

FOREST IN WOMEN'S HANDS (FEM4FOREST)

**REPORT ON CURRENT SITUATION AND
POSITION OF WOMEN IN FORESTRY IN
DANUBE REGION**

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1 Introduction

The Fem4Forest project identifies and analyses the innovation needs of labour markets and forest entrepreneurs. Fem4Forest will demonstrate the transferability of ideas and good practice examples (GPE) by a series of pilot actions within the Danube region territory to push forward the ability of women actors to gain a foothold in the workforce and innovate their forest business to boost the competitiveness of the forest-based sector on the European market. The project will offer new and well adapted innovative learning approaches, which will support a more active role of women in the forest sector.

Therefore, the main objective of Fem4Forest is to strengthen the forest sector at local, regional and interregional level through increased involvement and ability of women actors by supporting their equal presence and competences at the market in the Danube region. The overall Fem4Forest concept follows an interactive innovation model where innovation occurs because of multi-actor interactions driven by needs of society and market, state of the art of science and technology, and organizational capabilities.

The planned activities are demand-driven and target three most crucial components: social inclusion, gender equality and economic independency. Due to its multi-actor approach, Fem4Forest has the genuine and strong involvement of target groups that will be engaged in various activities to voice their needs and co-create GPE.

At the beginning of the project the variety of options that already exist in different countries will be analysed and presented through state-of-the-art report. The Fem4Forest model for integration of women will be tailor made, based on overviews of the current situation in the participating Danube countries. Expertise on the status quo of women in forestry sector and selection of existing knowledge and good practice example is an important background to achieve the main project objectives.

The present status report describes the current situation of women in forestry of the Danube region. A comprehensive picture on the status of women in the forest sectors of 10 different countries is provided based on existing research and available data. Key findings and overviews are compiled in more than 90 figures and 80 tables. The notion of forest sector used here is understood according to FAO terminology as “all economic activities that mostly depend on the production of goods and services from forests”, distinguishing broadly between wood supply and non-wood products. It emphasizes the “provisioning” ecosystem services of forests.

The compiled report anchors the idea of equality in forestry and provides a significant basis for further steps in the Fem4Forest project, including a survey on needs and interests of women, benchmarking, definition of action plans and training programs. These will help to develop framework conditions that support a more equal involvement of men and women in interest groups, institutions, working staff and businesses in the forest sectors of the participating countries.

The report is divided on several levels:

1st level: each country has its own report

2nd level: situation in each country is presented in 8 chapters

- I. Forest sector
- II. Labor market and job opportunities in the area of forestry
- III. Forest ownership
- IV. Forest administration
- V. Companies and enterprises in forestry and related services
- VI. Forest-focused interest groups
- VII. Education and training in the field of forestry
- VIII. Overview of initiatives and projects to support women in forestry

1.1 Previous research

Previous research on the role and status of women in the forest sector informed the present study, including (a) the Time for Action FAO report, which was compiled by Gun Lidestav in 2006¹, (b) the Gender Balance in the Nordic forest sector report, published by Birger Vennesland and colleagues in April 2020², and (c) the Interreg study by a Bulgarian-Macedonian team on women in the forest sector, which was published in 2018 and led by Rossitsa Chobanova, among others.³ A recurrent topic throughout the three studies is the male dominance of the sector. It is evident in employment opportunities and leadership positions. Their main findings are summarized in the table below. This helps to assess the current situation and position of women as found in the forest sectors of the 10 countries covered in this report.

¹ Lidestav, Gun (2006) (eds.) Time for Action. Changing the gender situation in forestry. Report of the ENECE/FAO team of specialist on gender and forestry. UN Food and Agriculture Organization (FAO). See: <http://www.fao.org/sustainable-forest-management/toolbox/cases/case-detail/en/c/213769/>

² Vennesland, Birger et al. (2020) Gender equality in the Nordic forest sector. Nordic Forest Research (SNS). See: <https://nordicforestresearch.org/gender-balance-in-the-nordic-forest-sector/>

³ The study on performance and problems of women in the forest sectors of Bulgaria and Macedonia was a special focus in the frame of a project funded by the Interreg programme “Innovative Cooperation Initiatives in cross-border region – ICI”, co-financed by the European Union through INTERREG – IPA CBC CCI No. CB006.1.31.070. References to the study are listed in the Bulgarian country report.

Moreover, the Time for Action report describes access to and availability of data as a key challenge for conducting a comparative analysis across the selected countries in Europe. Perhaps due to Equal Opportunity Acts and a growing awareness for gender and related issues in the forest sector, this constraint was less critical for the current reporting. Nonetheless, gaining access to relevant data is still challenging.

Table 1: Women in the forest sector – key findings from three studies

	FAO Time for Action report (2006)	Gender balance in Nordic countries report (2020)	Interreg study on women in forest sector in Bulgaria and Macedonia (2018)
Employment and working conditions	<p>Women are under-represented in work-force (professional, technical and managerial positions)</p> <p>Share of women exceeds 20% in 4 out of 20 countries covered in report</p> <p>Few opportunities offered for part-time or flexible working</p> <p>Women receive lower pay than men</p> <p>Forestry is major provider of employment in rural areas. Restructuring and cuts affect women disproportionately</p>	<p>Forest sector is still male-dominated, yet with high shares of women in research and education</p> <p>Few female leaders in forest sector (professors, board member, owners)</p> <p>Lowest share of women in logging work (0-5%) and wood buying (<10%)</p> <p>Public administrations in forest sector attract higher shares of women than owner associations (despite high share of female ownership of >40%)</p>	<p>Share of women in forest workforce is about 20%; decreasing tendency</p> <p>Different health risks while working in forestry (e.g. prolonged outdoor work, exposure to biological agents and forest animals)</p> <p>Awareness of labour law (e.g. maternity leave)</p> <p>Women receive lower pay than men</p>
Motivations for working in forest sector	<p>In some countries, women (and men) are drawn to forestry by early interest in nature and the “outdoors”</p> <p>Women can bring in special skills into workplaces including communication, team working, problem</p>	n. a.	<p>Women can bring in special skills into workplaces including communication, team working, problem solving and conflict resolution</p>

	solving and conflict resolution		
Training and education	Number of women in forestry-related courses is relatively low	Increasing proportion of female students in forestry courses (btw 29% in DK and 45% in SWE) Proportion of females in higher education is higher than among current employees in forest work force	Low level of education Need for training and career development
Gender equality	Gender imbalance is relatively prevalent within management roles Evidence for discriminatory practices against women	Slow development of more equal distribution of gender equality since early 1970s Distinction between first and second wave of gender awareness in forestry – from providing special events for women to potential power of gender mainstreaming	Women prevalent in administrations (state agencies and enterprises) but not in leading positions Female minister responsible for forests in BG

15 years ago, Lidestav and colleagues concluded their report with the following statement:

“Female representation in the forestry sector in some countries seems to be heavily influenced by the traditional values and perceptions of the role of women in society. Policies geared toward equal opportunities seem to have been impotent to break this general idea. Even when women hold the majority ownership of private forests, they are still marginalized in decision-making processes.” (p. 157)

In 2020, the evidence from the Nordic countries, which are considered leaders on gender equality, reveals a slow development towards more gender equal distribution in the forest sector. The authors explain:

[This] “may be a mixed result of the image and the attractiveness of forestry professions, family traditions and related life choices of young individuals, and practices in the sector that are insufficiently inconclusive to both men and women.” (p. 32)

The Interreg study (2018) states that “building capacities for equal representation of women in forestry [...] is not an easy process at all, [but] an effort to jointly find mechanisms for finding a systemic solution for greater involvement of women in this sector”(p.226).⁴ It concludes that “the different activities in forestry sector are not equally attractive for women and this has to be taken into account when identifying where increasing the employment could lead to better labour productivity and competitiveness of the sector” (p. 227).⁵

The presented findings in this report underscore these conclusions. The comparative approach shows that women are present in the forest sectors of the Danube Region but have rather limited decision-making authority in administrations and almost none in companies. Relatively high shares of female forest ownership do not imply equivalent representations in decision-making bodies and interest groups whereas socialist legacies may have facilitated a greater presence of women in the forest sector. The concluding chapter summarizes the major insights from the cross-country comparison of women’s situation and position in forestry in the Danube region. More equality and greater ownership of women in the forest sector is paramount for ethical and political reasons. Humanity depends on resilient forests. The present report indicates that women are engaged with and work for forests to achieve environmental and economic purposes. The number of highly trained female foresters will become more numerous. Reflecting on gender in the forest sector will help transforming it into a key player for the green recovery of current crises.

⁴ Traychevska, D. (2018) Women working in the forestry sector in the Republic of Macedonia (results of survey in 2017). In: Forestry sector in Bulgaria and Macedonia (eds. Chobanova R., Kotsarev, L.), 2018, Sofia: Econ. research institute of the BAS (pp.213-226)

⁵ Georgieva, D., Chobanova, R. (2018) Women in the forestry sector – performance and problems (results of survey in Bulgaria). In: Forestry sector in Bulgaria and Macedonia (eds. Chobanova, R., Kotsarev, L.), 2018, Sofia: Econ. research institute of the BAS (pp.226-242)

2 Women in the Forest Sectors of Countries in the Danube Region



Countries participating in Fem4Forest in alphabetical order:

- Austria** ° **Bosnia and Herzegovina** ° **Bulgaria**
- ° **Croatia** ° **Czech Republic** ° **Germany/Bavaria** ° **Romania** °
- Serbia** ° **Slovenia** ° **Ukraine**



2.1 Country Report: AUSTRIA

Authors: Dagmar Karisch-Gierer Eva Janusch, Heidi Gaube, Maximilian Handlos, Helga Pretterhofer, Kathrin van Zeist

2.1.1 Forest sector

The proportion of forests in Austria is more than 47%, i.e. quickly half of the entire federal territory is forested. Around 54% of the forest area belongs to small forest owners (<200 ha), 31.2% belongs to forest holdings (> 200 ha) and 14.8% belongs to the state. Around 20.5% of the forest are protective forests. The industry has around 300,000 employees in around 172,000 companies, produces around 12 Billion € and generates its own export surplus of around 3.5 Billion €. After tourism, wood is the second most important good in the foreign trade balance.

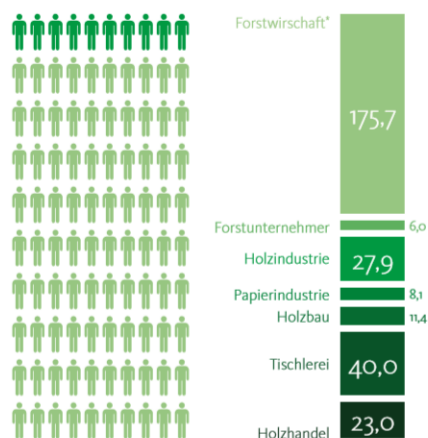
10 out of 100 Austrians work with wood. That means 300.000 people earn their income completely or partially from wood – more than half of them in forestry, the rest in joinery, timber and paper industry, timber trade and timber harvesting enterprises (in descending order).

More than half of Austrian forests belong to small forest owners (< 200 ha), about a quarter to large forest owners and 15% belong to the State. The shares of tree species, which show nearly 60% of spruce in 2018, will shift towards about 40% in 2100 due to climate change. The figures, which illustrate Austria's forest sector are in German language. The English translations can be found in the captions.

Wertschöpfungskette Holz Einkommensbezieher in Tausend

10 VON 100 Österreichern
arbeiten mit dem Wert-/Werkstoff Holz

das sind 300.000
Einkommensbezieher



*) Personen, die ganz oder teilweise ihr Einkommen aus der Waldbewirtschaftung erzielen (Wäldereigentümer, Angestellte, Arbeiter, öffentlicher Dienst, etc.)
Quelle: FHP Kooperationsplattform Forst Holz Papier

Caption: Wertschöpfungskette Holz: wood value chain; Einkommensbezieher in Tausend: Income earners in thousands

Figure 1: Significance of forest sector in Austria

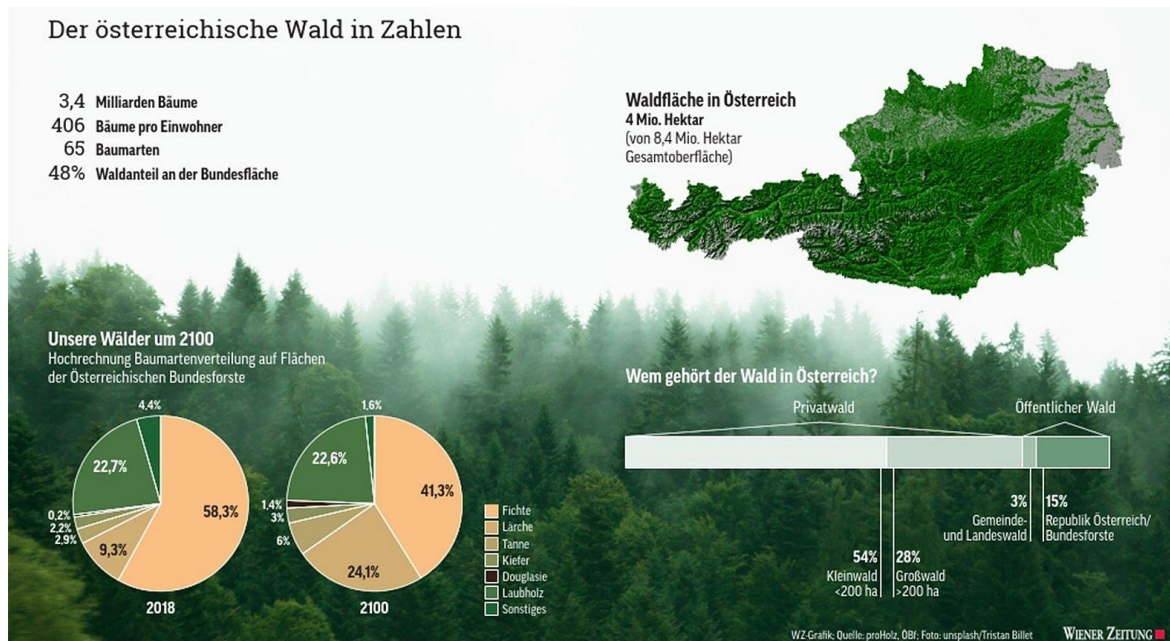


Figure 2: Austrian forests in numbers

Bäume in Österreich

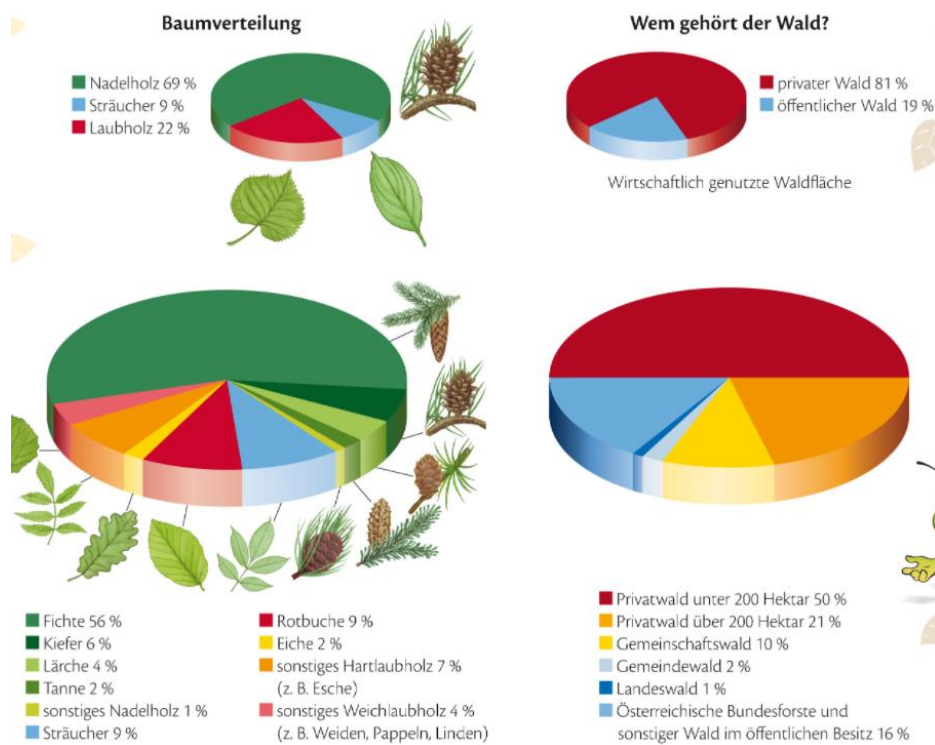


Figure 3: Trees in Austria

Caption: Baum/Bäume: tree/trees; Baum(arten)verteilung: share of tree species; Bäume pro Einwohner: trees per inhabitants; Baumarten: tree species; Waldanteil: share of forests; Waldfläche: forest area; Fichte: spruce; Lärche: Larch; Tanne: fir; Kiefer: pine; Rotbuche: beech; Eiche: oak; (sonstiges) Laubholz: (other)deciduous wood; (sonstiges) Nadelholz: (other) coniferous wood; Sträucher: shrubs; Privatwald: private forests; Öffentlicher Wald: public forests; Gemeinschaftswald: community forests; Kleinwald < 200 ha: small forests < 200 ha; Großwald > 200 ha: large forests > 200 ha; Privatwald: private forests; Gemeinde- und Landeswald: Public ownership, local authorities; Republik Österreich/Bundesforste: State forest

Source: Source: BFW

Forests in Styria

With a total area of around 994.000 hectares of forest – that is around 61% of the federal country's area and around one fourth of the total forest area of Austria – Styria is the most densely wooded Austrian federal state. Due to the climatic and geological conditions, 87% of the wood supply is made up of conifers – spruce is predominant here – and 13% of deciduous trees. The high proportion of coniferous wood corresponds to the natural conditions in Styria: A large part of the forests are located at altitudes where deciduous trees do not naturally occur. 7.8 million cubic meters grow annually, of which around 5.4 million cubic meters are used. This leaves around 2.4 million cubic meters of wood unused in the forest.

Of the approximately 145.000 forest owners in Austria, 40,100 more than a quarter come from Styria. 81% of their properties are covered with coniferous wood (about 2/3

spruce, 3% fir, 7% larch and 4% pine), 19% with deciduous wood (beech, oak, maple, ash, birch, alder, poplar). The Styrian forest and wood industry employs around 55.000 people and has an annual production value of 5 Billion €. 16% of the Styrian economic output comes from the forestry and wood industry.

2.1.2 Labour market and job opportunities in the area of forestry

We are guided in the delimitation of the forest sector from the wood processing industry by the FAO definition of the forest sector ("all activities that depend mainly on the production of forest goods and services") and include the sawmilling industry as the primary forest-based production industry. No other wood processing and manufacturing industries are included here, however.

Since the forest sector not only includes the actual forest management, but also has numerous points of contact with a wide variety of actors and institutions, job opportunities in the area of forestry are correspondingly broad.

In addition to formal professions and training, activities in the forestry sector are described using functional descriptions (operations manager, pedagogical staff ...).

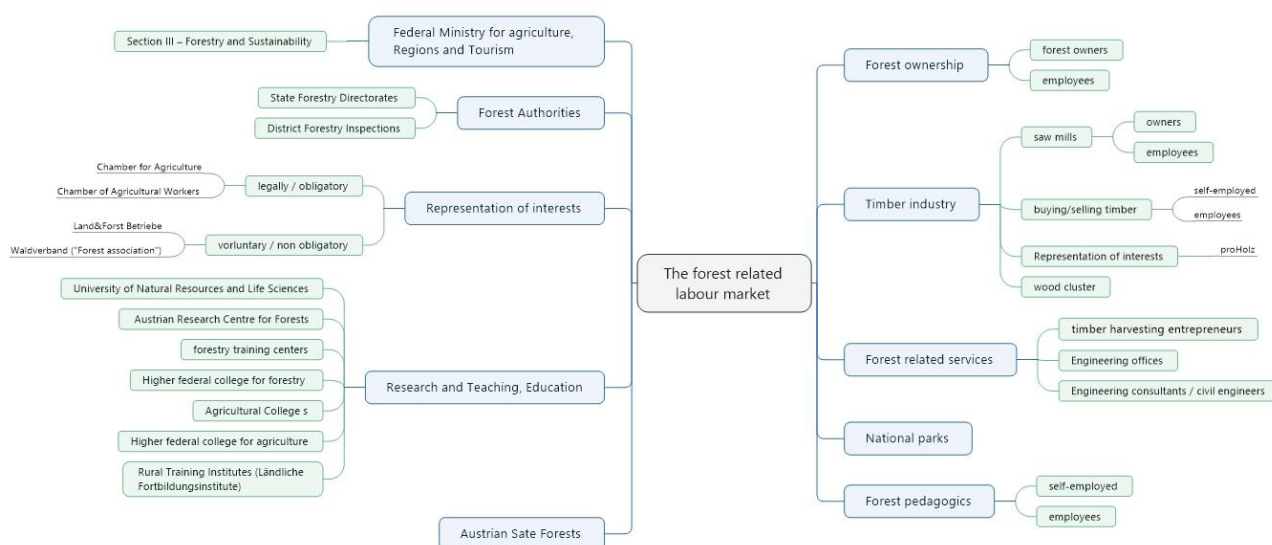


Figure 4: Labour market in area of forestry

The forest related labour market consists of the public (and semi-public) and the private sector. The public and semi-public sector consists of forest administration on national and regional levels, obligatory and non-obligatory organizations for the representation of interests, research, teaching and education and the Austrian State

forests. The private sector consists essentially of forest ownership, timber industry, forest related services, national parks and forest pedagogics (without claim of completeness).

Compared to the (official) proportion of women among forest owners (for details see 2.1.3), the proportion of women who take up a profession in forestry is significantly lower. To create this report, an attempt was made to survey the proportion of women in various areas of forestry. Since these women – depending on their area of work in forestry – sometimes also have non-forestry vocational training (e.g. biologists), an attempt was made to collect the proportion of all women who bring content-related (= forestry) input into their area of work. Women in the administrative area (administrators and assistants) were not included.

It is striking that the highest proportion of women can be found in public administration, especially in the Ministry for Agriculture, Regions and Tourism, what can be explained with legal requirements. The second sector, where the share of women is relatively high is research, teaching and education, and about the half of all forest pedagogics are women. In all other fields of the labour market the number of women is significantly low.

