled or die during the reference period (Source: Temperate and Boreal Forest Resources Assessment (TBFRA), 2000)

Round wood

All roundwood felled or otherwise harvested and removed. It comprises all wood obtained from removals, i.e. the quantities removed from forests and from trees outside the forest, including wood recovered from natural, felling and logging losses during the period, calendar year or forest year. It includes all wood removed with or without bark, including wood removed in its round form, or split, roughly squared or in other form (e.g. branches, roots, stumps and burls (where these are harvested) and wood that is roughly shaped or pointed. It is an aggregate comprising wood fuel (including wood for charcoal) and industrial roundwood (wood in the rough). It is reported in cubic metres solid volume underbark (i.e. excluding bark). (Source: Forest Resources Assessment (FRA), 2010; Forest Europe, 2015b)

Explanatory notes:

1. Includes roundwood directly chipped in the forest, but not industry by-products
2. For the purpose of this table, value (of both marketed and non-marketed wood) is defined as the market value at the site of harvest, road side or forest border. If values are obtained from a point further down the production chain, transport costs and possible handling and/or processing costs should be subtracted whenever possible. (Source: Forest Europe, 2015b; Forest Resources Assessment (FRA), 2010)

Visit

The term refers to a visit for recreational purposes to any area of forest or other wooded land. There is no minimum duration and it is not necessary to undertake any specific activities. Visits for work purposes and travel through the forest for purposes other than recreation are excluded. Each individual participant, including children, counts as one visit. If several different forests are visited on one trip, then the trip only counts as one visit, but if an individual makes two or more separate trips to forests during one day, then each counts as a separate visit. (Source: State of Europe's Forests (SoEF), 2011)

TURKEY SUSTAINABLE FOREST MANAGEMENT CRITERIA AND INDICATORS-2018

CODE	INDICATOR
1	CRITERION 1: FOREST RESOURCES AND THEIR CONTRIBUTION TO GLOBAL CARBON CYCLE
1.1	FOREST AREA AND OTHER WOODED LAND
1.2	GROWING STOCK AND INCREMENT
1.3	CARBON STOCK
1.4	FOREST CADASTRE
1.5	MANAGEMENT OF FOREST AREAS
2	CRITERION 2: HEALTH, VITALITY AND INTEGRITY OF FORESTS
2.1	FORESTS AFFECTED BY NATURAL FACTORS
2.2	SILVICULTURAL ACTIVITIES
2.3	DAMAGES BY HUMAN INDUCED FACTORS
2.4	DAMAGE DUE TO GRAZING
2.5	PERMISSIONS AND EASEMENTS
2.6	IMPACT OF AIR POLLUTION CLIMATE CHANGE ON FORESTS
2.7	FOREST ROADS AND FACILITIES
3	CRITERION 3: PRODUCTION CAPACITY AND FUNCTIONS OF FORESTS
3.1	INCREMENT AND PRODUCTION
3.2	NON-WOOD PRODUCTS AND SERVICES
3.3	CERTIFIED FOREST
4	CRITERION 4: FOREST BIODIVERSITY
4.1	TREE SPECIES DIVERSITY
4.2	REGENERATION
4.3	NATURALNESS
4.4	INTRODUCED TREE SPECIES
4.5	DEADWOOD
4.6	GENE RESOURCES
4.7	FOREST FRAGMENTATION
4.8	ENDANGERED FOREST TYPES
4.9	PROTECTED FORESTS
4A	COMMON FOREST BIRD SPECIES
4B	COMMON FOREST MAMMAL SPECIES
5	CRITERION 5: PROTECTIVE FUNCTIONS OF FORESTS
5.1	SOIL CONSERVATION FORESTS
5.2	WATER CONSERVATION FORESTS
5.3	NATURAL DISASTER AND INFRASTRUCTURE PROTECTION FORESTS
6	CRITERION 6: SOCIOECONOMIC FUNCTIONS OF FORESTS
6.1	CONTRIBUTION OF FORESTRY SECTOR TO GDP
6.2	FOREST PRODUCTS SUPPLY DEMAND EQUILIBRIUM
6.3	THE SIZE AND QUALITY OF EMPLOYMENT IN FORESTRY SECTOR
6.4	FINANCIAL BALANCE OF FORESTRY
6.5	THE SHARE OF THE STATE'S BUDGET ALLOCATED FOR FORESTRY
6.6	SIZE OF THE POPULATION DEPENDENT ON FOREST
6.7	BENEFICIARIES OF RECREATION SERVICES
6.8	TRANSFER OF INCOME FROM FORESTRY SECTOR TO FOREST VILLAGERS
6.9	RESEARCH IMPROVEMENT EXTENSION AND TRAINING WORKS
6A	ACTIVITIES OF NGOs ON FORESTRY
6B	FOREST – SOCIETY CONFLICTS