Table 2: Austrian labour market in area of forestry (covering several institutions)

Federal Ministry for Agriculture, Regions and Tourism			
Institution	Employees total	Female Employees	Share of women
Section head	7	3	42.9 %
Department III / 1 - Forest Policy, Forest Economics and Forest Information	9	2	22.2 %
Department III / 2 - Forest Logistics, Legal Policy and Professional Qualifications	8	5	62.5 %
Department III / 3 - Forest Protection, Forest Development and Forest Promotion	14	5	35.7 %
Department III / 4 - Torrent and Avalanche Control and Protection Forest Policy	16	2	12.5 %

Forest Authority – State Forestry Directorates and District Forestry Inspections			
Federal state	Level	Men	Women
Vienna	Country	3	0
Lower Austria	Country	14	1
	District	60	0
Upper Austria	Country + District	8% of the forest organs are women. Overall, the proportion of women who provide technical input on forestry is around 20%.	
Burgenland	Country	10	0
	District	6	0
Salzburg	Country	9	2
	District	18	0
	Landscape forest management Zell am See	6	0
Styria	Country	11	0
	District	64	2 (+2 paternal leave)
Carinthia	Country + District	59	3
Tyrol	Country	24	7
	District	48	0
	Community forest ranger	244	0
Vorarlberg	Country	9	0
	District	8	0
	Forest ranger	39	0

Chambers of Agriculture – regional chambers, district chambers			
Federal state	Level	Men	Women
Vienna	RC	0	0
Lower Austria	RC + DC	17	1
Upper Austria	RC	7	0
	DC	12	0
Burgenland	RC	1	0
	BKs	3	0
Salzburg	RC + DC	6	0
Styria	RC	8	0
	DC	23	0
	FAST Pichl	6	3
Carinthia	RC + DC	6	1
Tyrol	RC + DC	1	1
Vorarlberg	RC + DC	3	0
Austria	RC	2	0

RC = Regional chamber

DC = District Chamber

„Forestry society“			
Federal State	Members total	Members female	Share of women
Styria	910	51	5.6 %
Lower Austria + Vienna	548	25	5.5 %
Upper Austria + Salzburg	512	30	5.8 %
Carinthia	1.171	179	15.3 %
Tyrol	612	105	17.2 %
Vorarlberg	988	76	7.7 %
Burgenland	108	5	4.6 %

„Forest association“					
Federal State	Employees		Women in boards	Members female	Women at regional level (CEO, employees,)
	m	f			
Austria	1	0	0	--	--
Lower Austria	3	0	not specified	644 (.,6%)	2
Upper Austria	4.5	0.3	not specified	not specified	0
Carinthia	1	0	8	800 (21%)	0
Salzburg		0		601 (9.83%) 991 – owned by partners (16.22%)	0
Vorarlberg	4	0	not specified	440 (15%)	0
Tyrol	0.2	0	1	13 (1.6%)	--
Styria	15	8	1	not specified	1

Forestry training centers of the Federal Forest Research Center (BFW)			
Institution	Employees total	Employees female	Share of women
FAST Traunkirchen	15	1	6.7 %
FAST Ossiach	7	0	0 %
Forestry school Traunkirchen	13	3	23.1 %

Agricultural and forestry technical schools and higher federal colleges				
	Women	Men	Total	Share of women
Higher federal college for forestry Bruck/Mur	3	21	24	13%
Agricultural College Edelfhof	0	5	5	0%
Mountain farming school Hohenlehen	0	0	0	
Agricultural College Rotholz	0	5	5	0%
Agricultural College Bruck (an der Glocknerstraße)	0	0	0	
Agricultural College Kleßheim	0	0	0	
Agricultural College Hafendorf	1	1	2	50%
Higher federal college Wieselburg	1	5	6	17%
Agricultural College Stainz	0	1	1	0%
Agricultural College Hatzendorf	0	1	1	0%
Agricultural College Kobenz	0	1	1	0%

National parks					
	Women	Men	Total	% women	
NP Donauauen	4	3	7	57%	4 women are employed in the area "Naturraum"
NP Thayatal					1 part-time forestry graduate
NP Hohe Tauern	0	0	0		will be occupied in the near future
NP Gesäuse	1	0	1	100%	Forestry graduate in nature conservation
NP Kalkalpen	0	0	0		

Forest companies > 500 ha				
		Employees	Owners	Corporations
Vienna	m	8	1	4
	f	1	0	
Lower Austria	m	86	57	33
	f	1	14	
Upper Austria	m	31	14	13
	f	3	5	
Salzburg	m	13	2	5
	f	0	0	
Tyrol, Vorarlberg	m	78	0	76
	f	0	0	
Burgenland	m	8	4	5
	f	2	2	
Styria	m	75	36	42
	f	4	5	
Carinthia	m	30	26	6
	f	5	12	

Civil engineers			
Federal State	total	female	percentage
Vienna	5	0	0 %
Burgenland	0	0	0 %
Lower Austria	6	0	0 %
Styria	9	1	11.1 %
Upper Austria	7	0	0 %
Salzburg	4	0	0 %
Carinthia	4	0	0 %
Tyrol, Vorarlberg	7	0	0 %
	0	0	0 %

Technical offices			
Federal State	total	female	percentage
Vienna	11	0	0 %
Burgenland	3	0	0 %
Lower Austria	24	0	0 %
Styria	28	2	7.1 %
Upper Austria	13	0	0 %
Salzburg	11	0	0 %
Carinthia	31	0	0 %
Tyrol, Vorarlberg	17	0	0 %
	4	0	0 %

Torrent and avalanche control

Currently, 12 out of a total of 300 employees across Austria are women (with relevant specialist training), and 2 out of 16 in Department III / 4 of the Federal ministry.

Forestry workers

The available figures are estimations.

Between 600 and 700 people are currently employed in the forestry operations in Styria, which are also looked after by the Chamber of Agricultural Workers. About half of them were reported as workers. At peak periods, up to 900 people are registered in the forestry operations. According to information from the Austrian Chamber of Agricultural Workers, around 1,600 forest workers are estimated for the whole of Austria. No statement could be made about the proportion of women.

Forest therapy in Austria

Interest in the forest as a recreational and health area is growing steadily. Regarding "Forest Therapy" there are currently no educational offers in Austria, but it may be expected that these will rise in the next few years. So far, therapeutic offers in forests and nature are promoted/provided by therapists in a self-organized manner. There are no official figures on gender ratios in forest therapy across Austria, but there are indications for a significant female presence in the field. Forest health offers could be an opportunity for forest owners to diversify their sources of income. The importance of this field of activity is currently still marginal for forestry, but the pull of tourism and health care should not be underestimated.

(Source: Assessment by Dominik Mühlberger and Barbara Öllerer MSc, both BFW)

Forest pedagogy in Austria

There are currently around 800 forest educators working in Austria, around half of whom are women. The Forest Education Association in Austria also has an almost balanced gender ratio of 426 female and 398 male members. A survey of 440 certified forest educators in the years 2016 to 2019 showed the following result:

Table 3: Male / female distribution in forest pedagogy in Austria

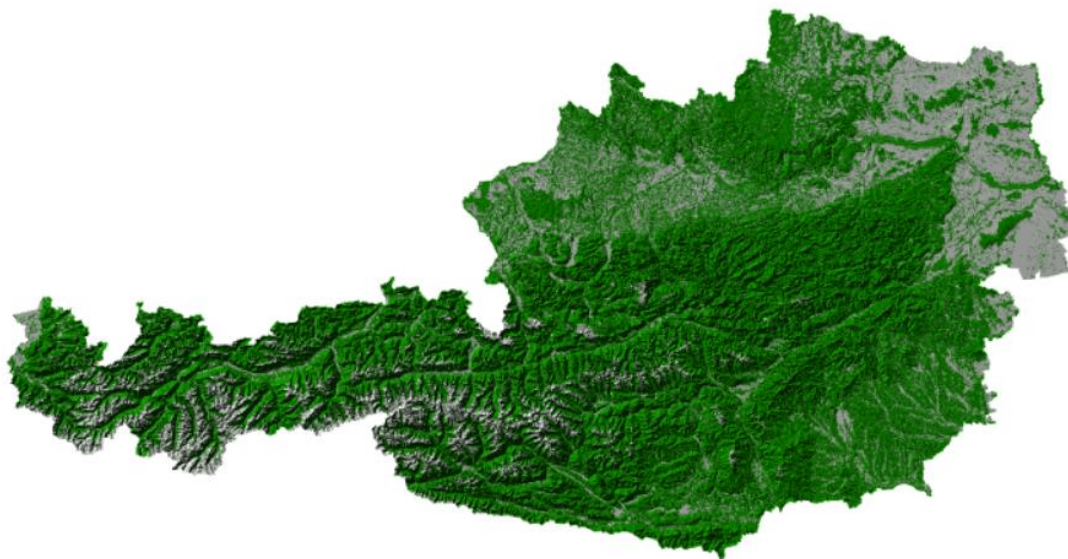
sex	number	share
male	216	49%
female	224	51%
sum	440	100 %

Source: Assessment by Dipl. Forstw. Elisabeth Johann, Forest Education Association Austria

2.1.3 Forest ownership

The ownership structure in connection with the forest area does not differ significantly in Styria compared to Austria:

- Private forest under 200 ha 48.3%
- Private forest over 200 ha 22.4%
- Agricultural communities 9.9%
- Community forests 2.2%
- Forest of Federal countries 1.5%
- State forest 15.7%



Wem gehört der Wald?



Figure 5: Who owns forests in Austria

Caption: Wem gehört der Wald?: Who owns the forest?; Privatwald: private forests; Öffentlicher Wald: public forests; Kleinwald < 200 ha: small forests < 200 ha; Großwald > 200 ha: large forests > 200 ha; Gemeinde- und Landeswald: Public ownership, local authorities, community forests; Republik Österreich/Bundesforste: State forest

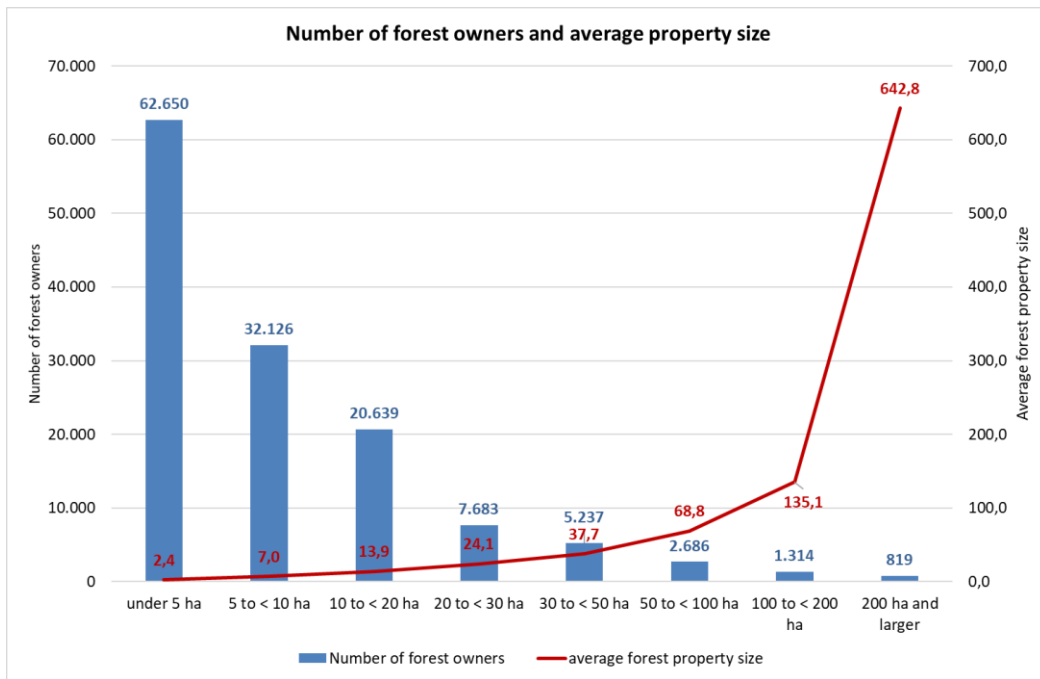


Figure 6: Forest ownership / property size in Austria

The vast majority of Austria’s private forest owners have areas of less than 5 hectares (ha) – the average size of private forest property is 14.5 ha (Styria: 17.4 ha).

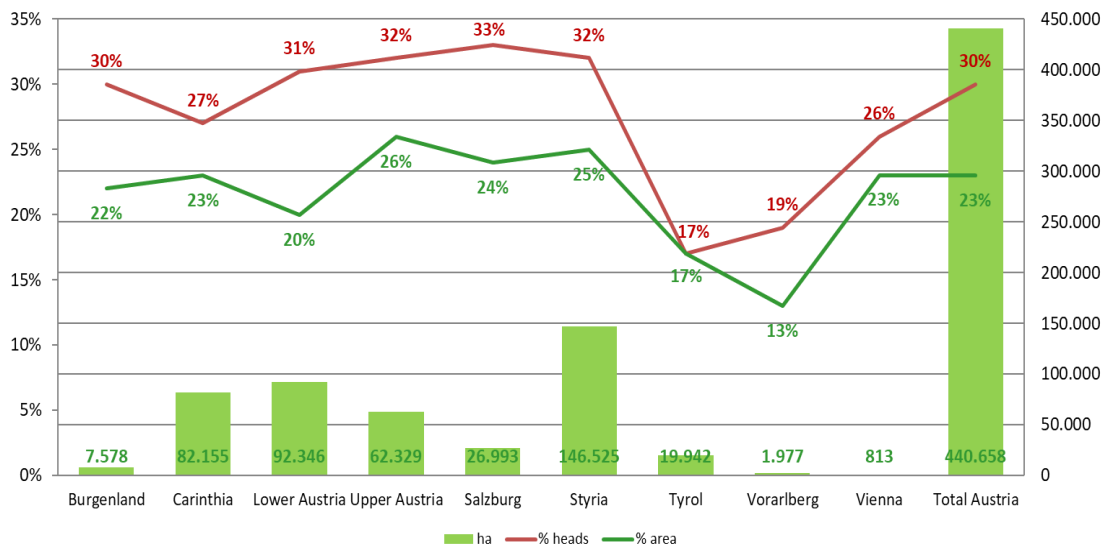


Figure 7: Female forest owners in the federal states of Austria

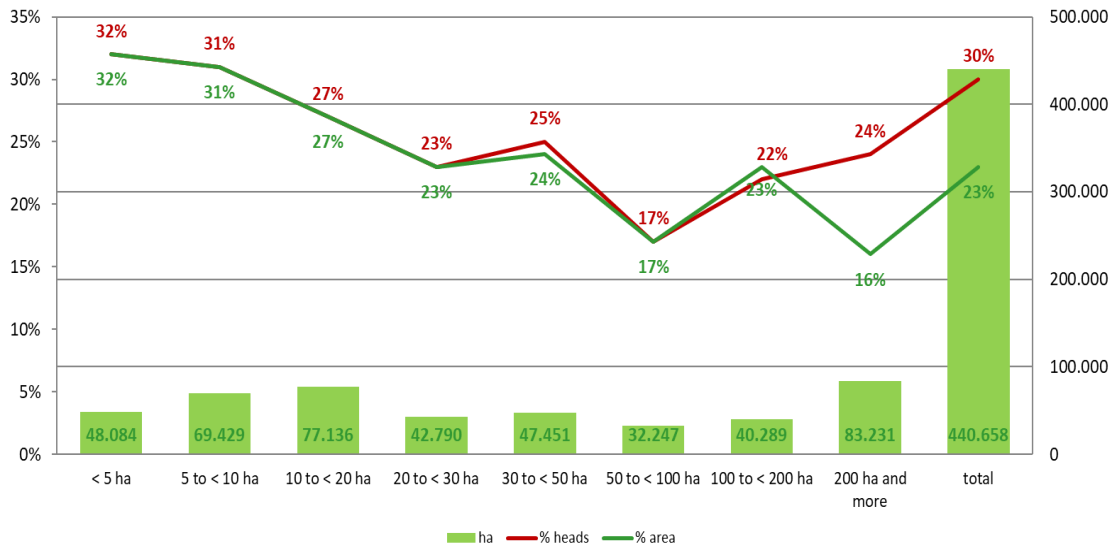


Figure 8: Female forest owners according to property size

Summing up, 30% of all forest owners in Austria are women, owning 23% of private forests. However, these figures only provide information about the formal ownership structure, but not about who is actually responsible for the management. As shown below, forests in private ownership cover 82% of the total forest area whereas public forests cover only 18%.

Table 4: Public / private forest ownership (Source: Forest inventory 2007-2009)

Austria	Forest cover (ha)	Share forest cover (%)
Public ownership	130.000	3.3 %
local authorities		
Private ownership	-	
< 200 ha	2.153.000	54%
200 – 1.000 ha	386.000	9.7 %
> 1.000 ha	729.000	18.3 %
Österreichische Bundesforste AG	593.000	14.8%
Total	3.991.000	100%

2.1.3.1 Forest owner associations

The representation of interests of forest owners is based both on a legal basis and on voluntary associations:

- The statutory representation of interests is carried out by the nine Provincial Chambers of Agriculture and the Austrian Chamber of Agriculture, although – In contrast to agriculture, where women farmers are also represented in their

own organization – there is no dedicated point of contact for female forest owners as part of the interest group.

- In addition to the statutory interest groups, to which all forest owners belong within the framework of compulsory membership, voluntary representations of interests have emerged, which usually address different property categories. The *Land&Forst Betriebe Austria* with their six provincial organizations (Burgenland, Carinthia, Lower Austria, Upper Austria, Salzburg and Styria) mainly represent the large forest, while the small forest owners tend to unite in one of the numerous forest management communities and, furthermore, in the eight provincial forest associations or the Austrian Forest Association.

More information on how women are represented in Austria's forest sector can be found under 2.1.2.

2.1.4 Forest administration

Federal Ministry for Agriculture, Regions and Tourism

Forestry is anchored at the Austrian federal level in the Ministry of Agriculture, Regions and Tourism. The responsibilities are divided into four departments:

- Department of Forest Policy, Forest Economics and Forest Information
- Department of Forest Logistics, Legal Policy and Professional Qualifications
- Department of Forest Protection, Forest Development and Forest Promotion
- Department of Torrent and Avalanche Control, Protective Forest Policy

Federal Forest Service

At the federal state level, the federal forest service (*Landesforstdienst*) represents the interest group. The individual district forest inspections are subordinate to the federal forest services. Federal forest service and district forest inspections are primarily specialist departments for performing the tasks of the Forest Act.

Duties of the units:

- Coordination, training and technical supervision of the agency's forest service
- Forestry and hunting expert service
- Forest supervision and monitoring of forests for compliance with forest law provisions
- Plant protection service - forest / wood, invasive species (IAS), species protection
- Forest reproductive material
- Determination of the state of the forest (damage), forest statistics

- Compensation from the disaster fund (damage to the forest and forest roads)
- Forest spatial planning, forest development plans, forest sector plans
- Forest education, forest public relations
- Forest consultancy and funding processing in the forestry sector
- Implementation of the Austrian protection forest strategy
- Land management projects in the catchment areas of torrents and avalanches

More information on how women are represented in Austria's forest sector can be found under 2.1.2.

2.1.5 Companies and enterprises in forestry and related services

More than half of the forest production in 2019 was generated in raw wood for material (timber and paper industry) and energetic use (biomass). A little bit less than a third is due to the increase in the stock as a result of the growth of wood, and about 16% come out of forest and non-forest related services. Non-wood-products are not represented. Overall the production of 2019 was 11% lower than in 2018.

Lumbering companies

The company search engine "FirmenABC⁶" lists 301 independent timber harvesting entrepreneurs / woodcutters for Austria. 82 of them are in Styria. These figures can only be used as a guide. Many private forest owners, especially in rural areas, usually harvest their wood manually with a chainsaw, tractor and cable winch.

Timber transport companies

A significant part of the necessary service in the forestry and wood industry is provided by transport companies that use their trucks to transport the logs from the forest to the processing industry. There is no separate record in Austria for the number of transport companies with devices equipped for the transport of logs such as loading cranes and stanchions.

As a rough estimate, the following can be calculated:

- Around 18.000.000 solid cubic meters of harvested round wood annually.
- With an average load of 27 solid m³ per transport, this results in 670.000 truckloads per year.
- With 220 working days a year and the assumption that a truck transports three loads of round wood a day, this results in a number of around 1.000 trucks in

⁶ See: www.firmenabc.at

Austria, which take care of the removal of round wood and the supply of the wood, pulp and paper industry.

Consulting and planning services

Engineering offices

Engineering offices are regulated in the trade regulations. They deal with the consultation, the creation of plans, calculations, expert opinions and studies, the execution of examinations and measurements, with the supervision of the execution and acceptance of projects, the fiduciary representation of the client before the authorities as well as with the inspection and monitoring of plants and facilities. The member database of the *Fachverband Ingenieurbüros* (= an association for engineering offices) shows 141 engineering offices for forestry and timber industry.

Engineering consultants / civil engineers

State-authorized and sworn civil technicians are freelance based on the authority granted by the Federal Minister of Economics in engineering or scientific fields. They are entitled, within the scope of their authority, to draw up public documents which administrative authorities regard as if they had been drawn up by the authorities themselves. Civil engineers act as planners, consultants, examiners / experts, supervisory and monitoring bodies, mediators, commercial and organizational executors of projects and / or trustees, and represent clients professionally before administrative authorities, courts and corporations under public law. There are currently 43 civil engineers working in the forest and wood industry in Austria.

ZÖFU (Zertifizierte Österreichische Forstunternehmer)

The seal of approval "Certified Austrian Forest Company" identifies certified companies as ecologically and socially sustainable, with well-trained employees and flawless technology, thus offering the opportunity to differentiate themselves from the cheapest providers.

In principle, every company operating in Austria that offers services in the fields of timber harvesting, timber bringing, forest regeneration, forest maintenance and forest protection can participate in the certification. The companies guarantee to carry out all activities in a sustainable, ecological, socially and reliable manner.

Zusammensetzung der forstwirtschaftlichen Produktion 2019¹

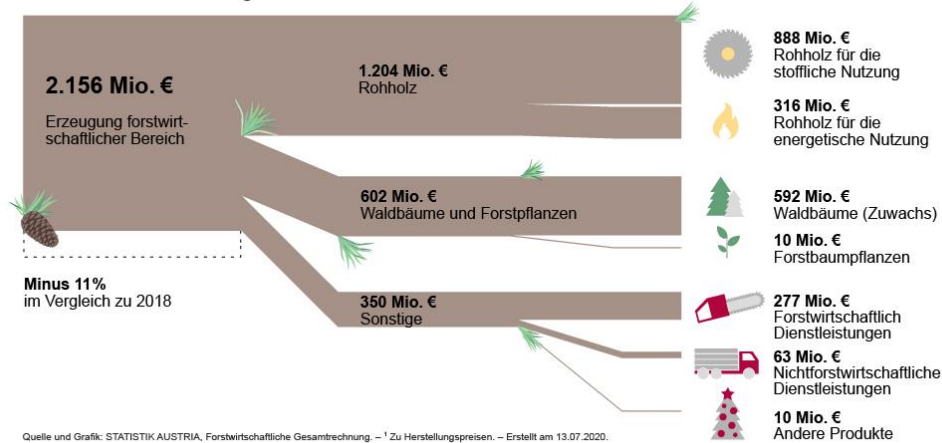


Figure 9: Forestry products in Austria (2019)

Caption: Zusammensetzung der forstwirtschaftlichen Produktion 2019: composition of forest production 2019

Erzeugung forstwirtschaftlicher Bereich: production in forest sector; Rohholz: raw wood; Rohholz für stoffliche Nutzung: raw wood for material use; Rohholz für energetische Nutzung: raw wood for energetic use; Waldbäume (Zuwachs): trees (growth) Forstpflanzen: trees and forest plants; Sonstige: other; Forstwirtschaftliche Dienstleistungen: forest related services; Nichtforstwirtschaftliche Dienstleistungen: non-forest related services; Andere Produkte: other products

2.1.6 Forest-focused interest groups

The official representation of the interests of forest owners takes place on several levels.

Legal representation (compulsory membership) is provided by the following institutions:

Austrian Chamber of Agricultural Workers for employees in the forestry sector with eight chambers of agricultural workers (except Vienna), which is the legal representation of interests for workers and employees in agriculture and forestry.

Chamber of Agriculture for forest owners (see 2.1.3.1)

Representation of interests on a voluntary level

Austrian Association of Foresters (VÖF)

The Association of Austrian Foresters, VÖF, was founded in 2001 as an association. Until then, there was only a merger of the three forest rangers' associations (Association of foresters in the public service, Foresters in the Private Sector, Austrian State Forester Association) to form the forest rangers interest group. Its objectives are the representation of the professional association, intensification of international contacts,

distributing and exchanging information and promotion of professional interests by issuing publications.

Forest Entrepreneur's Association (ÖFUV e.V.)

- In July 2010, the forest entrepreneur's association (ÖFUV e.V.) was founded. One of the goals of the association is to create an interesting and attractive job profile for timber harvesting and to improve training and further education. The association sees itself as a representative of all forest entrepreneurs, from motor-manual and machine-operated logging companies to cable crane companies.
- Forest Association Austria
- Forestry Societies
The Austrian Forestry Society is the umbrella organization for the Forestry Societies in the regional states of Austria. In total, the Forestry Societies have almost 4,400 members, almost all of those who work for the forest in Austria and many friends of the forest who are not professionally connected to forestry. In terms of its objectives, the Forestry Society sees itself as a nature and environmental protection organization and is therefore a member of the environmental umbrella organization.
- Women in Forestry (*Forstfrauen*, detailed Information under 2.1.8)
- BIOSA (Biosphere Austria) is a voluntary association of owners of agricultural and forestry areas who agree on a private basis to dedicate an area selected by them to cultural landscape research, scientific projects and the development of a new dynamic nature conservation idea.
- Nature Conservation Association (*Naturschutzbund*)
The Nature Conservation Association is the largest nature conservation organization in Austria with a federal structure and consists of provincial, district and local groups and nature conservation youth. It is an independent, non-profit and non-partisan association and does not pursue any commercial pursuit of profit.

The figure below provides an overview of the different forest-focused groups in Austria and the relations between them.

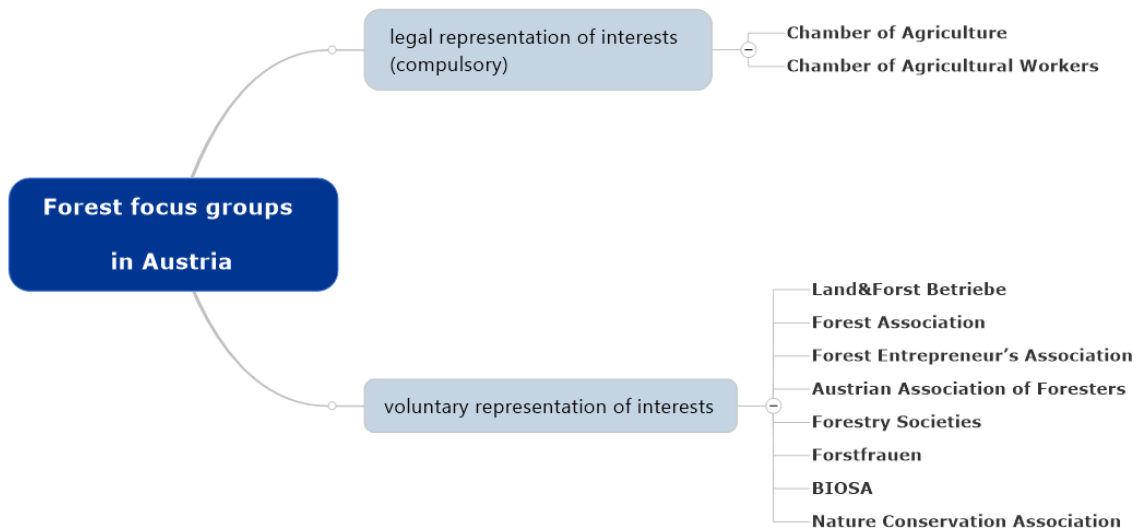


Figure 10: Forest-focused groups in Austria

2.1.7 Education and training in the field of forestry

Forestry training includes training levels ranging from skilled forest workers to forest managers.

- The training to become skilled forest workers or forestry masters is both in the first educational path, i.e. in the form of classic apprenticeship in the dual principle, as well as in the second educational path with practical experience at the parents' company or in a forest company and additional training in forest training centers and agricultural technical schools possible. A nationwide standardization of the curricula is currently being drawn up.
- The Forstwart*innen training takes place at the Traunkirchen forestry school in Upper Austria and lasts two years, the focus is on managing forest operations.
- The training for Forstadjunkt*innen takes place at the Higher Federal College for Forestry in Bruck/Mur (Styria) and ends with the Matura. This study qualifies the graduates for state examination.
- Academic degrees in forestry can be completed at the University of Natural Resources and Life Sciences in Vienna (Bachelor and Master degree in forestry). In addition, there are other branches of study that make it possible to work in the forest-based sector (Bachelor degree in wood and natural fibre technology, Master degrees in wildlife ecology and management, wood technology and management, Alpine natural hazards / torrent and avalanche control, mountain forestry).

- Forstadjunkt*innen with state examination (= Förster*innen) and forestry academics with state examination (= Forstwirt*innen) are official forest organs according to the forest law. This also includes the authorization to manage forest operations up to 3.600 ha (Förster*innen) or beyond (Forstwirt*innen) as the leading forestry body. From 6.600 ha, Forstwart*innen are assigned to provide support as “forest organs”.

In the forestry training centers mainly practice-oriented events are carried out. In addition to the events that are specifically offered for women (“Forest in Women's Hands”, “Women Power in Forestry”, chainsaw courses for women), the forest pedagogy training is particularly well received by women. In the other areas (forest technology, silviculture, bioenergy, law and management), the proportion of women is rather low, and close to zero in the forestry skilled workers and forestry master training.

Table 5: Proportion of women at events organized by the forest training centers

FAST	Year	Professional forestry workers	Forestry master	Other events	Total
Pichl	2018	3.7 %	4.5 %	29.1 %	26.5 %
	2019	6.5 %	6.1 %	25.6 %	24.0 %
	2020	1.9 %	3.3 %	31.0 %	27.3 %
Ossiach	2018				19.9 %
	2019		n.a.		24.8 %
	2020				25.6 %
Ort	2018				15.1 %
	2019		n.a.		15.4 %
	2020				17.8 %

In the **higher federal forestry college**, 17% of all students in 2020/21 are girls, the proportion of graduates averaged 6% from 2008 to 2018.

At the University of Natural Resources and Life Sciences the proportion of **women studying forestry** in the first semester was between 18.8 and 36.1% from 1998 to 2020, and 26.1% over the entire period. The **proportion of graduates** between 2008 and 2020 fluctuated much more strongly and was between 8.7 and 45.8%, but over the entire period it was 25.5% in a comparable range.

As a conclusion, it can be said that the proportion of women in all training and education paths has risen in the last few decades. Depending on the level of training, however, it differs a lot – It is lowest in the area of skilled forest workers or forestry masters and highest at the university.

2.1.8 Overview of initiatives and projects to support women in forestry

Forstfrauen (Women in forestry)⁷

The Forstfrauen bring women and men from all areas of the forest and wood industry together. The entire value chain is represented as well as authorities, interest groups and service providers. In September 2001 two women from different sectors of forestry founded a network for women in forestry and timber industry. Two years later, the network had grown considerably and in 2003, for various reasons, it was transferred to a formal association called "Forstfrauen" with 46 members at the beginning.

Goals

- To network women in the forestry and timber industry
- To use existing potential for the members, but also for forestry in general
- To make the achievements and activities of women in the forestry and timber industry visible in the professional world and in the non-forestry public

In 2020 the association has 105 members from Austria and Germany. The prerequisite for membership is a connection to the forestry and / or wood industry, relevant professional training is not required.

Activities

- Events, trips and excursions
- Role models, participation in mentoring programs and initiation of contacts
- Dissemination of information
- Seminars for personal development
- Contact point and cooperation partner for initiatives and projects
- Public relation
- International contacts to forest women networks

Forest in female hands (*Wald in Frauenhänden*)

As shown under 2.1.3, there are comparatively many women forest owners in Styria – but they are still barely visible. That was the reason why the Forest Association Styria started this best practice project in 2010.

Target group

- Forest (co)owners and forest managers of all sizes who have so far not been involved in forestry or have only been involved to a limited extent
- Farm takers
- Active forest owners as multipliers

Project goals / benefits

⁷ See: www.forstfrauen.at

The general aim of the project is to generate interest among women in forestry and facilitate active ownership and forest management. Moreover,

- Imparting current forest skills
- Networking of forest owners
- Motivation of forest owners
- Making forest owners visible

Activities

The most important activity is the "forest walks", in which the following offers are included:

- Compilation of information packages with brochures etc. for the participants
- Evaluation and survey of needs and expectations by interviewing the participants via Internet
- Accompanying public relations work in various media
- Addressing interested forest owners for possible participation in committees

So far, 98 events with a total of around 1,600 participants have been carried out as part of "Forest in Women's Hands".

Additional activities for female forest owners

In Lower Austria, between 2014 and 2017, lectures were held on the topics of "Forests / Wood and Health" and "Climate Change and the Effects on Our Forests", as well as other offers specifically for women. About 2000 people (men and women?) participated at the 30 events that have been organized so far.

International Conference for women in forestry

In April 2021, an international conference for women in forestry ("Forests in Women's Hands") will take place in Austria for the first time. The aim is to promote international networking and the exchange of experiences among women in forestry. The conference and the associated networking should form the basis for future activities. In addition, it aims to make women and their achievements in forestry more visible. The central questions of the conference are the following:

Why and for whom is gender equality important?

Which initiatives and activities already exist to promote women in the forest sector (national and international)?

The Federal Research and Training Center for Forests, Natural Hazards and Landscape acts as the project sponsor, the other actors are part of a functioning network of partner organizations such as the Association of Forest Women, the International Association of Forest Research Organizations (IUFRO) and the International Association of Forestry Students (IFSA) who all have experience with the subject.

Mentoring for women in forestry

The research project "Women mentoring in forestry", a cooperation between the Institute for Landscape Planning (BOKU, Vienna) and the Federal Forest Research Center (BFW), examines how women in forestry in Austria can be strengthened through

mentoring. The aim of the mentoring program is to encourage women who have decided to study forestry and wood management and alpine natural hazards to gain a foothold in the traditionally male-dominated sector.

The following points are addressed as part of the mentoring process:

- Company presentations by mentors
- Discussion on the mentee's development potential
- Promotion of certain soft skills e.g. Job Interview
- Internships are possible, but not compulsory
- This project is currently in the implementation phase, the final event is expected to take place in May / June 2021.

2.1.9 Literature

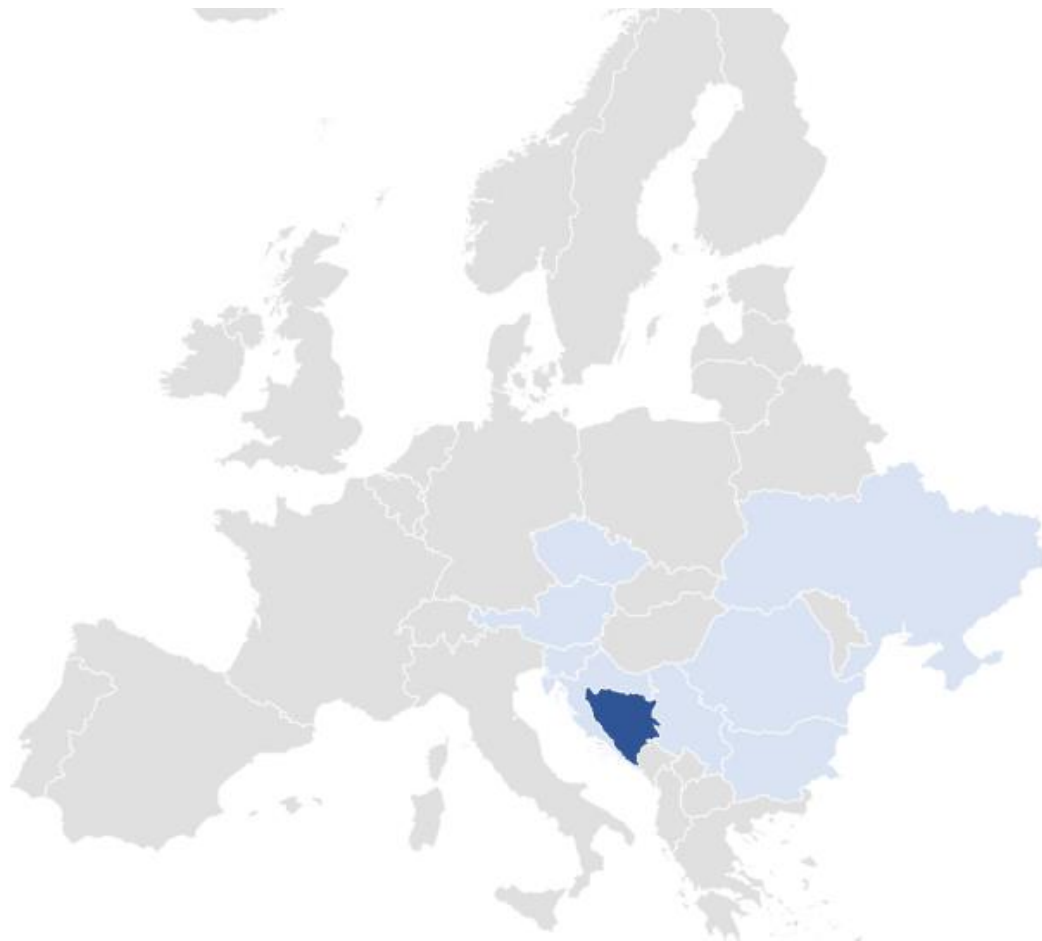
Links

Forstfrauen: www.forstfrauen.at

Wald in Frauenhänden: [Frauenpower im Einsatz für unseren Wald - Forstfrauen](#) (website is planned)

International Conference for women in forestry: [Conference 2021 - Forstfrauen](#)

Mentoring for women in forestry: [Frauenmentoring in der Forstwirtschaft::Institut für Landschaftsplanung \(ILAP\)::Department für Raum, Landschaft und Infrastruktur \(RALI\)::BOKU](#)



2.2 Country Report: Bosnia and Herzegovina

Authors:

Ajla Dorfer, Tarik Nalbantic, Amina Trle

2.2.1 Forest sector

Bosnia and Herzegovina (hereinafter: BiH) belongs to a group of European countries which are extremely rich in forest resources from the aspect of their distribution and biological diversity. Although there is some dispute over the percentage of forest cover in BiH, there is general consensus that it is one of the most heavily forested countries in Europe. According to the published preliminary data of the *Second National Forest Inventory in BiH* (2006-2009), the total area of forests and forest land in BiH is 3,231,500 ha or 63.08%, whilst forest cover is 2,904,600 ha.⁸ Considering that forests cover 56.7% of the territory of BiH, they represent arguably one of the most important natural resources of this state. The published preliminary data indicate a positive trend of changes in forest areas by more than 500,000 hectares (hereinafter: ha), in comparison with the data of the “First Inventory of Forests in Large Areas” from 1968. Some forest areas are categorized as inaccessible, because they are mined or suspected to be under mines.⁹

Forests in BiH are mainly high forests, covering a total of 1,652,400 ha (51.1% of the total forest area of BiH), while Coppice forests cover 1,252,200 ha (38.7% of the total forest area of BiH). Moreover, most forests in BiH are naturally regenerated (54.2%), while 45.7% are planted and only 0.1% are primary forests according to forest type.

Table 6: Structure of forest area and forest land by vegetation form, purpose of use and availability in BiH (USAID 2012)

Vegetation form	Available surface				Protective forest	Total
	Economic forests	Non-economic forests	Protected forests	Special purpose forests		
	ha	ha	ha	ha		
1. High forest	1,329,500	46,300	5,200	8,800	262,600	1,652,400
2. Coppice forest	843,200	158,700	1,600	2,400	246,300	1,252,200
1+2. All forests	2,172,700	205,000	6,800	11,200	508,900	2,904,600
3. Shrubbery	52,700	41,100	0	100	36,700	130,600
4. Barren land	55,700	88,400	800	3,400	38,900	187,200
3+4. Shrubbery and barren	108,400	129,500	800	3,500	75,600	317,800
5. Other forest areas	3,300	3,100	0	100	2,600	9,100
FAO forest (1+2+3+5)	2,228,700	241,600	6,800	11,400	548,200	3,035,700
6. All forest and forest land	2,284,400	337,600	7,600	14,800	587,100	3,231,500

⁸ Mataruga M, et al (2019). State of Forests in Bosnia and Herzegovina: ecological and vegetation distribution, management and genetic variability.

⁹ UNDP (2014). Possibilities of using biomass from forestry and wood industry in BiH. Sarajevo

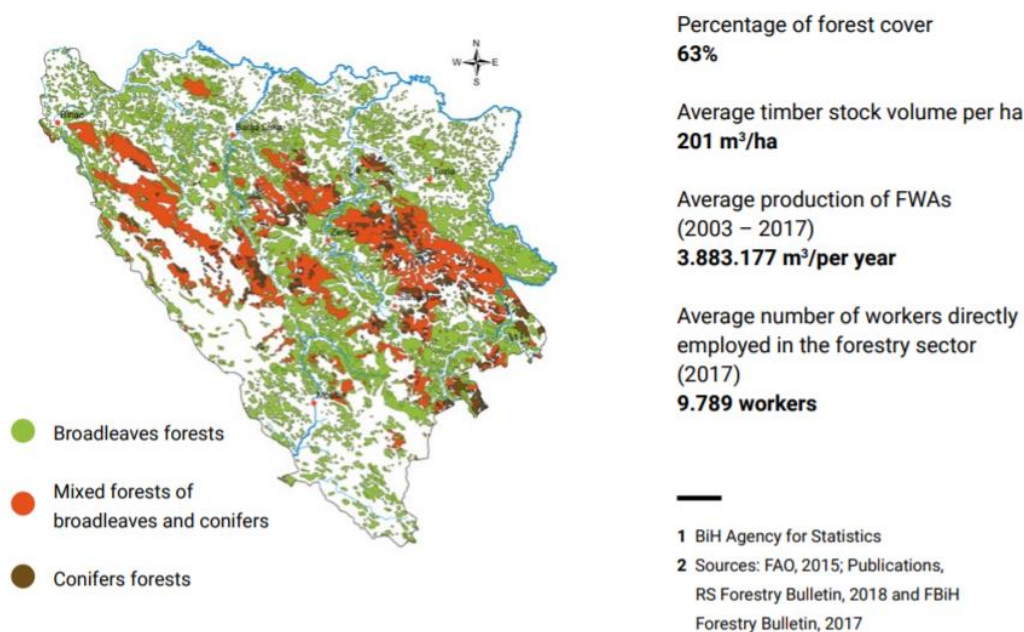


Figure 11: BiH Forests and Forestry in Figure

Source: UNDP (2020). *Guidebook for Sustainable Use of Wood Biomass for Energy Production in Bosnia and Herzegovina*

In order to understand the following parts of this analysis, it is necessary to explain the administrative division of BiH. BiH consists of two entities and the Brčko District. The current administrative divisions (**Fehler! Verweisquelle konnte nicht gefunden werden.**) are based on the lines drawn up as part of Dayton Peace Agreement in 1995. The Federation of Bosnia and Herzegovina (hereinafter: FBiH), Republika Srpska (hereinafter: RS) and Brčko District (hereinafter: BD) all have their own constitutions. FBiH is decentralized. It consists of 10 Cantons (each with its own government) and 79 municipalities. The Government of the FBiH shares and delegates some of its competencies with the Cantonal administrations. Due to the very small area and forest cover, BD is not of great importance and will not be treated in this analysis.

As dominant terrestrial ecosystems, forests are of great importance for the general well-being of citizens and the economic growth and development of forest ecosystem products and services-based industries in BiH. The forestry sector plays an important role in rural development, while forest wood products are a resource base for the wood processing industry. The domestic wood processing industry is considered one of the most important sectors of the economy. BiH is a net exporter of primary and secondary forest products, with forest stocks recognised as a key resource for further economic development of the country.

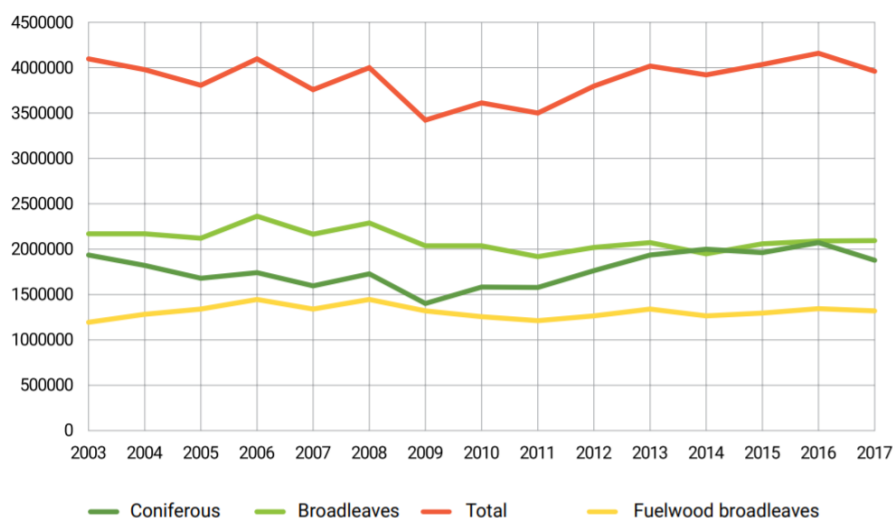


Figure 12: Production of forest wood assortments in BiH (2003 – 2017)

Source: UNDP (2020). Guidebook for Sustainable Use of Wood Biomass for Energy Production in Bosnia and Herzegovina

The Institutes of Statistics in Bosnia and Herzegovina have only data related to Gross Value Added (hereinafter: GVA) of forestry, logging and wood industry, while official data related to Gross Domestic Product (hereinafter: GDP) for this sector are not available solely. Data related to the GDP of forestry are calculated within the GDP of agriculture, forestry and fishery. The GVA of forestry, logging and related service activities for the period from 2005–2018 were on average 0.95%.