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UNITS RESPONSIBLE FOR THE PROVISION OF DATA

Responsible Unit	C	I	SI	V	Name of the variable for which the unit is responsible for provision of data
GDNPNP	4	A	1	T	IUCN Red List- common forest bird species
GDNPNP	4	A	2	T	State of population - common forest bird species
GDNPNP	4	9	1	1	National park
GDNPNP	4	9	1	2	Nature conservation area
GDNPNP	4	9	1	3	Natural park
GDNPNP	4	9	1	4	Natural monument
GDNPNP	4	9	1	5	Wildlife improvement area
GDNPNP	4	9	1	6	Conservation forest
GDNPNP	4	9	1	7	City forest
GDNPNP	4	9	1	8	Forest with Nature Protection-Conservation working group characteristic
GDNPNP	4	9	1	9	Natural protected area
GDNPNP	4	9	1	A	Special environment protection site
GDNPNP	4	9	1	B	Ramsar area
GDNPNP	4	9	1	C	Wetland
GDNPNP	4	9	1	D	Biosphere reserves
GDNPNP	4	9	1	E	World heritage site
GDNPNP	4	9	1	F	Gene conservation area
GDNPNP	4	9	1	G	Raw material supply areas
GDNPNP-DHM	6	7	2	1	Number of local hunters who are given opportunity by forest resources (those hunting with or without registration)
GDNPNP-DHM	6	7	2	2	Number of foreigners hunting in forest resources with hunting tourism
GDNPNP-DBD	4	8	1	T	Extinct (EX) forest species
GDNPNP-DBD	4	8	2	T	Extinct in the Wild (EW) forest species
GDNPNP-DBD	4	8	3	T	Critically Endangered (CR) forest species
GDNPNP-DBD	4	8	4	T	Endangered (EN) forest species
GDNPNP-DBD	4	8	5	T	Vulnerable (VU) forest species
GDNPNP-DBD	4	8	6	T	Near Threatened (NT) forest species
GDNPNP-DBD	4	8	7	T	Least Concern (LC) forest species
GDNPNP-DBD	4	8	8	T	Data Deficient (DD) forest species
GDNPNP-DBD	4	8	9	T	Not Evaluated (NE) forest species
GDNPNP-WLD	4	B	T	T	Common mammal species
GDF-DA	4	2	4	T	Reforestation
GDF-DA	4	2	6	T	Afforestation outside the forest
GDF-DA	4	3	3	T	Plantation
GDF-FRTRD	4	6	1	1	In-situ gene conservation areas
GDF-FRTRD	4	6	1	2	Ex-situ gene conservation areas
GDF-FRTRD	4	6	2	1	In-situ seed resources
GDF-FRTRD	4	6	2	2	Ex-situ seed resources
GDF-FRTRD	4	9	2	1	FE Class 1 (no active intervention, minimum intervention, conservation through active management)
GDF-FRTRD	4	9	2	2	FE Class 2– Specific Natural Elements (Protection of Landscapes)
GDF-FRTRD	6	1	8	1	Total value of the support from international funds for biodiversity conservation
GDF-FRTRD	6	3	7	1	Number of employees working for externally funded projects
GDF-FRTRD	6	3	7	2	Number of employees working on forestry at international organizations in Turkey
GDF-FRTRD	6	9	1	1	R&D investment in public forestry institutions
GDF-FRTRD	6	9	1	2	R&D, training and extension costs of NGOs working on the management of forest resources
GDF-FRTRD	6	9	1	3	Average budget of forestry R&D projects
GDF-FRTRD	6	A	1	T	Number of activities carried out by NGOs on forestry
GDF-HM	6	B	2	T	Number of cases filed against the management of forest resources
GDF-HM	6	B	3	T	Number of cases filed by the management of forest resources
GDF-DPE	2	5	1	1	Permissions for mining exploration, production, enterprise, facility and infrastructure facility
GDF-DPE	2	5	1	2	Permissions for fills to prepare for rehabilitation
GDF-DPE	2	5	2	1	Permissions for energy transmission, natural gas, petroleum pipelines
GDF-DPE	2	5	2	2	Permissions for thermic, HES, RES, natural gas and nuclear energy plants, wind measurement mast etc.
GDF-DPE	2	5	2	3	Permissions for tourism area
GDF-DPE	2	5	2	4	Permissions for health, sports, tourism, defense and educational facilities
GDF-DPE	2	5	2	5	Permissions for graveyard
GDF-DPE	2	5	2	6	Permissions for transportation (main road, village road etc.)
GDF-DPE	2	5	2	7	Permissions for dam reservoirs
GDF-DPE	2	5	2	8	Permissions for communication (THİ, communication board and radio station)
GDF-DPE	2	5	2	9	Other permissions (infrastructure, solid waste disposal plant and storage area etc.)
GDF-DPE	2	5	3	1	Permissions for fish farming facility, treasure hunt, archeological excavation and restoration
GDF-DPE	2	5	3	2	Permissions for mine – coal, turpentine, gum etc.