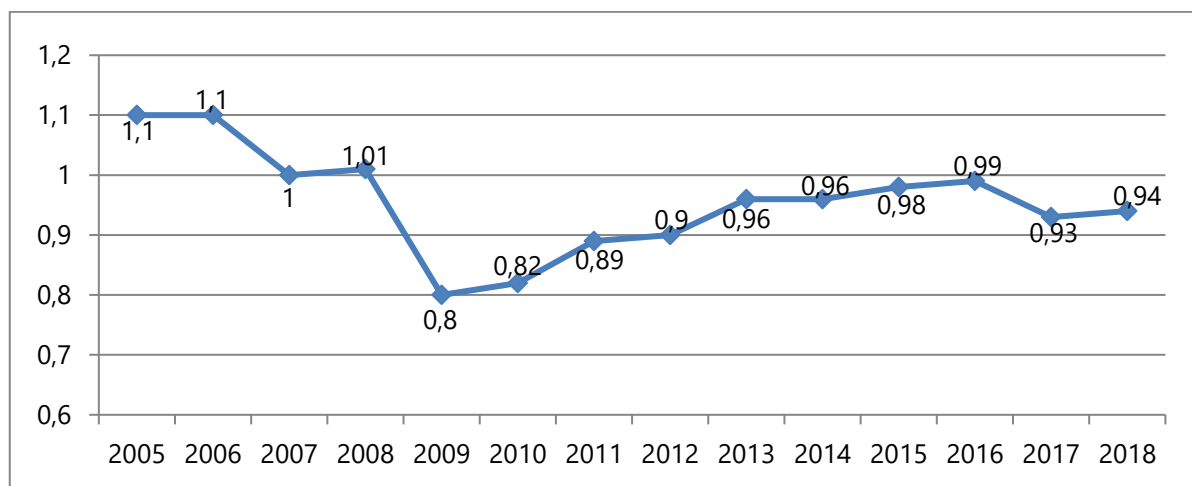


Figure 13: GVA of forestry, logging and related services (2005-2018)

Source: Agency for Statistics of BiH (2020)

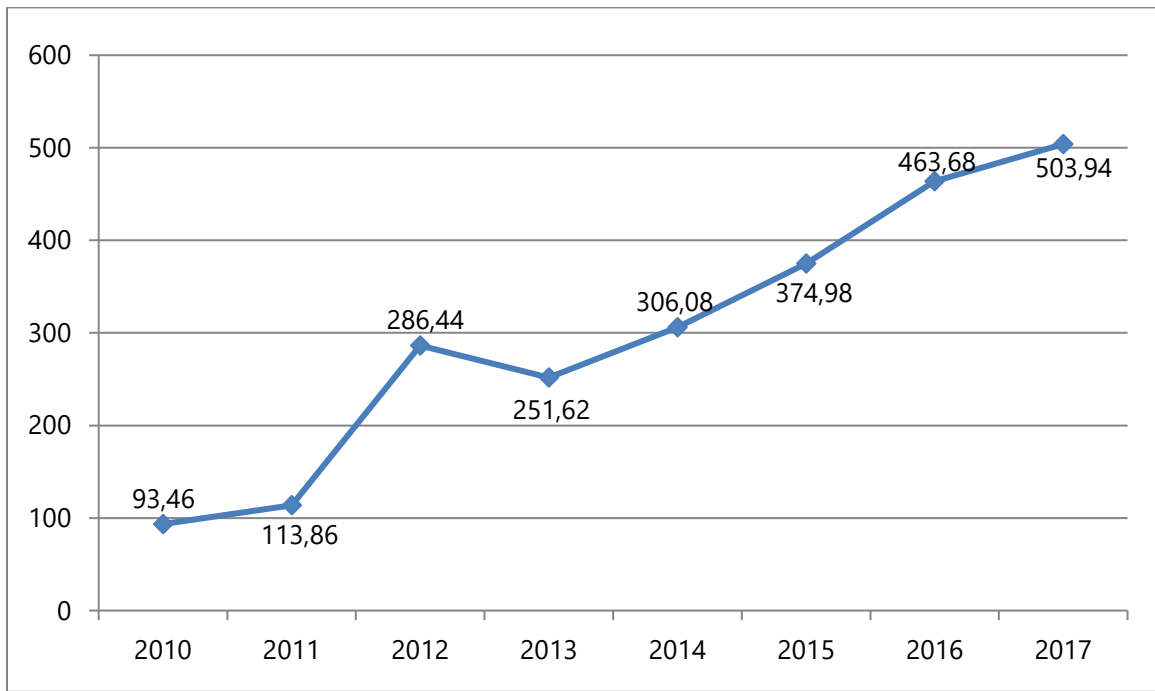


Figure 14: GVA by the forestry and logging industry in BiH 2010 - 2017 (in Mio €)

Source: Statista - Global No. 1 Business Data Platform

According to the analysis of data from the Official website of the *Global Business Data Platform Statista*¹⁰, in BiH, the forest and logging industry generated a GVA of 503,94 Mio € in 2017 which represents the highest value in the observed period. Ever since 2013, the GVA generated by this industry increased steadily every year, with an average increase of 63 Mio € annually. The GDP of Agriculture sector (including forestry and wood industry) has slightly declined more recently.

¹⁰ See: <https://www.statista.com/> - Official website of the Global No.1 Business Data Platform

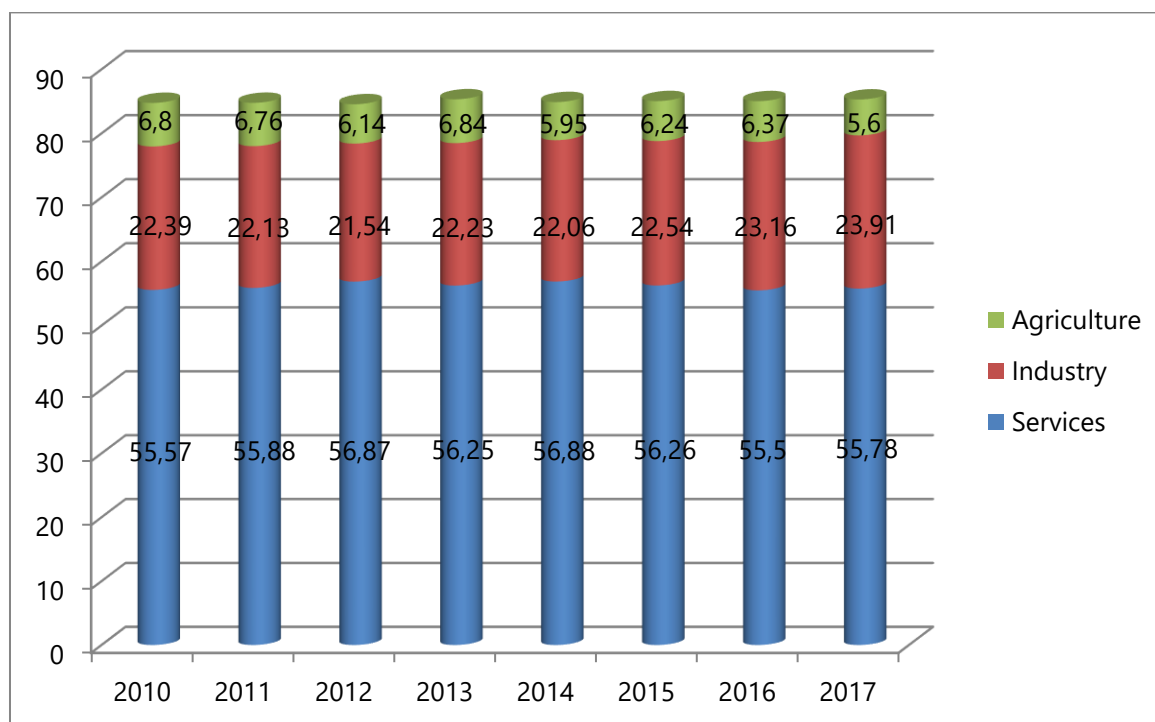


Figure 15: Distribution of GDP across economic sectors (2010 - 2017)

Source: Statista - Global No. 1 Business Data Platform

2.2.2 Labour market and job opportunities in the area of forestry

There is no systematic data on employment in forestry solely. Equally, data in official statistics are not segregated by gender. In order to create a general picture of the position of women in the labour market in BiH, general data segregated by gender on the employment rate and status, employment by sectors, average working hours, etc. are presented.

According to the data from the Labour Force Survey within the Thematic Bulletin¹¹, no significant changes in the labour market have been recorded in the past few years when it comes to employment rates in general, yet employment rates for men and women differ significantly. In the period 2017-2019, the employment rate for men was almost two times higher (44.6% in 2019) than for women (26.7% in 2019), while activity rate was substantially higher for men (51.7% in 2019) than for women (32.9% in 2019), as shown below.

¹¹ Agency for Statistics of Bosnia and Herzegovina (2019). Labour Force Survey within the Thematic Bulletin. Sarajevo

Table 7: Principal population characteristics by activity and sex, Bosnia and Herzegovina (Source: Agency for Statistics of Bosnia and Herzegovina (2019))

	Total			Male			Female		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Rates (%)									
Activity rate	42.6	42.1	42.1	53.3	53.2	51.7	32.4	31.4	32.9
Employment rate	33.9	34.3	35.5	43.2	44.1	44.6	24.9	25.0	26.7
Unemployment rate	20.5	18.4	15.7	18.9	17.2	13.6	23.1	20.3	18.8
Share of population under the age of 15	11.9	11.3	10.2	12.2	12.0	10.8	11.7	10.7	9.6
Share of population from 15 to 64 years	66.8	66.9	65.1	68.7	68.8	66.4	65.0	65.1	63.9

When it comes to employment status, there was a slight decline in the number of employees in 2019 compared to 2018, and the percentage of employed men was slightly higher than the percentage of employed women in the period from 2017-2019, except in 2018.

Table 8: Employment by status and sex, Bosnia and Herzegovina (Source: Agency for Statistics of Bosnia and Herzegovina, 2019)

	Total			Male			Female		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Structure (%)									
Persons in employment	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employees	75.4	78.6	75.1	75.6	78.5	75.8	75.2	78.9	74.0
Self-employed	20.6	17.6	21.9	22.6	19.6	22.8	17.4	14.3	20.4
Unpaid family workers	(3.9)	(3.7)	(3.0)	(1.9)	(1.9)	(1.4)	(7.4)	(6.8)	(5.6)

According to the data in the previous table, women are almost five times more often unpaid workers than men (5.6% compared to 1.4% in 2019). When it comes to self-employment, women are slightly less self-employed compared to men in the observed period.

There are no accurate data on the number of employees in the forestry sector, but there are certain quantitative indicators on the percentage of employees in the agricultural sector which includes forestry and fishery.

Table 9: Employment by sectors and sex, Bosnia and Herzegovina (Source: Agency for Statistics of Bosnia and Herzegovina, 2019)

	Total			Male			Female		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Structure (%)									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	18.9	15.7	18.0	18.2	15.5	16.4	20.0	16.0	20.5
Industry	29.5	32.1	31.7	37.2	40.7	40.9	16.8	17.8	16.9
Services	51.6	52.1	50.3	44.6	43.8	42.7	63.2	66.2	62.6

Although the share of employed women compared to men in the agricultural sector was higher in 2019, only 65.9% of women were employed full-time. When it comes to the average of normal working hours per week in the main job by sectors, for the agricultural sector, the average working hours were significantly lower when it comes to women compared to men for the period 2017-2019 as shown in the table below.

Table 10: Average hours usually worked per week on main job by persons in employment - by groups of sections of economic activities, Bosnia and Herzegovina (Source: Agency for Statistics of Bosnia and Herzegovina, 2019)

	Total			Male			Female		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
Agriculture	40.5	41.7	38.4	42.7	43.2	40.4	37.2	39.3	35.9

2.2.3 Forest ownership

Currently, there are no exact quantitative data on forest ownership in BiH, but based on data from the official website¹² of the Ministry of Foreign Trade and Economic Relations of BiH, it is estimated that 80% of the total forest area belongs to the state and 20% to private owners (the ratio is almost the same in the FBiH and the RS). The data below show considerable variation in the area and percentage of privately owned forests, from source to source.

¹²See:

<http://www.mvteo.gov.ba/Content/Read/sumarstvo?lang=en#:~:text=These%20data%20point%20to%20the,the%20competence%20of%20the%20Entities%3A> - Official website of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina



Figure 16: Administrative division of BiH

Source: FAO (2015). Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina

The official number of Private Forest Owners (hereinafter: PFOs) in BiH is not known but estimated to be around 500.000.

According to the data from Forest Land Ownership Change in BiH, COST Action FP1201 FACESMAP Country Report (Avdibegovic et al., 2015) the forest ownership structure is quite similar for both entities. In the case of the RS, 81% of the forests are owned by the state and 19% by private forest owners, while in the FBiH, 80.4% of forests are owned by the state and 19.6% by private forest owners. In total, the ownership structure for the entire country is as follows: 80.7% of the forests are owned by the state and 19.32% are owned by private forest owners.

Table 11: Forest ownership structure in BiH (Forest Land Ownership Change in Bosnia and Herzegovina, COST Action FP1201 FACESMAP Country Report (Source: Avdibegovic et al., 2015)

	RS		FBiH		BiH	
	ha	%	ha	%	ha	%
Public forests	979.716	81.00	1.206.616	80.43	2.186.332	80.68
Private forests	229.874	19.00	293.563	19.57	523.437	19.32
Total forests and forest lands	1.209.590		1.500.179		2.709.769	

There are certain indications that the share of privately owned forests has been increased over the last 20 years. More detailed/specific data will be available in the upcoming second national forest inventory.

Based on the data from the document "Information on forest management in the FBiH in 2016 and forest management plans for 2017"¹³ forests and forest lands in the FBiH

¹³ Federal Ministry of Agriculture, Water Management and Forestry (2017). Information on forest management in the FBiH in 2016 and forest management plans for 2017. Sarajevo

cover an area of about 1.518.515,8 ha, of which about 1.241.385,8 ha or 82% are in state ownership, and about 277.130 ha or 18% are in private ownership and ownership of other legal entities.

Based on data taken from the Cadastre of Forests and Forest Land in the RS¹⁴, the total area of forests and forest land is 1.011.217,69 ha, of which private forests in all municipalities amount to 303.671.78 ha or about 30%.

Private forests are mainly owned by individuals and in very rare cases by some institutions (e.g. religious institutions). During the socialist period, private forest ownership was ignored by national forest policy makers who did not pay attention on private forests. Compared to the relatively intensive management of state forests, private forests have been quite neglected by decision-makers in forest policy and PFOs, this has not changed. Most PFOs hold forest properties smaller than 1 ha. In addition, these properties are often fragmented into two to seven plots on average. Private forests are mainly used for domestic fuel wood and saw log consumption¹⁵.

Because there are no statistics for PFOs in BiH, or even an approximate number of them, there is no data on the number or percentage of female private forest owners.

PFOs in BiH seem to be mainly male because inheriting of forest property goes along the male line and women rarely share formal ownership rights with their husbands. PFOs live mainly in rural areas, with low educations and small incomes (often marginalized group at risk of poverty).¹⁶

2.2.3.1 Forest ownership associations

The majority of smallholder PFOs in BiH are not organized in local interest associations. The lack of organization among smallholder PFOs in BiH is a challenge for the implementation of forest management plans (where these plans are adopted, but for most municipalities they are not), sustainable forest management, coherent wood mobilization, and proper representation of forest owners in the political process. Thus, smallholder forest owners have little structure to follow as well as no place for accessing knowledge, networks, information, and tools for resource sharing to effectively manage their forestland.

¹⁴ Official Website of the Public Forestry Enterprise - Forests of Republika Srpska (2016). Cadastre of Forests and Forest Land in the Republic of Srpska

¹⁵ fea (2017). Scoping study for Commercial and Sustainable Private Forest Management in Canton Sarajevo. Sarajevo.

¹⁶ Forest Land Ownership Change in BiH, COST Action FP1201 FACESMAP Country Report (Avdibegovic et al., 2015)

Bearing in mind that PFOs in BiH are not organized in interest associations, their properties are extremely small-scale and fragmented into a few parcels, the existing forest policies are developed with little or no consideration of inputs from PFOs. The results of the GOVOR project¹⁷, implemented in BiH, related to the “Legal framework to support and protect land tenure, ownership, and use rights” (FAMFG component 2) show that 90% of interviewed forestry professionals found FAMFG component 2 of forest governance important or very important while almost 70% of them evaluated the level of implementation as low or even non-implemented¹⁸. These answers largely relate to the current situation in private forests, which are dispersed among thousands of non-organised owners. Individual properties are fragmented and the number of owners is increasing as a result of continuous division owing to inheritance processes.

PFOs in BiH appear inert and unorganized. Nonetheless, there are some examples of Private Forest Owners Association (hereinafter: PFOAs) in the country:

- PFOA s “Ourforest” Banja Luka - was founded in 2006, in Čelinac. Exact data on the number of its members and gender structure is lacking. The Board of the Association consists of five members, two of them are women, both with professions in forestry. The Association is divided into 31 branches (organizational units), and out of a total of 31 presidents of each branch, three are women (9.67%).
- Association of Private Forest Owners CBC was founded in 2018. The management of the organization is divided into the Board of Directors and the Supervisory Board. The Board of Directors consists of five members of which only one is a woman (20%). The Supervisory Board also has five members of which only one is a woman (20%).
- “Association of PFOs and Nature Lovers” - Binježevo - represents an interest group with approx. 40 members. The status of women in the Association is not known.
- “Forests of Krajina” Banja Luka – there is no available data.
- “Tisa” Bihać – there is no available data.

2.2.4 Forest administration

According to the constitutional set up of the country, the ownership of public forests belong to two entities, while the ten cantons (only in FBiH) and municipalities (in both

¹⁷ The adaptation of national forest policy systems in south-east European countries (Albania, Bosnia-Herzegovina, Croatia, Macedonia and Serbia) to new modes of international forest governance (Avdibegovic, et al. 2012)

¹⁸ Assessing forest governance in the Federation of Bosnia and Herzegovina: Views of forestry professionals (Avdibegovic et al. 2014)

entities) have no ownership rights over the public forests but have certain competencies and benefits. There is neither a common forest policy nor national forest legislation at the state administrative level of BiH.

Based on the data from Forest Land Ownership Change in BiH, COST Action FP1201 FACESMAP Country Report (Avdibegovic et al., 2015) the organisation of the forest sector in BiH is complex and divided between two entities and one district: FBiH, RS and BD.

In the FBiH, the ownership of the public forest resources rests with the entity level while management rights are transferred to 10 cantons. Cantons transfer these rights to Cantonal Forest Management Enterprises (there is a cantonal enterprises in eight cantons out of ten, while there are no companies in Posavina Canton and Canton 7 (Herzegovina-Neretva Canton).

The Forestry Department within the Ministry of Agriculture, Forestry and Water Management, is responsible for forests and forestry in RS. The public forest enterprise “Forests of Republika Srpska” is responsible for the management of public forests. It has a hierarchical organization with headquarter and 25 Forest Management Units (27 in 2020)¹⁹. In BD, where forestry plays a subordinated role, the Department for Agriculture, Forestry, and Water management is responsible for anything related to forests and forestry. There is not forest administration in RS.

¹⁹ See: <https://sumerepublikesrpske.org/> - Official website of Public Enterprise “Forests of Republika Srpska”

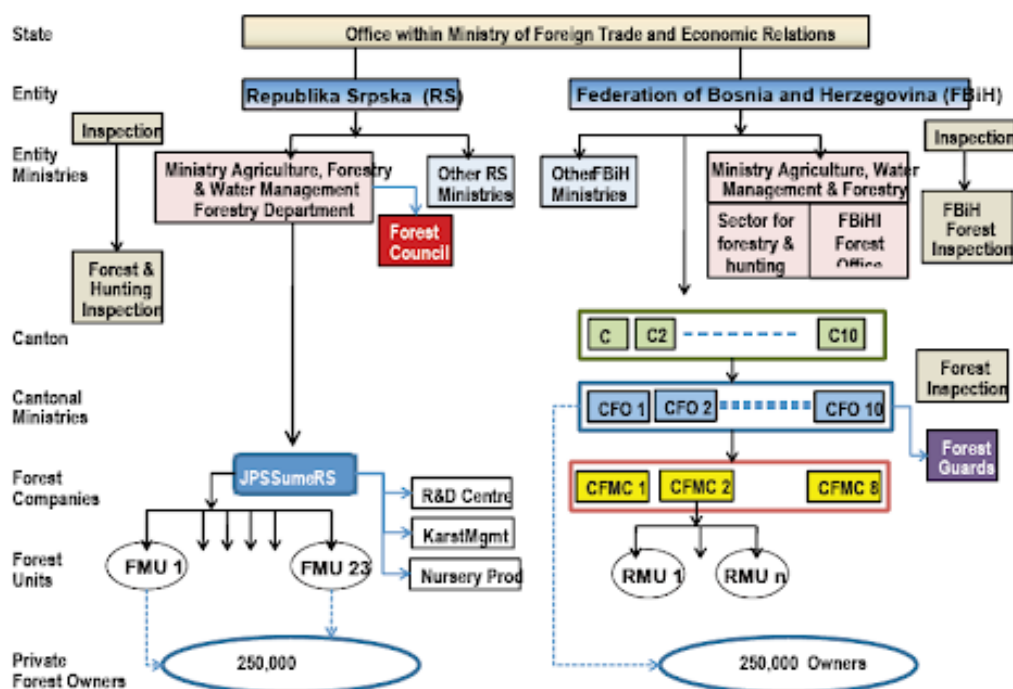


Figure 17: Organizational scheme of the forestry sector in BiH by levels for the two entities

Source: China and CEEC COOPERATION in Forestry²⁰

Table 12: Responsible ministries for subsectors within forest-based sector (Source: Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina, FAO, 2015)

		Forestry	Sawmilling	Pulp & paper	Bioenergy
State level		Ministry of Foreign Trade and Economic Relations	Ministry of Foreign Trade and Economic Relations	Ministry of Foreign Trade and Economic Relations	Ministry of Foreign Trade and Economic Relations
Entities	FBiH	Ministry of Agriculture, Water Management and Forestry	Ministry of energy, mining and industry	Ministry of energy, mining and industry	Ministry of energy, mining and industry
	RS	Ministry of Agriculture, Forestry and Water Management	Ministry of industry, energy and mining	Ministry of industry, energy and mining	Ministry of industry, energy and mining
Brčkodistrict		Department of Agriculture, Forestry and Water Management	Department foreconomy	Department for economy	Department for economy

²⁰As available at: <http://www.china-ceecforestry.org/country/bosnia-and-herzegovina/>

Cantonal level	Ministries of Agriculture, Water Management and Forestry (Except some cantons: Bosnian-Podrinje Canton, West Hercegovina Canton and Canton Sarajevo, where the Ministry of Economy is responsible for forestry)	Ministries of economy (Except Tuzla Canton where the Ministry of development and entrepreneurship and Posavina Canton where the Ministry of economy and spatial planning are responsible for forestry)	Mainly within the cantonal Ministries of economy	Mainly within the cantonal Ministries of economy
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Data on employees in the forestry sector (on positions related to forestry) in the above institutions (as well as the number of women out of the total number of employees) are not known.