GDF-DPE	2	5	3	3	Permissions for factory, line, mill
GDF-DPE	6	1	5	1	Permission and easement revenues from spring water factories
GDF-DPE	6	1	5	2	Revenues from other water benefits
GDF-DPE	6	1	6	1	Revenues from the allocations to mining
GDF-DPE	6	1	6	2	Revenues from the allocations to energy generation
GDF-DPE	6	1	6	3	Revenues from other allocations (allocation to education etc.)
GDF-DCP	2	7	1	1	Forest Roads
GDF-FPMD	3	1	2	1	Industrial wood production
GDF-FPMD	3	1	2	2	Firewood production
GDF-FPMD	3	1	1	1	Increment in production forests
GDF-FPMD	3	1	1	2	Increment in other forests
GDF-FPMD	3	3	1	T	Certified forest
GDF-FPMD	6	B	4	T	Size of the forest area where forestry activities cannot be carried out due to the inability to intervene because of the social pressure
GDF-FPMD	6	1	1	1	Total wood sales value from state forests
GDF-FPMD	6	1	1	2	Values of subsidies and discounts in wood sales
GDF-FPMD	6	1	1	3	Value of unregistered wood production
GDF-FPMD	6	1	1	4	Sales value of wood in private sector
GDF-FPMD	6	1	A	1	Value of timber products (Code 404)
GDF-FPMD	6	1	A	2	Value of wood-based board products (Code 4408, 410, 4411, 4412)
GDF-FPMD	6	1	A	3	Value of wood firewood and chips (Code 4401)
GDF-FPMD	6	1	A	4	Value of other items made of tree or tree products (Code other 44s)
GDF-FPMD	6	1	A	5	Value of products made of wood pulp and pulp of fibrous cellulosic substances (Code 47s)
GDF-FPMD	6	1	A	6	Value of products made of paper and carton, papier-mache (Code 48s)
GDF-FPMD	6	1	A	7	Value of wooden furniture products (Code 940330, 940340, 940350, 940360)
GDF-FPMD	6	2	1	T	Ratio of wood raw material production value to its consumption value
GDF-FPMD	6	3	8	1	Employment rate of rural populations (those living in forest villages)
GDF-FPMD	6	3	8	2	Rate of women's employment
GDF-FPMD	6	3	8	3	Rate of employees with social security
GDF-FPMD	6	3	8	4	Number of occupational accidents and diseases in forestry sector
GDF-FPMD	6	4	6	1	Wood and wood products import expenditures
GDF-FPMD	6	4	6	2	Non-wood forest products import expenditures
GDF-FPMD	6	4	6	3	Other import expenditures (Service imports included)
GDF-FPMD	6	8	2	1	Discounts and subsidies in the sales of wood raw material
GDF-FPMD	6	8	2	2	Subsidies for the restoration of cultural and natural heritage
GDF-DNWFPS	3	2	1	T	Non-wood products
GDF-DNWFPS	3	2	2	1	City forest
GDF-DNWFPS	3	2	2	2	Recreation area
GDF-DNWFPS	3	2	2	3	National park
GDF-DNWFPS	3	2	2	4	Nature park
GDF-DNWFPS	3	2	2	5	Natural monument
GDF-DNWFPS	3	2	2	6	Nature conservation area
GDF-DNWFPS	3	2	2	7	Wildlife improvement area
GDF-DNWFPS	6	1	3	3	Hunting tourism revenues
GDF-DNWFPS	6	1	4	3	Local hunting revenues
GDF-DNWFPS	6	1	4	1	Revenue from utilization of recreation areas within forest
GDF-DNWFPS	6	1	4	2	Revenue from renting of recreation areas within forest
GDF-DNWFPS	6	1	2	1	Value of plant products
GDF-DNWFPS	6	1	2	2	Value of animal products
GDF-DNWFPS	6	1	2	3	Non-wood forest products revenue in private forests, afforestation areas and nurseries
GDF-DNWFPS	6	1	3	1	Permission and easement revenue from allocations to tourism sector
GDF-DNWFPS	6	1	3	2	Revenues from ecotourism enterprises/supportive works
GDF-DNWFPS	6	1	4	4	Revenues from other recreation services
GDF-DNWFPS	6	2	2	T	Ratio of production value of NWFP to their consumption value
GDF-DNWFPS	6	7	1	1	Annual visitor number of recreation areas
GDF-DNWFPS	6	7	1	2	Annual visitor number of protected areas
GDF-DNWFPS	6	7	1	3	Number of recreational users in private environment conservation areas
GDF-FMPD	1	1	1	T	Distribution of Forest Areas into Forest Types Based on Their Functions
GDF-FMPD	1	1	2	T	Distribution of Forest Areas into Phase Classes Based on Their Functions
GDF-FMPD	1	2	1	T	Growing stock increment based on tree species groups
GDF-FMPD	1	2	2	T	Growing stock increment based on phase classes
GDF-FMPD	1	2	3	T	Growing stock based on tree species groups
GDF-FMPD	1	2	4	T	Growing stock based on phase classes
GDF-FMPD	1	3	1	T	Carbon stock
GDF-FMPD	1	5	1	1	Forest area under integrated management plan
GDF-FMPD	1	5	1	2	Areas managed with ecosystem-based functional forest management plans
GDF-FMPD	1	5	1	3	Areas managed with other model plans

GDF-FMPD	4	1	T	T	Tree species diversity
GDF-FMPD	4	3	1	T	Area undisturbed by man
GDF-FMPD	4	3	2	T	Semi-natural area
GDF-FMPD	4	4	1	T	Native species outside the natural distribution area
GDF-FMPD	4	4	2	T	Area covered with non-native tree species
GDF-FMPD	4	4	3	T	Invasive species
GDF-FMPD	4	5	1	T	Standing deadwood
GDF-FMPD	4	5	2	T	Deadwood lying on the ground
GDF-FMPD	4	7	1	1	Number of forest fragments smaller than “10” hectares
GDF-FMPD	4	7	1	2	Number of forest fragments at the size of 10-99 hectares
GDF-FMPD	4	7	1	3	Number of forest fragments at the size of “100-999” hectares
GDF-FMPD	4	7	1	4	Number of forest fragments at the size of “1000” hectares and above
GDF-FMPD	4	7	2	1	Area of forest fragments smaller than 10 hectares
GDF-FMPD	4	7	2	2	Area of forest fragments at the size of 10-99 hectares
GDF-FMPD	4	7	2	3	Area of forest fragments at the size of 100-999 hectares
GDF-FMPD	4	7	2	4	Area of forest fragments at the size of 1000 hectares and above
GDF-FMPD	4	7	3	T	Area of ecological corridors
GDF-FMPD	4	7	4	T	Forest area lost
GDF-FMPD	4	7	5	T	Forest area gained
GDF-DFCO	1	4	1	1	Area of which forest cadaster is done
GDF-DFCO	1	4	1	2	Registered area
GDF-DFCO	1	4	1	3	Area removed from forest with 2/A
GDF-DFCO	1	4	1	4	Area removed from forest with 2/B
GDF-DFCO	1	4	1	5	Area reserved for special purposes such as plateau, announced with a decision of the Council of Ministers
GDF-DFCO	1	4	1	6	Wooded land outside the forest area
GDF-ORKÖYD	6	1	9	1	Supports given to forest villagers
GDF-ORKÖYD	6	1	9	2	Income of forest villagers from income-generating afforestation
GDF-ORKÖYD	6	6	1	1	Population of forest villages (Article 31 and 32)
GDF-ORKÖYD	6	6	2	1	Number of the producers of wooden handicrafts, which are of cultural value
GDF-ORKÖYD	6	6	2	2	Number of beekeepers who produce honey based on forest
GDF-ORKÖYD	6	6	2	3	Suppliers of herbal materials for traditional foods
GDF-ORKÖYD	6	6	2	4	Number of suppliers of non-wood forest products
GDF-ORKÖYD	6	6	2	5	Number of the members to forest cooperatives
GDF-ORKÖYD	6	6	2	6	Number of forest villagers with the competence certificate issued by CUFC
GDF-ORKÖYD	6	6	2	7	Number of wanderer villagers as forest workers
GDF-ORKÖYD	6	6	2	8	Number of settled forest villagers who live on forestry
GDF-ORKÖYD	6	6	2	9	Number of entrepreneurs in forest industry who buy products from forest enterprises
GDF-ORKÖYD	6	6	2	A	Number of real and legal persons doing private afforestation
GDF-ORKÖYD	6	6	2	B	Number of people living on animal husbandry in migrant settler communities
GDF-ORKÖYD	6	8	3	1	Total value of GDF’s supports as credits and grants
GDF-DFFC	2	3	3	1	Forest affected by crown fire
GDF-DFFC	2	3	3	2	Distribution of crown fires by their reasons
GDF-DFFC	2	3	4	1	Forest affected by ground fire
GDF-DFFC	2	3	4	2	Distribution of Ground Fires by Their Reasons
GDF-DFFC	2	7	2	1	Fire safety roads and lines
GDF-DCFP	2	1	1	1	Damage by pests
GDF-DCFP	2	1	1	2	Damage by fungi
GDF-DCFP	2	1	1	3	Other biotic factors-damage by nematode virus
GDF-DCFP	2	1	1	4	Combatting harmful factors
GDF-DCFP	2	1	2	1	Fires due to natural factors
GDF-DCFP	2	1	2	2	Disaster such as storm, landslide, drought, avalanche etc.
GDF-DCFP	2	3	1	1	Forest area felling
GDF-DCFP	2	3	1	2	Opening, settlement and occupation in forest area
GDF-DCFP	2	3	2	1	Other forest area felling
GDF-DCFP	2	3	2	2	Other forest area opening, settlement, occupation
GDF-DCFP	2	4	1	1	Area damaged due to grazing
GDF-DCFP	2	6	1	1	Deposition (rain, snow) sampling analysis
GDF-DCFP	2	6	1	2	Soil solution sampling and analysis
GDF-DCFP	2	6	1	3	Ozon, Sulphur dioxide, ammonia, nitrogen dioxide sampling and analysis
GDF-DCFP	2	6	2	1	Assessment and analysis of ozone damage
GDF-DCFP	2	6	3	1	Sampling and analysis of coniferous leaves
GDF-DCFP	2	6	3	2	Sampling and analysis of litter (coniferous leaves, leaf, branch and cone)
GDF-DCFP	2	6	4	1	Sampling and analysis of soil
GDF-DCFP	2	6	5	T	Phenological observations
GDF-DCFP	2	6	6	T	Meteorological observations
GDF-DCFP	2	6	7	T	Vegetation and biological diversity
GDF-DCFP	2	6	8	T	Assessment of tree growth and revenue