Data disaggregated by gender structure were not provided from all cantonal forestry administrations who had in total 501 employees in 2015. According to data provided by the Federal and five Cantonal Forest Administrations, out of a total of 189 employees, 172 or 91% were men, while 17 or 9% were women. On professional positions related to forestry out of total of 174 employees, 164 or 94% were men and 10 or 6% were women.

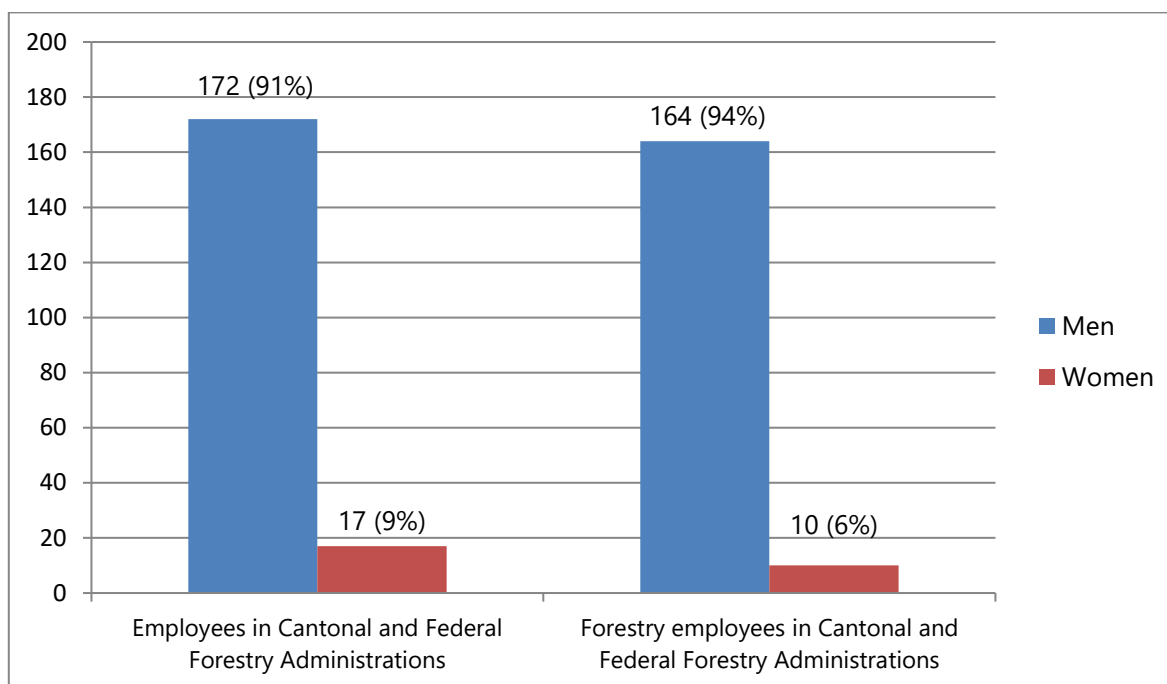


Figure 18: Gender structure of employees in Cantonal and Federal administrations

Source: Federal Ministry of Agriculture, Water Management and Forestry (2016). *Information on Forest Management in the FBiH*

2.2.5 Companies and enterprises in forestry and related services

According to the data from the document Preparation of IPARD Forest and Fisheries Sector Reviews in BiH (FAO, 2015) there are 15 public forest companies in BiH.²¹ They are listed in the table below. The table also indicates data on the number of employees in different forest companies and reveals, if available, the share of women in the workforce.

²¹ FAO (2015). Analysis of the forestry sector in Bosnia and Herzegovina, Preparation of the analysis of the forestry and fisheries sector in Bosnia and Herzegovina for the purpose of IPARD. FAO Regional Office for Europe and Central Asia

Table 13: Summary of public forest companies in BiH (Source: Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina, FAO, 2015)

	Name of Company	Entity	Type of company	No. of Employees	No. of Employed women	Female representation	Mgmt. area (ha)
1	Public forestry company "Forests of Republika Srpska", joint stock company Sokolac ²²	RS	Joint-stock company	4.568	Approx. 914 (20%)	2 in Board of Directors and 2 in Supervisory Board	1.000.040
2	Industrial Plantations, AD Banja Luka ²³	RS	Joint-stock company	86	n.a.	1 in expert team	7.500 (forest plantations)
3	Forest company "Una-Sana Forests" d.o.o. Bosanska Krupa ²⁴	FBiH	Limited liability company	555	n.a.	n.a.	179.977,90
4	Forest company "Central Bosnia Canton Forests" d.o.o. Donji Vakuf ²⁵	FBiH	Limited liability company	800	n.a.	n.a.	185.949
5	Public forestry enterprise of Zenica-Doboj Canton d.o.o. Zavidovići ²⁶	FBiH	Limited liability company	946	n.a.	n.a.	182.389,20
6	Forest company "Canton 10 Forests" d.o.o. Kupres ²⁷	FBiH	Limited liability company	No accurate data	n.a.	n.a.	284.619
7	Public Enterprise "Forests of Tuzla Canton" joint stock company ²⁸	FBiH	Joint-stock company	536	n.a.	n.a.	72.435
8	Cantonal Forest Management Company for State Forest Management	FBiH	Limited liability company	n.a.	n.a.	1 in Assembly, 2 in Audit Committee	70.746,80

²² See: <http://www.sumers.org/> - Official website of Public forestry company "Forests of Republika Srpska", joint stock company Sokolac

²³ See: <http://www.industrijskeplantaze.com/> - Official website of Industrial Plantations, AD Banja Luka

²⁴ See: <http://ussume.ba/> - Official website of Forest company "Unsko-sanske šume" d.o.o. Bosanska Krupa

²⁵ See: <http://www.sumesb.com.ba/> - Official website of Forest company "Srednjobosanskešume" d.o.o. Donji Vakuf

²⁶ See: <http://www.spdzdk.ba/> - Official website of Public forestry enterprise of Zenica-Doboj Canton d.o.o. Zavidovići

²⁷ See: <http://www.hbsume.ba/> - Official website of Forest company "Hercegbosanske šume" d.o.o. Kupres

²⁸ See: www.jpsumetk.ba - Official website of Public Enterprise "Forests of Tuzla Canton" joint stock company

	"Sarajevo-Forests" d.o.o. Sarajevo ²⁹					e, 2 in Supervisory Board	
9	Public enterprise "Bosnian-Podrinje Forests" d.o.o. ³⁰	FBiH	Limited liability company	n.a.	n.a.	3 in Audit Committee	24.970,40
10	Forestry Company of the West Herzegovina County Forests d.o.o. Posušje	FBiH	Limited liability company	n.a.	n.a.	n.a.	28.515,50
11	Public enterprise "Herceg-Bosnia Forests" d.o.o. Mostar	FBiH	Limited liability company	n.a.	n.a.	n.a.	n.a.
12	Public forestry enterprise "Hercegovina-Neretva Forests" d.o.o. Mostar ³¹	FBiH	Limited liability company	n.a.	n.a.	n.a.	n.a.
13	Forest company "Ljuta" ³²	FBiH	Limited liability company	n.a.	n.a.	n.a.	n.a.
14	Forest company "Prenj" joint stock company Konjic ³³	FBiH	Joint-stock company	n.a.	n.a.	1 in Supervisory Board, 1 in Audit Committee	n.a.
15	Central-Neretva Forestry ³⁴	FBiH	n.a.	n.a.	n.a.	n.a.	n.a.

According to the primary data collected through the survey questionnaire, out of a total of 555 workers employed in the Forest Company "Una-Sana Forests" d.o.o. Bosanska Krupa, 24% were women and 76% were men. In 2015, the average number of employees in the Forest company "Herceg-Bosnia Forests" d.o.o. Kupres was 629³⁵.

²⁹ See: <http://www.sarajevo-sume.ba/> - Official website of Cantonal Forest Management Company for State Forest Management "Sarajevo-šume" d.o.o. Sarajevo

³⁰ See: <http://sumebpk.com/> - Official website of Public enterprise "Bosansko-podrinjske šume" d.o.o.

³¹ See: <https://sumehznzk.com/> - Official website of Public forestry enterprise "Šume Hercegovinačko-neretvanske" d.o.o. Mostar

³² See: <http://sumarstvo-ljuta.ba> – Official website of Forest company "Ljuta

³³ See: <https://www.sumarstvo-prenj.ba/> - Official website of Forest company "Prenj" joint stock company Konjic

³⁴ See: <https://sumarstvomostar.ba/> - Official website of Central-Neretva Forestry company

³⁵ See:

http://scholar.google.com/scholar_url?url=https://hrcak.srce.hr/file/362103&hl=en&sa=X&d=4793576996066560889&ei=2I7tX6SXDcedywT_kpa4CQ&scisig=AAGBfm2PkMxqe1s04YEtNLcC5_dOfE96kw&no

Among the employees, the most represented were workers with a University Degree and a Four-year High school diploma. Only three employees have completed Three-year high school (table 14).

Table 14: The number of employed women per company (Source: Masic A, (2020). Women in Forestry in Bosnia and Herzegovina)

	Full time employees	Tehnicians	Women from HSE-III forestry profession	Trainees (University degree)
Cantonal Forest Management Company for State Forest Management "Sarajevo-Forests" d.o.o. Sarajevo	9	0	0	0
Forest company "Central Bosnia Canton Forests" d.o.o. DonjiVakuf	31	9	3	0
Forest company "Una-Sana Forests" d.o.o. Bosanska Krupa	14	21	0	12
Public forestry enterprise of Zenica-Doboj Canton d.o.o. Zavidovići	21	8	0	3
Federal Ministry of Agriculture, Water Management and Forestry	3	0	0	0
Public Company "Bosnia and Herzegovina Forests"	5	0	0	0
Public Forestry Enterprise "Forests of Republika Srpska"	151	158	0	4

[ssl=1&oi=scholar&hist=HRw0tPMAAAAJ:12438058346844799837:AAGBfm03ZfmNs6MpiWVy5JW7NS317DDImA&html=&cited-by=](https://www.researchgate.net/publication/351755177/Women_in_Forestry_in_Bosnia_and_Herzegovina_(Masic_A,_2020)) - Women in Forestry in Bosnia and Herzegovina (Masic A, 2020)

The number of women in management positions in the surveyed companies does not exceed two, except in the Public Forestry Enterprise "Forests of Republika Srpska" where a total of 21 women are employed in some of the management positions.

Table 15: Number of women in management positions (Source: Women in Forestry in Bosnia and Herzegovina, Masic A, 2020)

	Leadership position
Cantonal Forest Management Company for State Forest Management "Sarajevo-Forests" d.o.o. Sarajevo	2 head of service
Forest company "Central Bosnia Canton Forests" d.o.o. DonjiVakuf	1 executive director and 2 forestry manager
Forest company "Una-Sana Forests" d.o.o. Bosanska Krupa	2 (1 forestry manager, 1 head of service)
Public forestry enterprise of Zenica-Doboj Canton d.o.o. Zavidovići	2 (1 forestry manager, 1 head of service)
Federal Ministry of Agriculture, Water Management and Forestry	1 assistant minister for forestry and hunting
Public Company "Bosnia and Herzegovina Forests"	1 head of service
Public Forestry Enterprise "Forests of Republika Srpska"	21

According to the data from the conducted surveys, the largest number of employed women engineers in the included companies is from 20 to 35 years old, which indicates an increase in women's interest in this job in recent years. About 15% of respondents come from traditional forestry families. Out of a total of 78 women surveyed, only 19 (24.36%) graduated from the High School of Forestry or Agriculture, which indicates the fact that forestry as a profession is more interesting to women who have graduated from other high schools (Masic A, 2020).

Based on the data obtained in this study, the number of women in management positions is higher in the RS than in the FBiH. A total of 30 women holds some kind of management position, and there are no precise data on the total number of management positions in the surveyed companies (the survey included 78 respondents from six forestry companies and the Federal Ministry of Agriculture, Water Management and Forestry).

The latest data (2015) indicates that there were 4,627 employed workers in FBiH in total forestry sector of which 4,126 or 89.2% were employed in the public (cantonal) forestry companies and 501 or 10.8% were employed in cantonal or federal forestry

administrations.³⁶ According to the available submitted data from the cantons (not all), the share of women in the overall workforce of 4,126 employees in forest companies ranges at 13% were women. Moreover, out of the total 314 employees in management positions in the nine cantons, 236 are forestry professions of which 25 (app. 11%) were women and 211 (90%) were men.

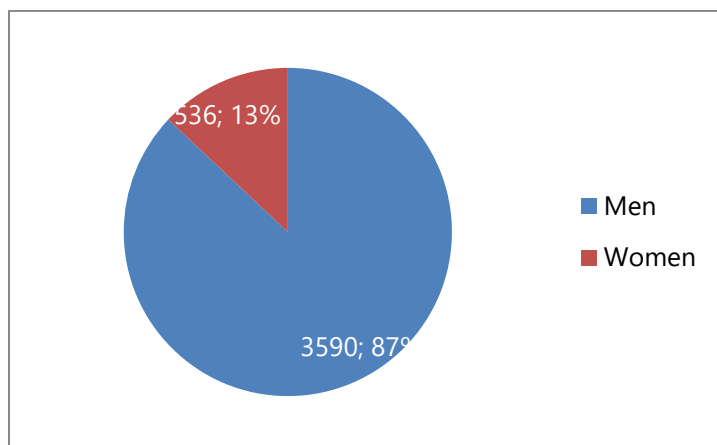


Figure 19: Share of Women in Public Forestry Companies

Source: Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina (2016). Information on Forest Management in the Federation of BiH in 2015 and the Forest Management Plans for 2016

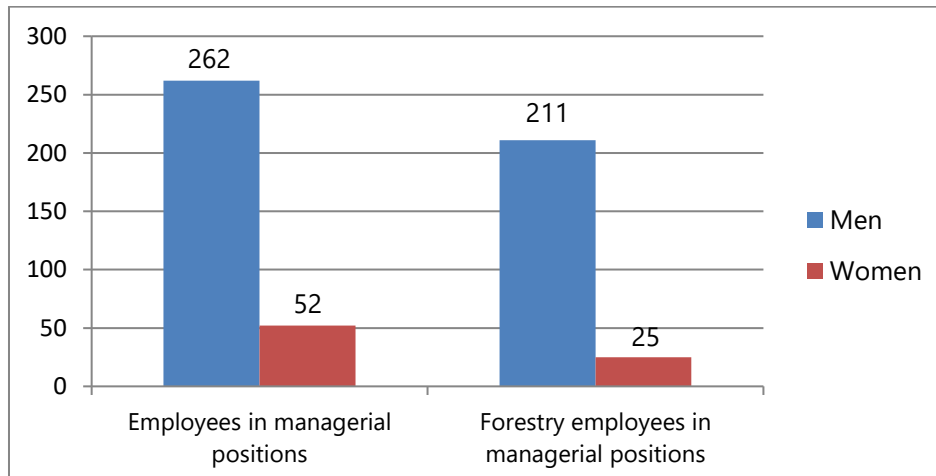


Figure 20: Employees in managerial positions in Forestry Companies in nine cantons

Source: Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina (2016). Information on Forest Management in the Federation of BiH in 2015 and the Forest Management Plans for 2016

³⁶ Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina (2016). Information on Forest Management in the Federation of BiH in 2015 and the Forest Management Plans for 2016. Sarajevo

Unlike in FBiH, where there are several Cantonal and Federal Forestry Administrations, as well as Forestry Enterprises, in the RS, there is one Public Enterprise that is divided into 30 units. It consists of 27 Forestry Enterprises, one Nursery Production Center, one Karst Management Center and the Directorate of the Public Enterprise. According to the data from the Official website³⁷ of the Public Forestry Enterprise *Šume Republike Srpske*, women constitute 20% of the total 4,568 employees.

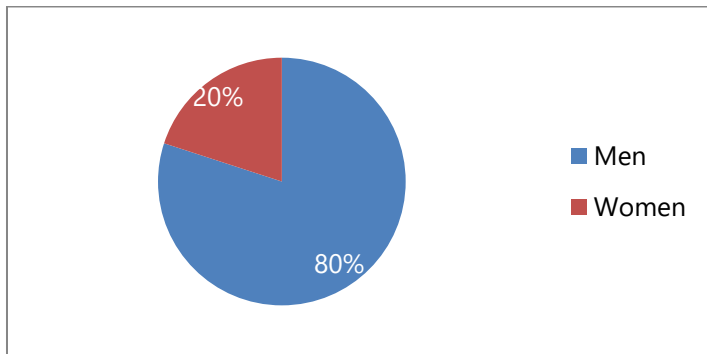


Figure 21: Gender structure of employees in public forestry enterprise "Forests of Republika Srpska"

Source: Official website of Public Enterprise "Forests of Republika Srpska"

There were a total of 236 employees in management positions in the Public Forestry Company, of which only 25 (10%) were women and 211 (90%) were men as shown below.

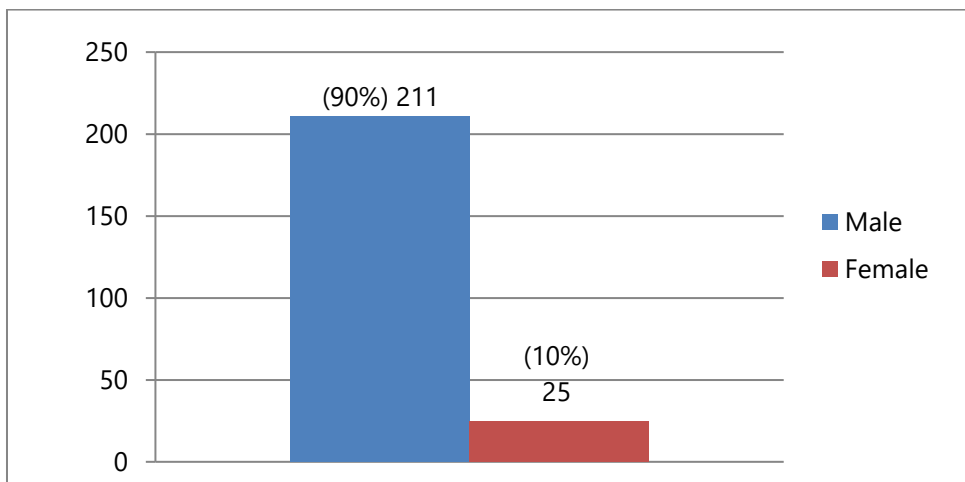


Figure 22: Gender structure of employees in management positions in "Forests of Republika Srpska"

Source: Official website of Public Enterprise "Forests of Republika Srpska"

³⁷ See: <https://sumerepublikesrpske.org/> - Official website of Public Enterprise "Forests of Republika Srpska"

The Management Board of the public enterprise consists of the director of the PE and five executive directors. From the total of the six board members, four are men and two are women (33,33 %). Only one member of the male members is not from the forestry profession, and on the other hand, no female board members are from the forestry profession. The Audit Committee consists of three male members, all from the forestry profession.

2.2.6 Forest-focused interest groups

Forest-focused interest groups in BiH can be divided into several categories. In addition to the associations of private forest owners, mentioned earlier in this document, special attention should be paid to forest professionals associations, wood processing associations, supporting organizations that monitor developments in the agricultural and rural development sector, as well as other organizations that are in some way related to the forestry sector.




Associations of forest professionals have a special place in the forest sector of BiH. Back in 1947, the Association of Forest Engineers and Technicians (UŠIT FBiH) was founded. The main goal of this association is affirming the forestry profession, maintaining the appropriate role and of forests and forestry in the overall economic, social, and environmental aspects. The management of the association is quite structured, with an Assembly led by a president and vice president, a Steering committee (11 members), a Statutory Commission (three members), and a Supervisory board (three members). The association counts 1.400 individual members and 16 collective members. Women's representation of the association is not fully known. The Steering committee consists of a total of 11 members and only two members are women (18,18 %). There is one female member in the Statutory commission and one female member in a Supervisory board. The percentage of women's members in the total number of members is unknown.




A special Association of Forest Engineers and Technicians was also established in the RS (UŠIT RS). However, there is less information available about this association. It aims at strengthening the position of forestry workers, engineers, and technicians at the level of public forest companies in the territory of the RS. Women are absent in leading positions and the membership gender structure is unknown.

The Association of Forestry and Wood Processing of the Chamber of Commerce of the RS was established in 2008 with the aim of partnership representation and protection of members' interests and rights. The structure of association is presented by the Assembly of the Association that has 45 members, and the Executive Board with 17 members. There are no women in leading positions.

With its long tradition, the Independent Trade Union of Forestry, Wood, and Paper Processing in BiH is a great example of dedicated work and gender inclusivity. The Union was established in 1905 to protect workers' rights and interests and strengthen the forestry sector. Today, the association has more than 10,200 members. The union has several key bodies: Management, Presidency, Congress, Supervisory board, Statutory commission. Out of 25 employees, there are nine (36%) women position. The woman is in a presidential position. The union has a special section for women and youth where it addresses their specific problems related to the sector.