GDF-DCFP	2	6	9	1	Assessment of damage factors
GDF-DCFP	2	6	9	2	Assessment of loss of coniferous leaves on crown
GDF-DCFP	2	6	9	3	Assessment of fruit cone on crown
GDF-PD	6	3	1	1	Number of employees in GDF
GDF-PD	6	3	1	2	Number of employees working in relation to the protected areas in GDNPNP Central and Ministerial Regional Directorates
GDF-PD	6	3	1	3	Number of employees in GDCDE
GDF-PD	6	3	2	1	Number of those regularly employed in higher education institutions on forestry
GDF-PD	6	3	2	2	Number of personnel employed for forestry in other public institutions
GDF-DS	2	2	1	1	Regeneration in even-aged stands
GDF-DS	2	2	1	2	Regeneration in coppices
GDF-DS	2	2	2	1	Regeneration in uneven-aged stands
GDF-DS	2	2	3	1	Development phase tending
GDF-DS	2	2	3	2	Pre-commercial thinning
GDF-DS	2	2	3	3	Tending in coppices with high forests
GDF-DS	2	2	3	4	Thinning
GDF-DS	2	2	4	1	Rehabilitated area and success rate
GDF-DS	4	2	1	T	Natural regeneration
GDF-DS	4	2	2	T	Artificial regeneration
GDF-DS	4	2	3	T	Restoration in coppices
GDF-DS	4	2	5	T	Natural expansion area
GDF-SDD	6	B	1	T	Number of appeals or bill of complaints in relation to the management of forest resources
GDF-SDD	6	3	3	1	Number of workers given share by unit price in production
GDF-SDD	6	3	3	2	Number of people employed through cooperatives
GDF-SDD	6	3	3	3	Number of people given job by village legal personality
GDF-SDD	6	3	3	4	Number of people working in standing wood sales and production process
GDF-SDD	6	3	3	5	Number of workers employed through İş-Kur (Turkish Employment Agency) under TYÇP (Working for the Benefit of Society Program)
GDF-SDD	6	3	3	6	Number of people employed through contractors (for the works of afforestation, pasture improvement, flood control, soil conservation etc.)
GDF-SDD	6	3	3	7	Number of people working owing to the employment created with the support of ORKÖY
GDF-SDD	6	3	3	8	Number of people employed in NWFP picking/harvest works
GDF-SDD	6	3	3	9	Number of people employed by GDCDE, GDNPNP as freelancer
GDF-SDD	6	3	4	1	Number of employees in freelance forestry bureaus
GDF-SDD	6	3	4	2	Number of forest engineers working freelance
GDF-SDD	6	3	4	3	Number of employees in hunting tourism and ecotourism
GDF-SDD	6	3	4	4	Number of people employed by leaseholders in protected areas and recreation areas
GDF-SDD	6	3	5	1	Number of employees working in professional associations
GDF-SDD	6	3	5	2	Number of employees working in NGOs on forest resources
GDF-SDD	6	3	6	1	Number of employees working in private forests
GDF-SDD	6	3	6	2	Number of employees working in private afforestation areas and private nurseries
GDF-SDD	6	3	6	3	Number of employees working in companies that produce forest products and trade them
GDF-SDD	6	4	1	5	Forestry incomes of the owners of private property (private forests, private afforestation areas, private nurseries, poplar enterprises)
GDF-SDD	6	4	2	1	Revenues from the export of wood and wood products
GDF-SDD	6	4	5	4	Forestry expenditures of the owners of private property (private forests, private afforestation areas, private nurseries, poplar enterprises)
GDF-SDD	6	4	2	2	Revenues from the export of non-wood forest products
GDF-SDD	6	4	2	3	Other export revenues (export of services included)
GDF-SDD	6	4	1	1	GDF Special Budget Incomes
GDF-SDD	6	4	1	2	GDF Circulating Capital Budget Incomes
GDF-SDD	6	4	3	1	Challenge grants given to GDF
GDF-SDD	6	4	3	2	Grants given to NGOs for forest resources
GDF-SDD	6	4	4	1	International supports in GDF Special Budget
GDF-SDD	6	4	4	2	Other supports from international funds (those not included in GDF, GDNPNP, GDCDE and NGO budgets)
GDF-SDD	6	4	5	1	GDF SFM expenditures (Activity costs and general management costs)
GDF-SDD	6	4	7	1	Value of the supports given to international funds and other countries (subscription, contribution etc.) by GDF
GDF-SDD	6	4	7	2	Value of the supports given to international funds and other countries by Ministry GDNPNP and GDCDE
GDF-SDD	6	4	7	3	Value of the forestry supports given to other countries by TICA
GDF-SDD	6	4	7	4	Other subscriptions related to forestry paid to international funds
GDF-SDD	6	4	1	3	Ministry's General Budget Incomes (GDNPNP, GDCDE, Protected areas and hunting management)
GDF-SDD	6	4	1	4	Ministry's Circulating Capital Budget Incomes (Protected areas and hunting management)
GDF-SDD	6	4	5	2	Ministry's general budget SFM expenditures (GDNPNP, GDCDE, protected areas and hunting management)
GDF-SDD	6	4	5	3	Ministry's Circulating Capital Budget SFM expenditures (protected areas and hunting management)

GDF-SDD	6	5	1	T	Ratio of the budget for forestry institutions to the State budget
GDF-SDD	6	8	1	2	Revenue transferred to forest villagers from afforestation-pasture-soil improvement-erosion control (Relevant data)
GDF-SDD	6	8	1	1	Revenue transferred to forest villagers from production
GDF-SDD	6	8	1	3	Revenue transferred to forest villagers from NWFP picking
GDF-DSCWR	5	1	T	T	Soil conservation forests
GDF-DSCWR	5	2	1	T	Drinking water conservation forests
GDF-DSCWR	5	2	2	T	Running water conservation forests
GDF-DSCWR	5	2	3	T	Water resources conservation forests
GDF-DSCWR	5	2	4	T	Waterfront conservation forests
GDF-DSCWR	5	3	1	1	Avalanche prevention forests
GDF-DSCWR	5	3	1	2	Landslide prevention forests
GDF-DSCWR	5	3	1	3	Flood prevention forests
GDF-DSCWR	5	3	1	4	Drought prevention forests
GDF-DSCWR	5	3	2	1	Scrub ecosystems conservation forests
GDF-DSCWR	5	3	2	2	Forests for protection against rolling stones and rocks
GDF-DSCWR	5	3	2	3	Areas with watershed rehabilitation
GDF-DSCWR	5	3	2	4	Forest areas for road protection
GDF-DSCWR	6	1	7	1	Revenues from grazing permissions
GDF-DSCWR	6	1	7	2	Grass and leaf value