Table 16: Overview of other forest-focused interest groups (Source: Official websites of listed associations)

Interest group	Goals	Structure	Representation Women
Forest owner association(s)			
<p>Association of private forest owners “Our Forest” Banja Luka (since 2006)</p> 	<p>Contributing to the economic progress and overall development of the forestry sector at the local, regional and national levels.</p>	<p>The management consists of the president and vice-president of the association, the president of the forest management council and the technical secretary of the association. The association has 31 branches, which are formed according to the territorial principle: local community, cadastral municipality, region, etc. Membership: unknown.</p>	<p>Two out of five Board members are women. Out of 31 branches of the association, there are only three women presidents.</p>
<p>Association of private forest owners of Central Bosnia Canton (CBC) (since 2018)</p> 	<p>Improving the quality and economic value of forest products, management and administration of private forests in the area of CBC through additional education, training, exchange of knowledge and experience with PFOs.</p>	<p>The management of the organization is divided into the Board of Directors and the Supervisory Board, both consisting of five members. Membership: 160 individuals.</p>	<p>A Steering committee consists of five members of which one is a woman. The Supervisory Board also has five members of which one is a woman. Out of the total number of 160 members, 20 are women.</p>
Forest professionals association(s)			
<p>Association of forestry engineers and technicians of the Federation of Bosnia and Herzegovina (FBiH) (since 1947)</p> 	<p>Affirming the forestry profession, maintaining the appropriate role and of forests and forestry in the overall economic, social, and environmental aspects.</p>	<p>Management consists of an Assembly led by a president and vice president, a Steering committee (11 members), a Statutory commission (3 members) and a Supervisory board (3 members).</p>	<p>The Steering committee consists of a total of 11 members and only two members are women. There is one female member in the Statutory commission and one female member in a Supervisory board.</p>

		Membership: 1,400 individuals and 16 collective members.	
Association of Forestry Engineers and Technicians of RS 	Strengthening the position of forestry workers, engineers and technicians at the level of public forestry companies in the territory of the Republic of Srpska.	Management consists of an Assembly headed by a president and vice president. Membership: unknown.	Women are absent in leading positions.
Association of Forestry and Wood Processing of the Chamber of Commerce of the RS (since 2008) 	Partnership representation and protection of members' interests and rights.	The Assembly of the Association has 45 members, and the Executive Board has 17 members. Membership: unknown.	Women are absent in leading positions.
Independent trade union of forestry, wood and paper processing in BiH (since 1905) 	Protecting workers' rights and interests; strengthening the forest sector.	The union has several key bodies: Management, Presidency, Congress, Supervisory board, Statutory commission. Membership: 10,200 individuals.	Out of 25 employees, there are 9 women in position. The woman is in a presidential position. The union has a special section for women and youth where it addresses their specific problems related to the sector.
Wood industry association(s)			
Wood Industry and Forestry Association (since 2015)	Initiating the adoption of measures of systemic support to the organization in the business of the company, and participation in the development of strategies for the development and export of wood industry and forestry.	Management consists of an Assembly led by a president and vice president.	Woman is in a leading position.
Other interest groups			
Center for Education and Awareness Raising on the Need to Increase Energy Efficiency – Energis (since 2009)	Promotion of energy efficiency, clean energy, use of renewable sources, healthy environment and their impact on the economy of Bosnia and Herzegovina.	Unknown	The share of female employees is significant.
Center for Energy, Environment and Resources – CENER (since 2006)	Contribution to sustainable	Unknown	The share of female employees is significant.

	development in South East Europe.		
Center for Ecology and Energy (since 2001)	Awareness-raising and protection of the environment.	Management consists of six employees, a director and head experts from different areas.	The director is a woman. Out of five other employees, four are women.
Center for Environmentally Sustainable Development "COOR" (since 2000)	Education and training of youth and citizens about sustainable development; promotion of education programs for sustainable development; raising environmental awareness among young people and citizens.	Management consists of a president and a Steering committee.	Women are absent in leading positions.
Environmental protection fund of FBiH (since 2003)	Collection and distribution of financial resources for environmental protection on the territory of the Federation of Bosnia and Herzegovina.	Management consists of a Steering committee and Supervisory Board.	Unknown

2.2.7 Education and training in the field of forestry

There are no data on public professional trainings in the field of forestry because this type of training is not conducted in BiH. The educational program in the forestry sector in BiH can be observed through the official curriculum within secondary vocational schools and higher education (faculties). There are no official statistics related to employment in these institutions and there are only sporadic data taken available at official websites of some of these educational institutions.

According to the analysis of data taken from the official website³⁸, the High School of Environment and Wood Design, out of a total of 43 professors and board members, 26 (64,46%) are women. However, out of the total number of professors, professional subjects related to forestry are taught by nine professors, of which three (33,33%) are women.

When it comes to higher education and research, there are four faculties for forestry in Bosnia and Herzegovina: Faculty of Forestry University of Sarajevo, Faculty of Forestry

³⁸See: <http://www.ssodd.edu.ba/> - Official Website of High School for Environment and Wood Design Sarajevo

University of Banja Luka, Faculty of Agriculture University of East Sarajevo (section Forestry) and Biotechnical Faculty University of Bihać.

Based on data on employees, taken from the official website of four forestry faculties in BiH, it can be concluded that the ratio of women employed in these institutions (44,05%) is significantly higher than the employment of women in Public Forestry Companies and Cantonal and Federal Forestry Administrations. However, it is not possible to take this data with certainty because all professors were included in the analysis, including those who teach subjects not related to forestry.

Table 17: Summary of Faculties of Forestry in BiH with number and gender structure of employees (Source: Official websites of listed faculties)

Name of the institution	Entity	No. of Employees	No. of Employed Women
Faculty of Forestry of the University of Sarajevo ³⁹	FBiH	39	13 (33,33%)
Faculty of Forestry University of Banja Luka ⁴⁰	RS	19	Seven (36,84%)
Faculty of Agriculture University of East Sarajevo (section Forestry) ⁴¹	RS	56 (including assistant professors and associates)	24 (42,86%)
Biotechnical Faculty University of Bihać ⁴²	FBiH	29	19 (65,52%)

According to the data from the Information Bulletin of the Faculty of Forestry, University of Banja Luka, in the academic year 2018/2019, a total of 34 students enrolled at the faculty, of which 10 (29,41%) were women. Out of a total of 105 students in the first four years of first-cycle studies, Department Forestry, only 32 (30,48%) were women.

In 2018, 59,8% of men and 40,1% of women studied at the Faculty of Forestry, University of Sarajevo (Harčević, 2018). The exact number of students for that academic year is not available. The number of women who graduated from the Faculty of Forestry, University of Sarajevo has grown over time, and in the period 2001-2008, it recorded a huge increase.

In the period 1953-1980, the percentage of female graduate engineers at the Faculty of Forestry in Sarajevo was approximately 9%. In the period 1981-1990, there was a significant increase in this value (27,20%). The highest percentage of female graduate

³⁹See: <https://www.sfsa.unsa.ba/web/> - Official Website of Faculty of Forestry University of Sarajevo

⁴⁰See: <http://www.sf.unibl.org/index.php/cyr/> - Official website of Faculty of Forestry University of Banja Luka

⁴¹ See <http://www.pof.ues.rs.ba/?script=lat> – Official website of Faculty of Agriculture University of East Sarajevo

⁴²See: https://btf.unbi.ba/?page_id=66 – Official website of Biotechnical Faculty University of Bihać

engineers at this faculty was recorded in the period 2001-2008, and it was 36,40% (table 19).

Table 18: Overview of engineering Faculty of Forestry in Sarajevo graduates by gender (Source: Masic A (2020). *Women in Forestry in Bosnia and Herzegovina*)

Years	Women	Men
1953-1960	16	174
1961-1970	45	524
1971-1980	43	367
1981-1990	142	380
1991-2000	43	155
2001-2008	75	131

The growth trend continued in the period 2009-2019. Out of a total of 625 graduate engineers in that period, 244 (39.05%) were women. Compared to the previous period, there was an increase in the number of female graduate engineers in all study programs, and in the International II cycle of FOPER studies 2009-2015, for the first time, a higher percentage of female graduate engineers was recorded compared to the men (table 14, figure 13).

Table 19: Overview of graduate engineers and masters by study programs (Source: Masic A (2020). *Women in Forestry in Bosnia and Herzegovina*)

	Bachelor forestry or horticulture 2009-2019	Master study (Bologna system) 2010- 2019	International II cycle of FOPER studies 2009-2015	Graduated engineers forestry and horticulture 2009- 2019	Masters of Forestry or Horticulture (postgraduate study) 2008-2019
Men	381	168	2	110	29
Women	244	93	11	45	11

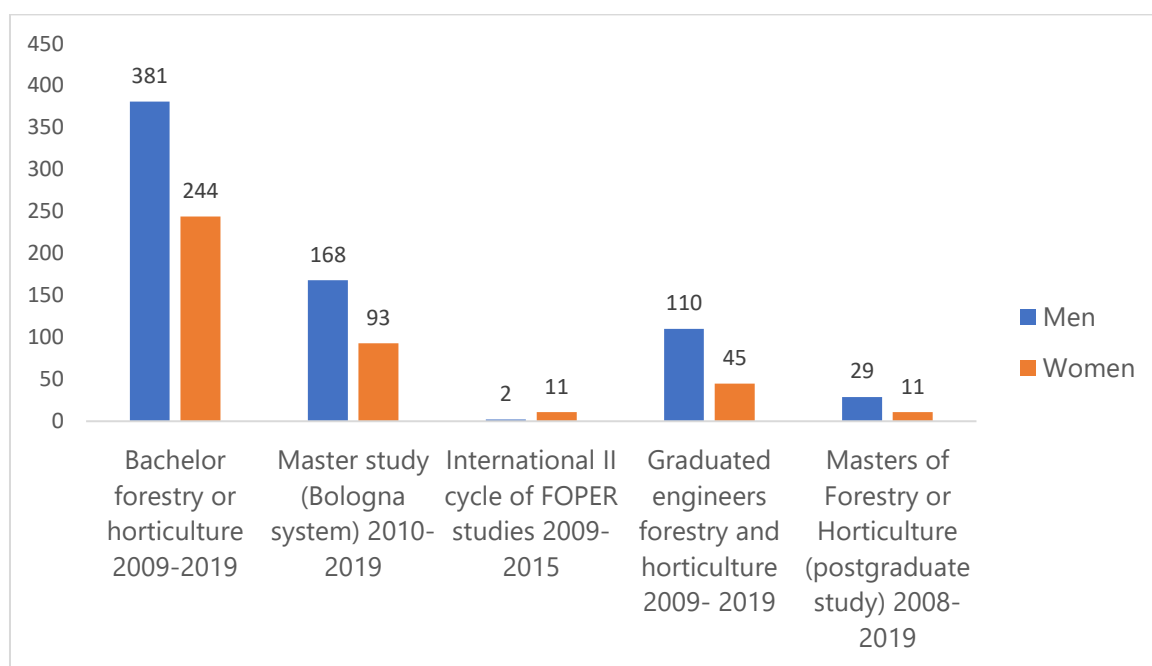


Figure 23: Overview of graduate engineers and masters by study programs

Source: Masic A (2020). Women in Forestry in Bosnia and Herzegovina

2.2.8 Overview of initiatives and projects to support women in forestry

The campaign "Women sustain forests - sustainability through equality" (2020) is initiative prepared within the Program "Strengthening Communities through Democratic Management of Natural Resources", funded by the Danish International Development Agency - DANIDA at the Ministry of Foreign Affairs, and implemented by a partnership of NGOs from Denmark, Nepal, Vietnam, and BiH. The campaign contributes to raising awareness and helping to meet Sustainable Development Goal 5 - Gender Equality.⁴³

Fact Sheet „Empowering women in Bosnia“(USAID, 2018) addressed gender equality in BiH through its democracy and governance and economic growth programs but there are no available data for women in forestry sector⁴⁴. The Gender Action Plan of Bosnia and Herzegovina (2007) had as one of its basic goals the reduction of male and female poverty through new macroeconomic and development strategies. From the aspect of

⁴³ See:

https://issuu.com/fea_2020/docs/womensustain_2020?fbclid=IwAR12vZZd2iz0FxabEvBgrmvPCPsv2heweH5Y33VHZHMBjRxShGtZv6V34Ss - Campaign "Women sustain forests - sustainability through equality" (2020)

⁴⁴ See: <https://www.usaid.gov/bosnia/fact-sheets/fact-sheet-empowering-women-bosnia-and-herzegovina>. Fact Sheet „Empowering women in Bosnia“ (USAID, 2018)

the forestry sector, some of the most important activities on the way to achieving this goal were:

- creating politics and strategies taking into consideration gender components with the aim of directing the economy towards the exploitation of natural resources and favouring domestic products,
- conducting research on the representation of women and men in agriculture, production and the informal sector,
- establishment of a gender sensitive database on beneficiaries of programmes related to the field of environment,
- initiation of activities in order to secure access to basic services for women and men in rural areas.

According to the „Bosnia and Herzegovina making progress towards gender equality, women’s anti-discrimination committee told, as it concludes review of report” (2006) the Ministries of Agriculture, Forestry and Water Supplies had implemented the Livestock and Rural Financed Development Project of the International Fund for Agricultural Development (IFAD), which devised affirmative measures and annual Gender Action Plans based on field surveys of specific roles for men and women in agricultural production. The Federal Ministry of Development, Business and Entrepreneurship and the Ministries of Agriculture, Forestry and Water Supplies also had allocated funds for improving women’s socio-economic lot.

Within the Implementation of the Beijing Declaration and Platform for Action (1995) in Bosnia and Herzegovina, in Chapter m) Impact of the financial crisis on the promotion of gender equality in the part with recommendations for BiH gender institutional mechanisms, there is, among others, the following recommendation: analyses of the differences in gender representation in the areas of agriculture and forestry, gender roles, technical capacities, schemes of land owning and access to technology and loans, education and social services.⁴⁵

2.2.9 Literature

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⁴⁵ See: http://www.unece.org/fileadmin/DAM/Gender/documents/Beijing+15/Bosnia_and_Herzegovina.pdf.
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ssl=1&oi=scholar&hist=HRw0tPMAAAJ:12438058346844799837:AAGBfm03ZfmNs6MpiWVy5JW7
NS3I7DDImA&html=&cited-by=](https://www.researchgate.net/publication/317217267_Scoping_Study_for_Commercial_and_Sustainable_Private_Forest_Management_in_the_Canton_of_Sarajevo)

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Links

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2.3 Country Report: Bulgaria

Author: Daniela Ventsislavova Georgieva

2.3.1 Forest sector

The forest area in Bulgaria has increased by approximately 13 %, according to the official data from the Eurostat website for the period 1990-2015 (see Fig. 24). The total area of forest territories at the end of 2018 is 4.257.200 ha, or 38.35% of the land area of the country (see below). From these numbers, 3.893.396 ha are productive forests (including dwarf 23.882 ha), which is an increase of 15.770 ha in 2018 compared to the previous year (see below).

The main factors that favor the increase of forest areas in the country are:

- self-afforestation of unforested forest areas and abandoned lands outside forest areas between the last two inventories. From this point of view, there is a tendency to increase the area of forests as a result of natural succession processes;
- afforestation of unforested forest territories or in abandoned lands outside the forest territories. At the national level, however, there is a process of reducing the area of forests created as a result of afforestation (National Strategy for Development of the Forest Sector 2013-2020);
- the inventory of the forests that have not been inventoried so far.

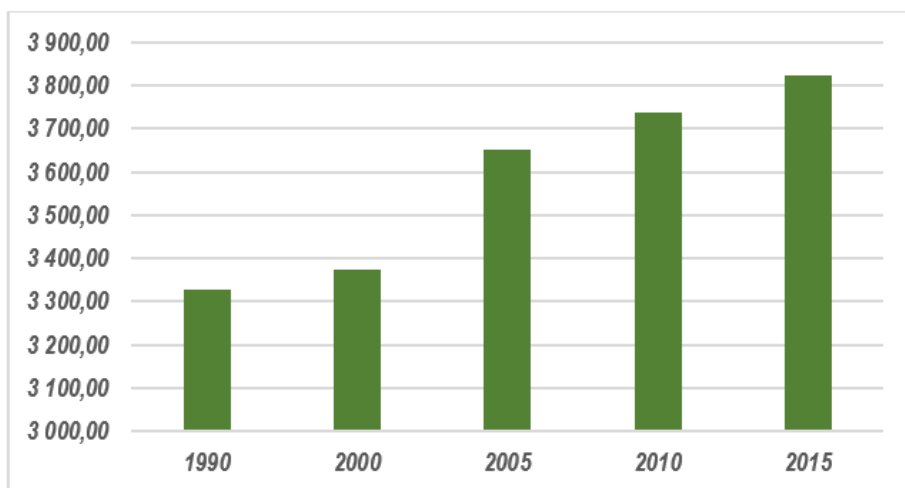


Figure 24: Forest area in Bulgaria, thousand hectares, 1990-2015 (Source: Eurostat, 2020)

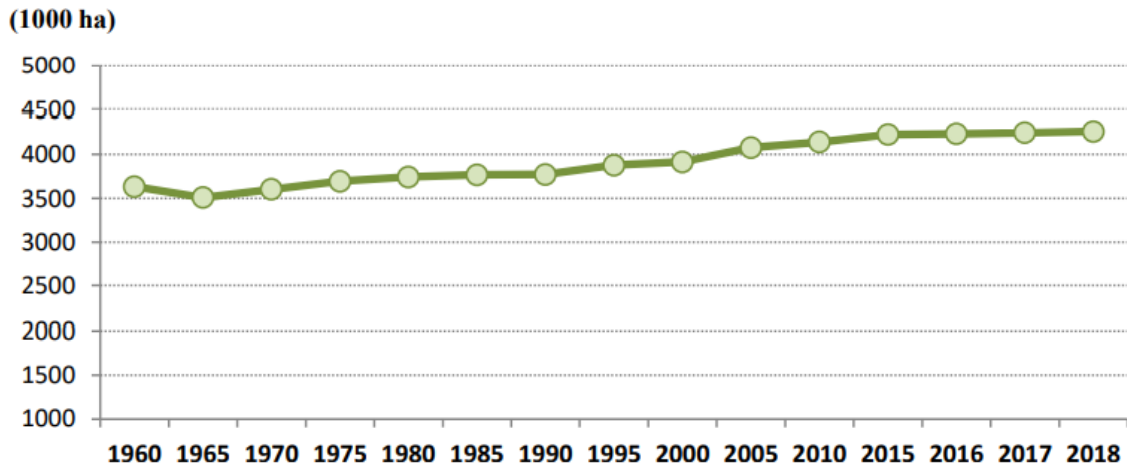


Figure 25: Total area of forest territories 1960 - 2018, 1000 ha (Source: National Report on the State and Protection of the Environment in the Republic of Bulgaria, 2019: 195)

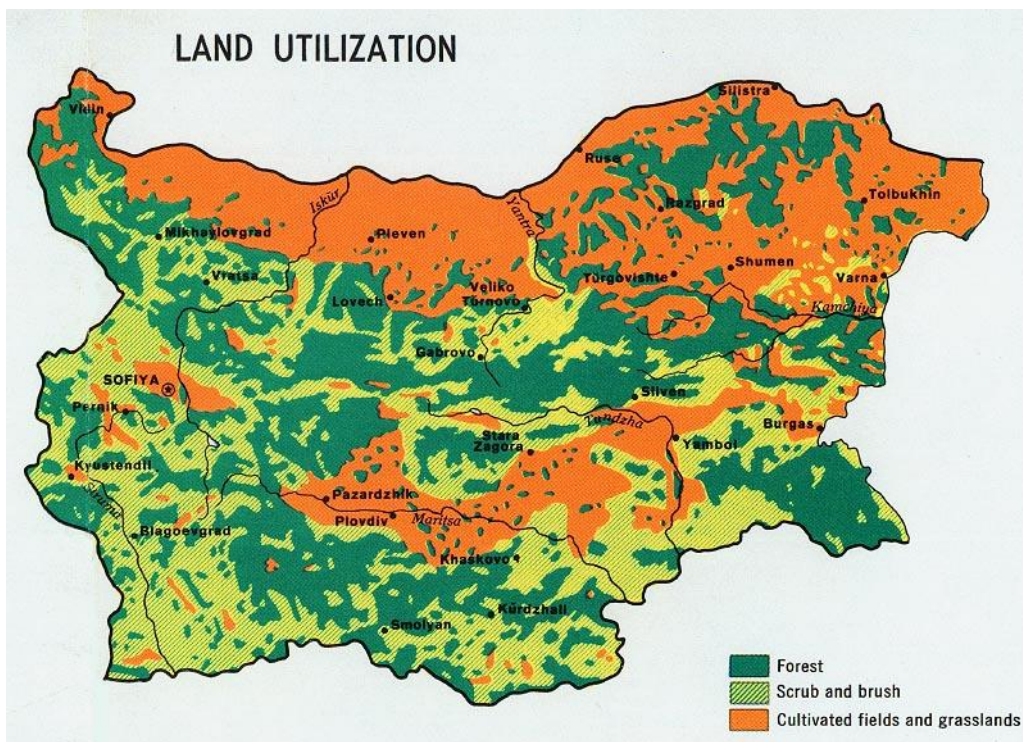


Figure 26: Distribution of forests in Bulgaria

In Bulgaria, there are 11 nature and 3 national parks, as well as 55 nature reserves.⁴⁶ In this respect, the protected areas under NATURA 2000 cover about 34% of the country's territory, and nearly 55% of the forest areas fall into them (Assessment of the Forestry

⁴⁶ See: Landuse Maps, <https://mapcruzin.com/free-world-landuse-maps.htm> (accessed: 11.11.2020)

Sector, p.10). The two major forest type categories in Bulgaria according to the area are temperate continental forest and temperate mountain forest. Regarding the distribution according to species, oaks prevail, followed by beeches, Scots pine, Austrian black pine, hornbeams, Norway spruce, black locust, limes, and other species (see Fig. 27) (Country Report for The State of World’s Forest Genetic Resources – Bulgaria, 2011, p. 4-5). For the last years, there is a decrease in the percentage share of coniferous forests. It is due to the increase of deciduous forest vegetation in mixed coniferous deciduous forests, as well as the spreading of deciduous forest tree species in coniferous forest plantations (Country Report for The State of World’s Forest Genetic Resources – Bulgaria, 2011, p. 8).

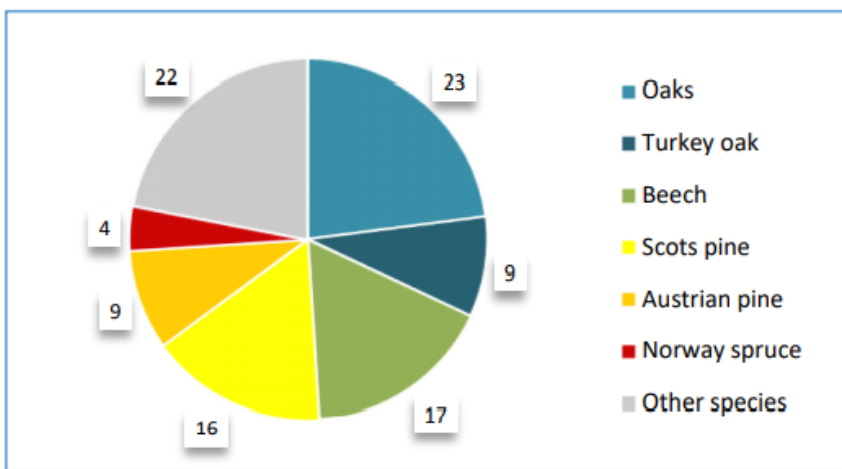


Figure 27: Tree species in Bulgaria, % (Source: Assessment of the Forestry Sector. (2018). Advisory Services on a National Climate Change Adaptation Strategy and Action Plan, p.12)

The forest sector forms a relatively small share of the Bulgarian Gross Domestic Product (GDP)⁴⁷ as total and compared to other major industries and sectors in Bulgaria.

⁴⁷ According to data from the National Statistical Institute in Bulgaria (NSI), in the second quarter of 2020 the GDP amounted to 27,395 million BGN (14 007 million €), at current prices.

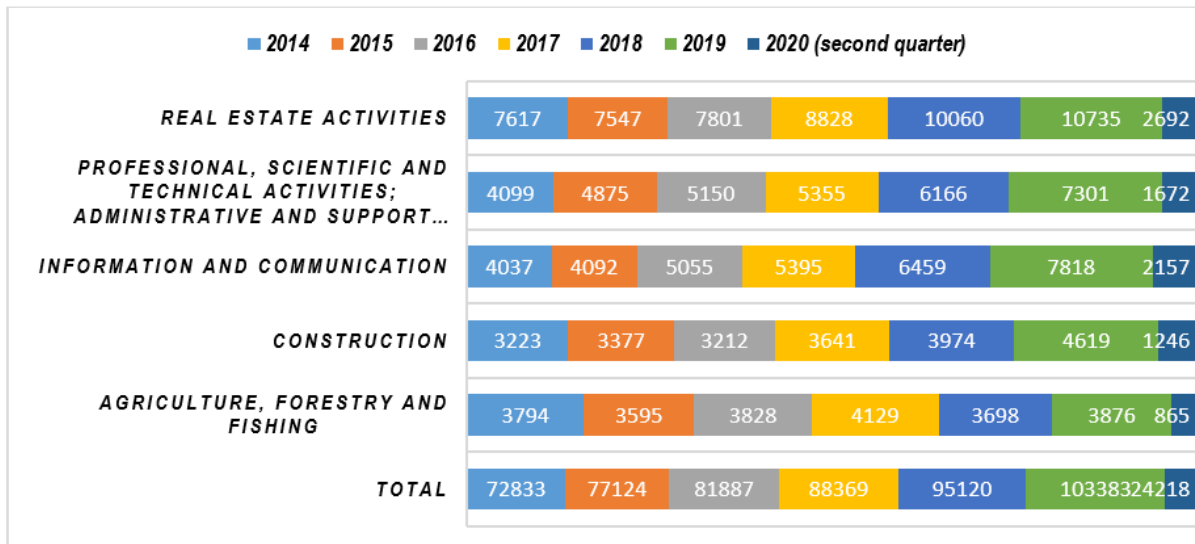


Figure 28: GDP by income approach, BGN million (Source: NSI, 2020)

The data, which can be extracted from the Bulgarian national statistics, concern the whole sector "agriculture, forestry and fisheries". In this respect, there is no punctual data regarding only the share of the forestry sector (NSI, GDP press release, 2020). However, except for 2017, there are no significant fluctuations in the presented data, therefore the relative share of the agricultural sector in the value-added of the economy remains the same in the years under review (2014-2019).

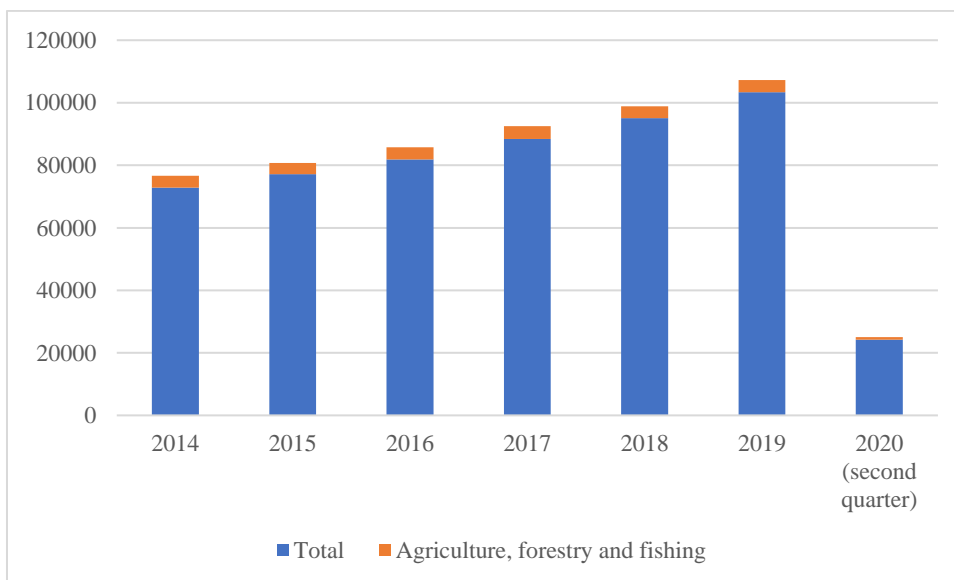


Figure 29: Share of the sector "agriculture, forestry and fisheries" compared to the total GDP, BGN million (Source: NSI, 2020)

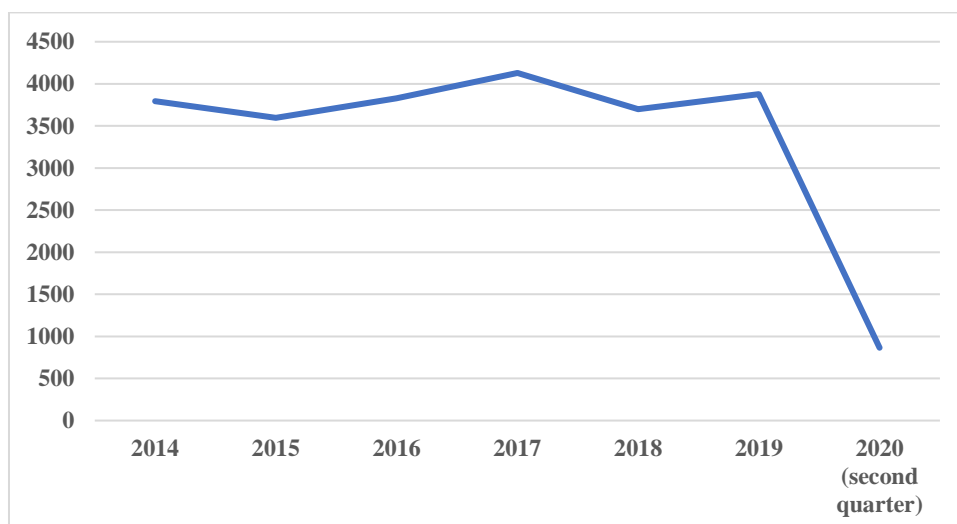


Figure 30: Share of the sector "agriculture, forestry and fisheries" in GDP, BGN million (Source: NSI, 2020)

When searching statistical data in Eurostat the author finds information on the Gross value added of the forestry industry in Bulgaria. It shows no significant fluctuations (see below). The highest levels of the indicator under review are indicated in 2015.

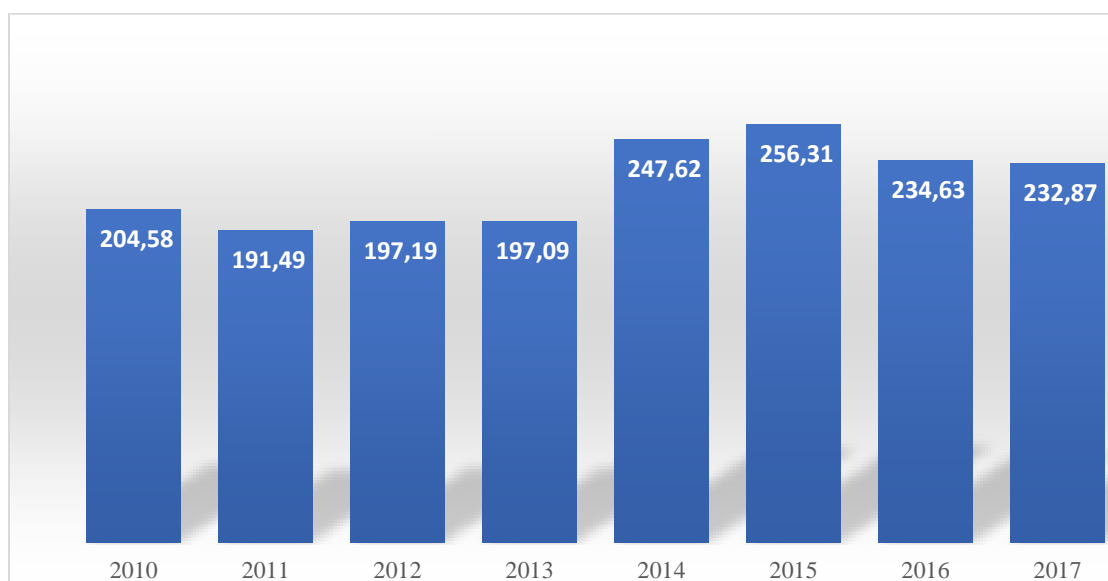


Figure 31: Gross value added of the forestry industry, at basic prices, Euro million (Source: Eurostat, 2020)

The total biomass production amount in Bulgaria (from agriculture, fishery and forestry) is 24.620 Million tdm, most of which originate from agricultural crops. For domestic purposes (feed and food) the consumption is 12.088 million tdm. Around 30% of the total produced biomass is exported (7.162 million tdm). The imported biomass is the amount to 3.188 million tdm.

For forestry in particular, the production amount is 4.063 million tdm, which is around 17% of the total biomass (see fig. 32). Since 1990 i.e. during the past two decades, in the Republic of Bulgaria, the amount of the annual use of wood varies from 34 % to 55% of the total average annual increment of forests in the country. The consumption of biomass from forestry is 4.950 million tdm, which is around 42% of the total biomass from agriculture, forestry and fishery. The imported biomass in forestry (257 million tdm) is relatively low compared to the total amount of biomass.

The main trade partner of Bulgaria (in the Danube Region) is Romania. The total imports from Romania to Bulgaria amount to over 30,000 tons in 2012 and to around 63,000 tons in 2016 (Catalogue and visualization of biomass feedstock flows, 2017, p. 25). Primary imports are of solid wood products. The export is 1.220 Million tdm and is by primary by- and co-products incl. wood pallets. Nearly 60% of the total export of round wood is for Turkey and about 30% for Greece. Insignificant quantities from the export of round wood are realized in FYR Macedonia and Serbia (Kolev, K., 2016, p. 67).

The data for the figures shown below is taken from a European Commission Report on biomass flows in and from Bulgaria.⁴⁸

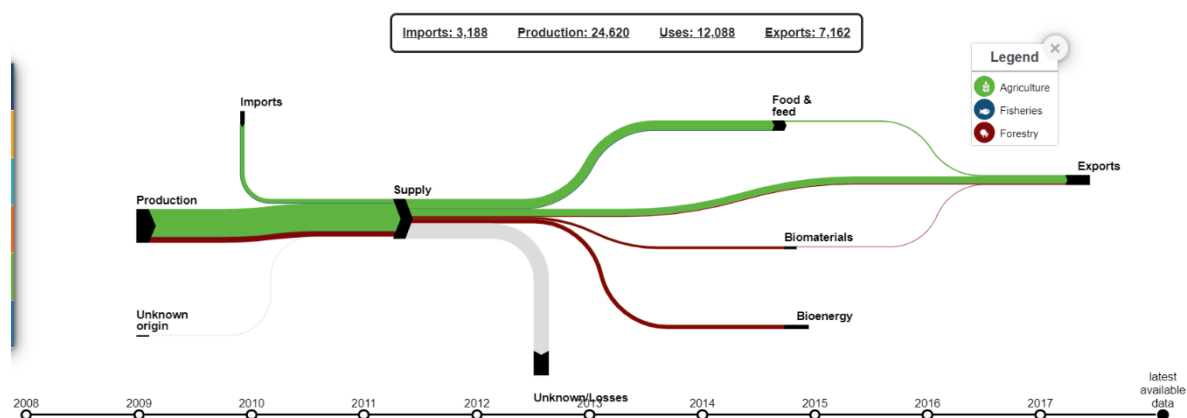


Figure 32: Biomass Sankey diagram, Bulgaria

⁴⁸ See: data from the BIOMASS project, European Commission – Joint Research Centre, https://datam.jrc.ec.europa.eu/datam/mashup/BIOMASS_FLOWS/index.html (accessed: 02.12.2020)

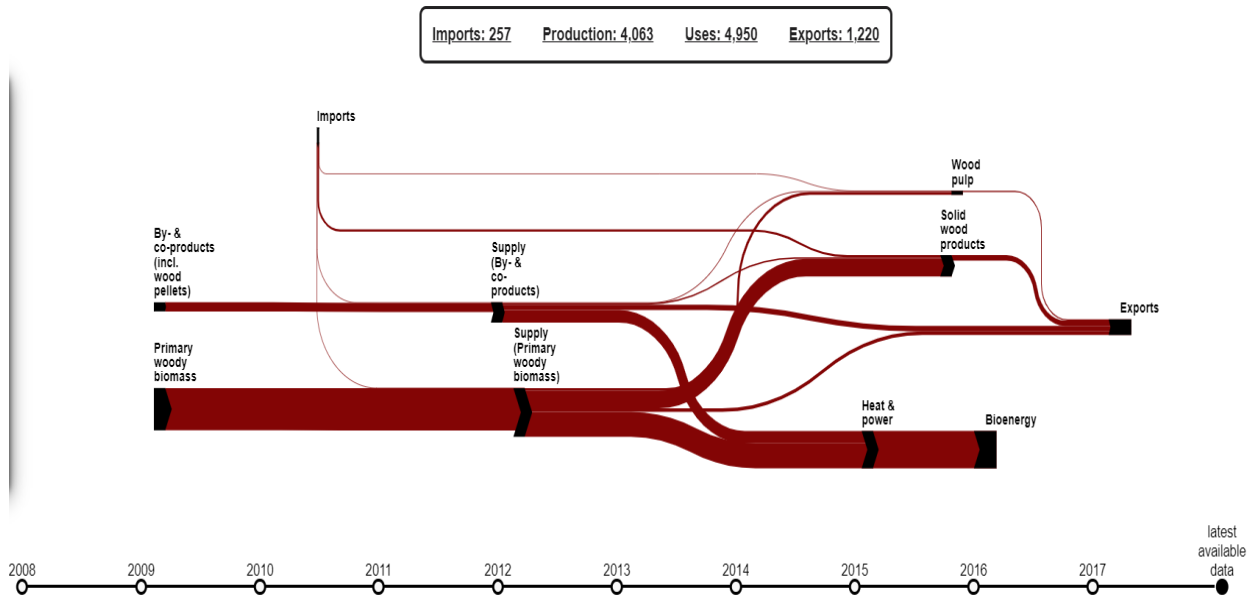


Figure 33: Biomass flows in 1000 T of dry matter (gross trade)

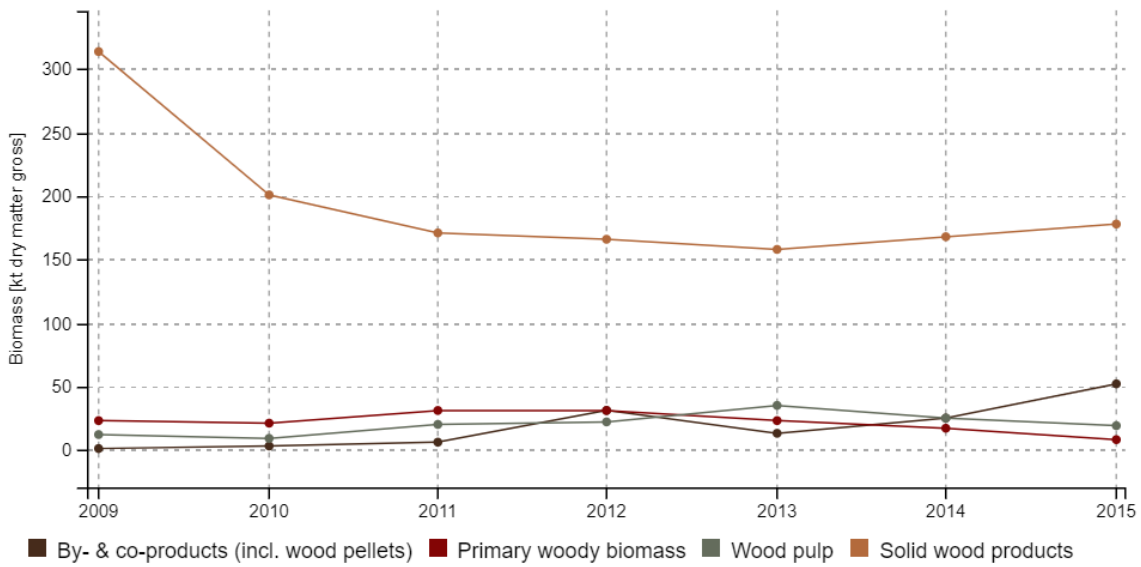


Figure 34: Flows going through imports

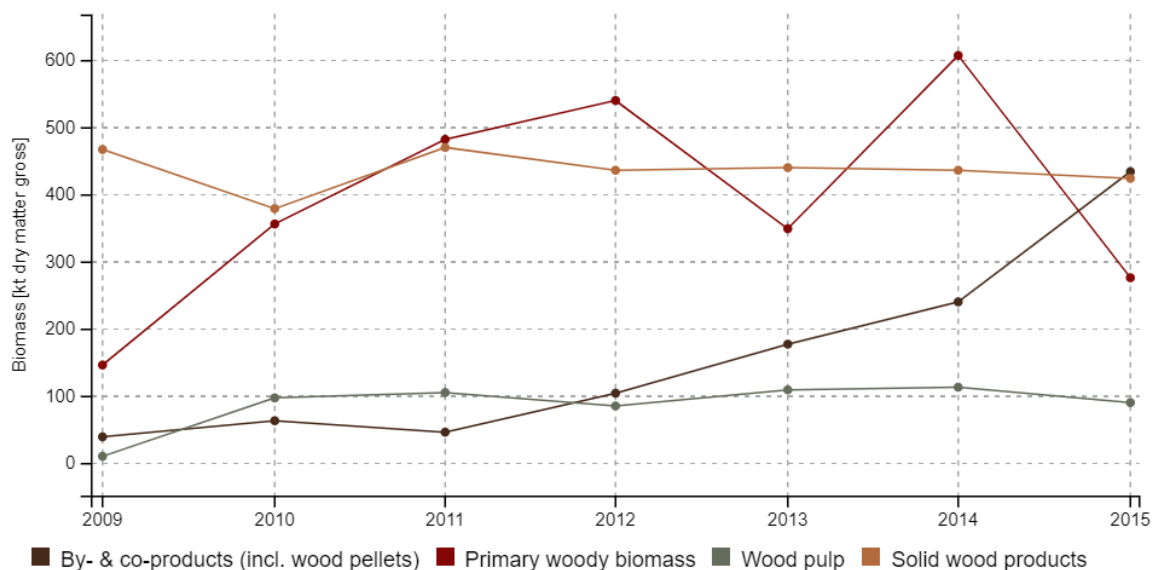


Figure 35: Flows going through exports

2.3.2 Labour market and job opportunities in the area of forestry

In 2019, less than 1/5 of those employed in the "forestry and forest-based industry"⁴⁹ are women. The data covered by Eurostat presents information of women's employment for just some years under review for the period 2010-2019 (see fig. 36). Still, from the extracted data a peak is observed only in 2016 and 2017. Subsequently, their number decreased again, equaling that in 2013. For men (who are the predominant part of the employed) there is a tendency to increase their number for the period 2011-2015. In the period 2016-2019, there is a tendency of increment the indicator in 2017 and 2019 compared to the previous year.

⁴⁹ Employment data from Eurostat's Labour Force Survey (LFS) are presented covering NACE Rev. 2 sectors Forestry and logging (02), Manufacture of wood and wood products (16), Manufacture of pulp, paper and paper products (17), Manufacture of furniture (31)

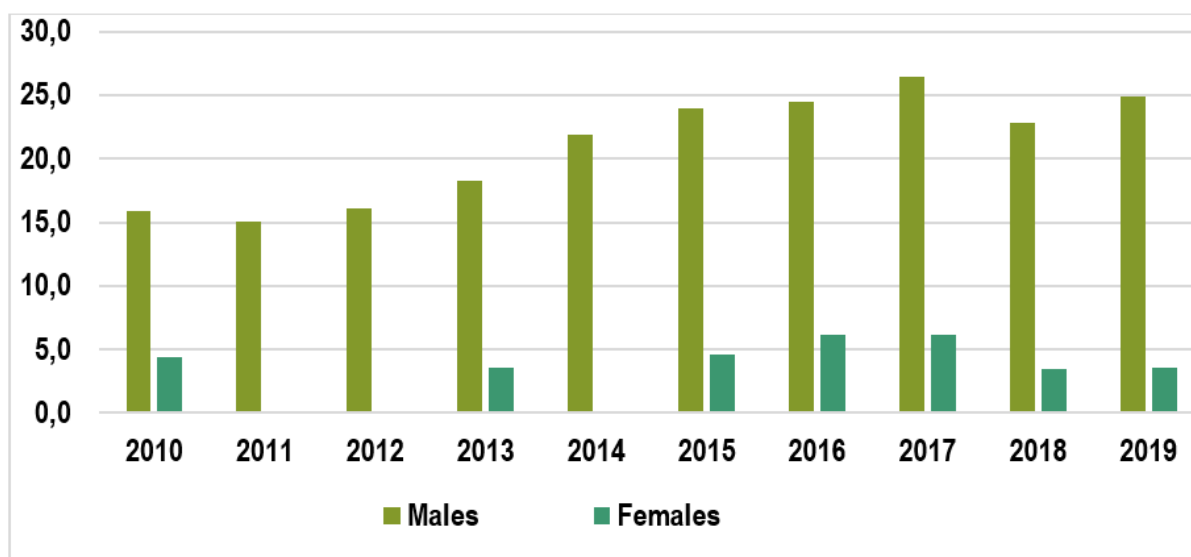


Figure 36: Employed women and men in Bulgaria in forestry and forest-based industry, 2010 - 2019, in thousands (Source: Eurostat, 2020)

For the period 2010 - 2019 the largest number of female employees in the production of furniture is observed in comparison with the other considered industries (see fig. 37). This is because Bulgarian furniture production performs better than other traditional manufacturing industries. However, the furniture industry has been steadily shrinking over the last decade and the cost of furniture production is almost at the same level as ten years ago. One of the least developed industries based on the indicator of employed women in forestry and logging. Also, all the sectors considered report an outflow of female labor for the period under consideration.