T: All

DUTIES OF GENERAL DIRECTORATE OF FORESTRY

Principles and procedures for the establishment, organization, duties and powers of the General Directorate of Forestry were regulated under the "Presidential Decree on Organization of Institutions and Organizations under, affiliated to or associated with the Ministries and Organization of Other Institutions and Organizations"[1]. Duties of General Directorate of Forestry pursuant to article 334 of the Decree are as follows:

1. Taking into account the ecological, economic and socio-cultural benefits of the forest resources, managing them with the presence of plants and animals within the ecosystem integrity, planning them in a participatory and multi-purpose way, protecting them against irregular interventions, natural disasters, fires, combating various pests, carrying out and developing forestry quarantine services, increasing forest areas and forest-related services, improving and rehabilitating forests, providing silvicultural tending and regeneration.
2. Carrying out works and operations and processes, cadaster, permission and easement works in relation to the ownership of forests.
3. Operating forests according to technical, socio-cultural, ecological and economic requirements by ensuring the continuity of forest products and services, carrying out the production, transportation, storage and operation of forest products, and marketing these products at home and abroad.
4. Ensuring the separation, preservation, and operation of recreation areas, city forests, research forests, tree park (arboretum) areas, biodiversity conservation areas in forest, model forest and conservation forest areas.
5. In all kinds of land within or outside forest borders; carrying out afforestation, erosion control, forest pasture improvement, combating desertification, flood and avalanche control works, making and implementing integrated watershed projects.
6. Producing seeds and saplings of plant species of forest trees, shrubs and flora, carrying out grafting activities, establishing permanent or temporary nurseries, closing them when necessary.
7. Supporting real and legal persons in establishment, operation and marketing of special afforestation, improvement, erosion control works.
8. Establishing and operating circulating capital enterprises and other necessary units to ensure the maximum utilization of the products and services provided by forest ecosystems, closing them when necessary, purchasing or renting all kinds of materials, land, buildings, facilities, installations, bartering them when necessary; carrying out their maintenance and repairs, providing the machines and service vehicles required by the services, conducting their maintenance and revisions, making any necessary infrastructure work in the forests, conducting survey projects for the roads necessary for forestry activities, carrying out maintenance and repair works.
9. Providing all kinds of pre-service and in-service training required by the service, establishing and operating institutes, directorates, research units, training centers and social facilities that will work at the local, national and global level regarding the services that are included in the field of duty of the General Directorate.
10. Carrying out all kinds of research and development, inventory, printing, publishing and promotion works and projects related to their services and marketing their results at home and abroad.
11. Carrying out works to extend the use of forest products and services, working in close cooperation with private sector, non-governmental organizations and universities producing, processing, marketing, importing and exporting any kinds of forest products, providing consultancy at home and abroad, implementing projects, engaging in any kind of public awareness raising activities on forests and forestry.
12. In order to ensure the forest integrity, expropriating the real estate owned by real and legal persons to transfer them to forest regime, conveyancing the real estate owned by public institutions and organizations, and bartering them when necessary, supporting the forest villagers living in and adjacent to the state forests with in-kind and cash aid, and developing forest-public relations and take all kinds of measures in this regard.
13. Determining the technical and administrative principles on the subjects included in the field of duty, establishing laboratories related to the study subjects, making job descriptions and unit time analyzes, and determining the unit prices.
14. Regarding the duties, services and activities of the General Directorate, determining the principles to be followed by other public institutions and organizations and ensuring coordination.
15. To perform other duties and services provided by the legislation.

[1] Published in the Official Gazette No 30479 on 15 July 2018. (Decree No: 4)

REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND FORESTRY
General Directorate of Forestry

Number : 58024676-605.02/1597621 31.07.2017

Subject : Sustainable Forest Management Criteria and Indicators

TO THE MINISTER'S OFFICE

Environmental concerns that started in the 1970s brought the international forestry process to the global agenda with the 1992 Rio Summit. Since then, the central concept in forestry has become "Sustainable Forest Management".

Sustainable Forest Management in the international forestry process is defined as "the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems."

Our General Directorate carries out a series of activities in its field of duty and responsibility in relation to conventions such as the Convention to Combat Desertification, Framework Convention on Climate Change and Convention on Biological Diversity to which Turkey is a party and which came to the agenda within the scope of sustainable forest management. Our General Directorate conducts activities also in terms of water, functional planning etc.

In this context, by our General Directorate; The 2006 and 2008 GDF Sustainable Forest Management Criteria and Indicators report was prepared by adopting participatory methods and published. Moreover, our General Directorate has made its vision statement as "to become the leading institution in sustainable forest management practices" and in this respect, it has shared its institutional determination in sustainable forest management with all stakeholders and the public in the strongest way.

The basic requirement for achieving sustainable forest management is the identification, monitoring, assessment and reporting of sustainable forest management criteria and indicators at the national and implementation unit levels in a transparent and participatory way.

In Turkey, efforts to establish and develop sustainable forest management criteria and indicators remained at the institutional level, and efforts to bring them to the national level have not been finalized.

In order to mention sustainable forest management national criteria and indicators set under Turkey's conditions, there is a need for "Sustainable Forest Management Criteria and Indicators National Set" suitable to up-to-date sustainable forest management criteria and indicators sets of regional processes effective in international forestry process such as "Forest Europe" and developed with the contribution and participation of related stakeholders and sectors including our Ministry and units under it, and "development of processes and tools of Monitoring, Assessment and Reporting" for the implementation of this Set to be developed. This need is also expressed in different studies organized by stakeholders related to the forestry sector.

If deemed appropriate; I hereby submit to your approval the proposal that all activities for the development of Sustainable Forest Management Criteria and Indicator National Set and Monitoring, Assessment and Reporting Process of its Implementation be carried out under the coordination of the Strategy Development Department of our General Directorate.

Submitted for your approval.

Bekir KARACABEY
Deputy General Director

28/07/2017
İbrahim ÇİFTÇİ
Deputy Secretary

28/07/2017
APPROVED
Akif ÖZKALDI
Secretary
On behalf of the Minister

REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND FORESTRY
General Directorate of Forestry

Number : 58024676-605.02-E.2603215
25.12.2019

Subject : Sustainable Forest Management Criteria and Indicators Implementation Guide

TO THE MINISTER'S OFFICE

The coordination task of all activities to be carried out for the development of the process of Sustainable Forest Management Criteria and Indicator National Set and Monitoring, Assessment and Reporting of its Implementation was given to our General Directorate with the Approval by the Minister's Office on 31.07.2017 No. 5 8024676-605.02/1597621.

In this context, the development process of the national set was launched, and 6 working groups based on 6 criteria were created in line with the criteria of sustainable forest management accepted by the United Nations General Assembly. A total of 281 people, consisting of representatives of our Ministry, relevant ministries, public institutions and organizations, universities, private sector, non-governmental organizations and professional organizations, took part in these working groups. The reports prepared with suggestions on criteria and indicators developed by working groups were assessed at the "National Workshop" held on 25-26 July 2018 in Ankara on the basis of participation and "Turkey Sustainable Forest Management Criteria and Indicators Set" which consists of 6 criteria and 40 indicators was created.

Moreover, in the workshop, 9 recommendations were made regarding the next steps of the process. One of these recommendations is about the preparation of a sustainable forest management criteria and indicators implementation guide. In this framework, the focus was on the development of sustainable forest management criteria and indicators implementation guide for the purpose of determining the standards that will ensure the common perception of the elements in the national set by all stakeholders, explaining the concepts and establishing reporting mechanisms.

In this context, a Draft Guide was prepared with the participation of our Ministry and all other relevant stakeholders and submitted to the official opinion of the relevant units, and the Final Guide was prepared after the feedbacks received. In line with the the principles provided in this Guide, preparation of "Turkey Sustainable Forest Management National Report" is the current goal.

In light of the above explanations, the vision of sustainable forest management criteria and indicators can be summarized as "To cooperate with other sectors in all relevant segments of the society, by sharing reliable and verifiable information about the status of forests and forestry transparently and the objective analysis and evaluations made through this information, and also to cooperate with other sectors in order to prevent external effects affecting forests negatively".

If deemed appropriate, I hereby submit to your approval of the implementation of the attached "Sustainable Forest Management Criteria and Indicators Guide" in line with the principles in the Guide.

Submitted for your approval.

Annex: SFM C&I Implementation Guide (187 pages)

e-signed
Bekir KARACABEY
General Director

APPROVED
25/12/2019
e-signed
Akif ÖZKALDI
Deputy Minister
On behalf of the Minister