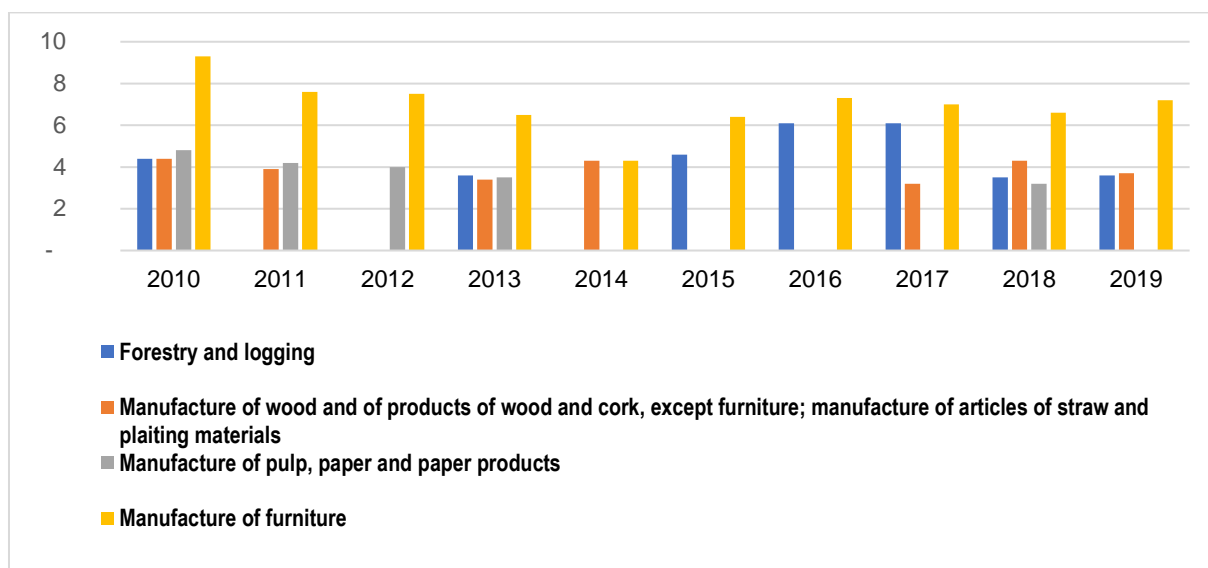


Figure 37: Employed women in forestry and forest-based industry, 2010-2019, in thousands (Source: Eurostat, 2020)

As the main challenges in terms of the condition and production opportunities of the labor force in forestry are:

- 1) hiring new workers to maintain the necessary capacity for the use, restoration, and protection of forest resources and territories, both in number and with higher competence;
- 2) the aging of the workforce, especially in rural and mountainous areas;
- 3) the low social status of forest workers, low pay and unattractive working conditions in the forestry sector, especially in logging.

From the point of view of the type of work performed by employed women in the sector, it can be stated that it is primarily administrative. Also at the national level, females prefer to work in government institutions related to forestry. This is essentially a prerequisite for women who are looking for an opportunity to combine work with social life and motherhood to turn to state-owned enterprises despite low pay (Chobanova & Georgieva, 2017; Chobanova & Popova, 2017). In the furniture industry, employed women also perform activities aimed at serving the population (sales consultants).

Female employment in forestry in Bulgaria can be divided based on the qualifications and skills needed for the appointed tasks/jobs.

Forest workers (including women) are expected to plan, organize and carry out afforestation, conservation, and use of natural and artificial forests. The activities performed by the employees, which are managed by qualified personnel, also require the performance of the following tasks (Georgieva, 2017):

- evaluate afforestation sites, select seedlings for seedlings and plant trees, create and care for young forests;
- identify trees for felling and estimate the volume of timber harvested;
- work with saws and other machines for thinning, pruning, cutting dry branches, cutting down trees, and cutting them into logs;
- collect and stack the cut logs and branches;
- transport the ordered logs along the respective gutters;
- monitor forest fires, participate in firefighting activities, compile reports in connection with fires and maintain firefighting equipment;
- weed control and thickening in young forests using hand tools and chemicals;
- operate and maintain tractors, bulldozers, or other machines for moving the necessary equipment at afforestation or logging sites;
- collect cones, prune trees, help with planting and mark trees for follow-up;
- train and supervise other forestry workers, including logging and plant workers.

These tasks impose additional responsibilities on workers for which lack of competence would lead to their incorrect and unscrupulous performance. In this regard, the need for staff to be qualified is fully justified.

The main issues regarding the low employment rates of women in forestry are primary related to activities that are considered risky on women's reproductive abilities (Labor code, section II, chapter 15). Some of the protections provided by Bulgarian legislation, to pregnant women or at an advanced stage of in vitro treatment, could also be seen as factors negatively affecting the employment of women especially in private companies operating in forestry. Such legislation are: prohibition of overtime work; the right to an exemption for medical examinations when they need to be performed during working hours; the right to temporary adjustment of working conditions at the workplace and/or working hours, to eliminate the risk to safety and health when performing work unsuitable for the woman's condition.

When a female worker returns to work in the forestry sector after the expiration of maternity leave, she has the right to propose to the employer a change in the duration and distribution of his working hours for a certain period or other changes in the employment relationship to facilitate her return to work. To encourage a more successful reconciliation of work and family responsibilities of the employee, the employer is obliged to take the proposal into account when there is such an opportunity in the enterprise (Chobanova & Georgieva, 2017). The obligation of the employer, who employs 20 or more women, to provide women's hygiene rooms and maternity restrooms is also an expression of the special protection of women's labor. This obligation is not necessarily related to women's mothers. It concerns all working women.

Although the previous rights and obligations imposed in the legislation of the Republic of Bulgaria can be considered in the direction of stimulating the participation of women in the forest sector, they negatively affect the share of women in forestry:

- 1) Due to the specifics of working in forestry, a large part of the activities can be indicated as harmful to women's reproductive abilities, which is why they are not performed by them.
- 2) Due to the specific requirements for the protection of pregnant women, they are more likely to be provided in administrative buildings and premises where safe working conditions can be ensured.
- 3) Due to the long duration of maternity leave,⁵⁰ employers may prefer not to hire women. Also, after returning from maternity leave, women need a period of recovery of work skills and competencies, which can last for months.
- 4) Hence, if the legal requirements for the protection of women are perceived as burdensome, employers may refuse to hire females.

2.3.3 Forest ownership

According to EFA's (Executive Forest Agency) official data, the state ownership over the forest territories is 72.7% while non-state forest territories represent 24.7% of their total area. No significant changes in forest ownership have been observed in recent years, and in this context, their ownership is mainly state-owned. In 2019 a second campaign for the purchase of forests by the state was conducted. The aim is to add small forest properties to the state forests, which cannot be serviced and maintained in good condition by their current owners. The first such campaign is in 2016, when deals were concluded for nearly 130 properties worth BGN 600.000 (306.775 Euros) (Bulgarian national television news).

⁵⁰ According to the Labour Code, a worker in a forestry enterprise is entitled to maternity leave of 410 days for each child, of which 45 days must be used before birth.

Table 20: Forest ownership in Bulgaria (2018)

Bulgaria	Forest cover (ha)	Share forest cover (%)
Public ownership	3.090.010	72.70
State (used by state entities)	2.906.435	68.30
Forest territories managed by the Ministry of Environment and Water including National parks and reserves	172.307	4.10
Forest areas provided for management of training and experimental forest holdings	11.268	0.30
Municipal forests	558.116	13.11
Private ownership	492.308	11.60
Individuals and families	425.246	10.0
Individuals (f)	n/a	
Individuals (m)	n/a	
Cooperatives	19.895	0.5
Church		
Indigenous communities	47.167	1.10
Private business entities		
Private institutions (non-profit org.)		
Other (specify) forests created on former agricultural lands within the meaning of Art. .2, para. 1 of the Forest Act	116.766	2.6
Total	4.257.200	100

2.3.3.1 Forest owner associations

In Bulgaria, due to the legislation up until 2016, there is no common database regarding the forest owner associations. It is so because non-governmental organizations, including associations, were not obligated to register in the Commercial Register from where they become visible for the society and stakeholders. After 2016 there is a law requiring NGOs to input their data in the Commercial Register and the register of non-profit organizations. This process is currently ongoing and because of that there are many associations, which are "invisible". This does not mean that there are no forest owner associations in Bulgaria but that their specific number is currently unknown.

At this stage, the measures provided by the Forest act to support private forest owners are limited. In this respect, the Forest act Art. 183 and 184 require from the Executive Forest Agency to provide the following support to *any* forest owner association:

1. providing consultations for the development of forestry plans and programs;
2. assistance for consolidation of individual properties in a common forest massif, including the gratuitous performance of property valuations - object of exchange and consolidation;
3. consultations and training of the management of any forest association for application of good forestry practices;
4. consultations on the construction of forest roads;
5. consultations in organizing and conducting events for forest protection.

Also, in the texts of the National Strategy for Development of the Forest Sector in the Republic of Bulgaria for the period 2013 - 2020, the promotion of the association of forest owners is indicated as a priority, which should be implemented through: Preparation of a National Plan for Development of Non-State Forestry; Evaluation and optimization of the scope and opportunities for public-private partnership for carrying out independent or joint forestry and hunting activities in various sites in forest areas.

2.3.4 Forest administration

With the entry into force of the current Forest Act (2011), which replaced the 1997 Forest Act, the National Forest Management (NFM) was abolished and the Executive Forest Agency (EFA) was established. A redistribution of functions between the EFA and the Ministry of Agriculture, Forestry, and Food was undertaken. On one hand, there is a state forest administration with control functions - EAF, and on the other - state forest enterprises to carry out economic activity in the forest territories - state property.

The EAF is organized at two levels - central government and specialized territorial units, incl. the directorates of the nature parks (see fig. 38). The state-owned forest territories are managed by 7 state forest companies (Georgieva & Bankova, 2020), which include 164 local units (state forestry and state hunting farms). There are 16 regional directorates, as to each of them there are the respective territorial subdivisions.⁵¹

⁵¹ See: Executive forest agency, http://seerural.org/wp-content/uploads/2015/03/Bulgarian_Forest_sector.compressed.pdf (accessed: 01.12.2020)

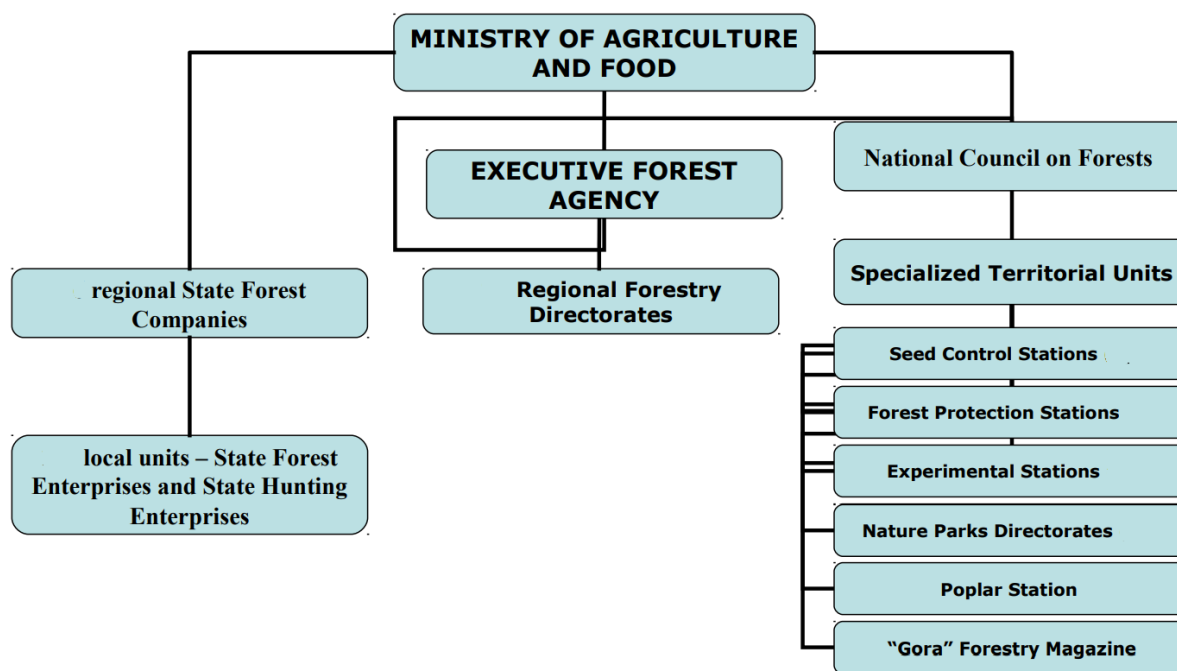


Figure 38: Organizational structure of forest administration in Bulgaria

In 2018, EFA with its structures and specialized territorial units conducted the following activities and support measures:

- over 1200 consultations of owners, private foresters and other interested persons;
- participation in organized working meetings with representatives of Branch association of practice forestry and forest entrepreneurs in Bulgaria on the implementation of the legislation and proposals for its amendment;
- working meeting with the management of Ministry of agriculture, food and forestry and with mayors of municipalities - owners of forest territories, where issues regarding the sustainable management and use of forest territories by municipalities, etc. were discussed.
- 165 complex inspections were carried out, aiming to reveal all discrepancies between the normative and the actual state of the activity of the inspected place;
- 14,590 thematic inspections were made, which aimed at establishing the status of forest activities, with a significant number of such inspections being carried out in areas with a high concentration of infringements;
- control of the issued permits and protocols for certification of logging through the information system of EFA.

The National Strategy for Development of the Forest Sector in the Republic of Bulgaria for the period 2013 - 2020 (NSRGSRB 2013 - 2020) is the main document that defines

the strategic framework of the state policy for achieving long-term and sustainable management of living and productive multifunctional forests and increasing competitiveness of the forest sector as a basis for a better standard of living, especially in mountainous and rural areas. Measure 3.5 has been introduced within the strategy, which aims to promote employment and entrepreneurship in forestry and improving the quality of professional qualifications of the workforce in the forest sector. As activities set in the implementation of the measure can be indicated:

- Development and implementation of training programs for workers in the forestry sector; including a lifelong learning system;
- Participation of stakeholders from the forestry sector to update and develop programs and curricula at Forestry university;
- Establishment of a National Forestry Extension Service for consulting and assistance in carrying out activities in forests, incl. training and retraining of non-state forest owners, forest entrepreneurs, forestry practitioners, forestry operators, and workers;
- The strategy aims at the preparation and introduction of a program to provide consulting services to owners of non-state forests and persons registered for forestry practice, for the creation of forests, for undertaking measures for the protection of forest territories from natural disasters and protection against erosion.

On this basis, the operational goal of the country is to increase employment in the forest industries, logging and other forestry and hunting activities and development of forest entrepreneurship based on improving the quality characteristics of the workforce in the sector and following Measure 3.5 of NSRGSRB 2013 -2020. These initiatives and strategic objectives cover the overall workforce yet with no attention for gender segregation or the separate motivation for women's participation in the sector.

At the national level, the equality policy is coordinated by the Ministry of Labor and Social Policy (MLSP). Since 2004, a specialized unit has been established in the MLSP, which is called the Department of Equal Opportunities, Anti-Discrimination and Social Assistance in the Disability Policy. The department is part of the Equal Opportunities and Social Assistance Policy Directorate. The strategic document defining the framework of the implemented unified policy is the National Strategy for the Promotion of Equality between Women and Men 2016-2020. The main priority axes in the strategy are:

- Priority area 1: Increasing women's participation in the labor market and an equal degree of economic independence.
- Priority Area 2: Reducing the gender pay and income gap.

- Priority Area 3: Promoting equality between women and men in decision-making processes.
- Priority Area 4: Combating gender-based violence and protecting and supporting victims.
- Priority Area 5: Changing the existing gender stereotypes in society in various spheres of public life.

To implement the set activities under the priority axes, initiatives and training have been carried out in various ministries and state institutions. According to data reported as of 2017, the Ministry of Agriculture, Food and Forestry in Chapter 9 of the Maritime Affairs and Fisheries Program 2014-2020 includes the principle of promoting equality between men and women and non-discrimination. According to the Executive Agency for Forestry, a total of 45 women and 57 men took part in the training under Priority 5 in the part "Improving the human potential in agriculture and forestry through the dissemination of knowledge and improving skills" (Chobanova & Georgieva, 2017, Innovative ideas for improving the attractiveness of forestry sector for women).

2.3.5 Companies and enterprises in forestry and related services

In general, forestry companies have overcome the crisis of 2009-2010 and there is an increase of production (Author's team, 2018). The industry can be assessed as promising given the availability of sufficient raw material resources, sustainable internal and external market positions of manufactured products and its importance as a source of income and employment for a significant part of the population in mountainous and rural areas. According to data from the National Strategy for Development of the Forest Sector in the Republic of Bulgaria for the period 2013 – 2020 (p. 24-26), the condition of logging companies is "alarming", in which the production process is carried out under extremely unfavorable conditions - low productivity, obsolete equipment for extraction, export and transportation of timber, low level of education and qualification of workers. The main problems related to increasing the economic vitality and competitiveness of the forest sector are:

- low labor productivity;
- difficult access to finance;
- lack of opportunities to use funds from the EU to invest in the renewal of equipment in logging, machinery, production lines and transport of forest products;
- insufficient participation (support) by banks in investment projects;
- low share of certified forest areas and certified forest entrepreneurs.

All this limits the access of products from the forestry to foreign markets. In Bulgaria, according to the public information presented on the website of the Ministry of Agriculture, Food and Forestry there are 11 operating commercial enterprises related to forestry and 7 state-owned enterprises (Georgieva & Bankova, 2020). A detailed list of Bulgarian private enterprises operating in the field of forestry and forest industry does not exist. Based on data from Project № CB006.1.31.070 “Innovative cooperation initiatives in cross-border region” the total number of enterprises only in the districts of Blagoevgrad and Kyustendil, in the sectors of logging and ancillary activities in forestry, are 177.

2.3.6 Forest-focused interest groups

Due to the lack of a common database and lists of NGOs and associations, specific quantitative data could not be provided for this section. For example, on the territory of Smolyan district, there are 37 forest associations, which are part of the interested groups (Interview with Eng. Ventsislav Furlanski, Regional Directorate of Forests – Smolyan). However, detailed information about them should be sought on the spot. It is due to the legislation in force that until 2016 non-governmental organizations could publish their financial reports freely on the Internet with no need for registration in the Commercial register.⁵² This allowed some “gray” practices aiming at not clarifying the activities of the non-governmental sector and hiding incomes.

After 2016, new regulatory requirements were introduced. They obligated non-profit organizations, until the end of 2020, to re-register in the Commercial Register database. This process is not currently complete. For these reasons, the author of the present study searched the Commercial register database on the keyword “forests” in the name of the NGO. An additional search was made by the use of one of the most commonly used search engines (Google), to find associations, foundations, and other NGOs in Bulgaria which support the development of the forestry sector. As a result of the search, and without any claims for completeness, the following associations and non-governmental organizations were found:

⁵² The Commercial Register is a single centralized electronic database, which is managed by an information system, for traders, branches of foreign traders and the related circumstances, for which it is provided by law that they are subject to entry.

Table 21: Forest-related interest groups in Bulgaria (Source: own search)

Interest group	Goals	Structure	Representation Women
Association of forest owners and workers in the forestry	Unification and coordination of the activities of forest owners and workers in the forest sector in the Kyustendil region, raising the professional qualification and public status of forest owners and workers in the forest sector.	Board of directors with 3 members.	Women are absent in leading positions.
Association of Municipal Forests	Develops proposals for change and improvement of the legislation in the field of forests and forestry. Ensures cooperation between its members in developing a common strategy for municipal forest management.	Board of directors with 7 members.	Women leaders in the board of directors – 1.
Association of logging companies in Bulgaria Since 2019	Promotes and supports good practices in logging and wood processing. Takes initiatives and participates in the development of new and changes in existing regulations relating to the industry.	Board of directors with 3 members. Membership: 12	Women are absent in leading positions.
Union of Foresters in Bulgaria Since 1909	To be an independent public guarantor for the protection of national interests in the implementation of forest policy and work, and to establish the authority and rights of the Bulgarian forester.	Board of directors with 33 members. Membership: 3500	Women leaders in the board of directors – 2.
National Association of Owners of Non-State Forests "Gorovladelets" Since 2002	Cooperation with governmental and non-governmental organizations and services, with parliamentary committees, etc. similar, as well as with those in the international plan for elaboration and application of normative documents and decisions regulating the management and administration of the private forests.	Board of directors with 4 members.	Women leaders in the board of directors – 2.
Branch Chamber of the Woodworking and Furniture Industry Since 1992	Conducts specialized seminars, analyzes, and expert evaluations, round tables, workshops, training and retraining of personnel, resource provision. Promotes the development of a market economy, sustainable and	Board of directors with 12 members.	Women leaders in the board of directors – 5.

	quality growth, following the interests of its members.		
Branch association of practicing foresters and forest entrepreneurs in Bulgaria	Conducts training through qualification courses. Publishes educational literature. Maintains an information forest portal http://www.bulfor.net/index.php with comprehensive professional and market information about the forest sector in Bulgaria and for forest entrepreneurs	Board of directors with 7 members.	Women leaders in the board of directors – 3.
Bulgarian Forests Association	Improving the professional level of employees in forestry, improving health and safety at work and environmentally friendly working environment.	Board of directors with 3 members.	Women are absent in leading positions.
Northeast Forestry Association Since 2016	The assistance of the management, use and conservation of the Bulgarian forest and useful. Development of long-term programs for forestation, management and use of forests.	No data	Women leaders in the board of directors – 1.
Forest BG - Branch organization of individuals and legal entities performing activities in the forestry sector in Bulgaria Since 2014	To coordinate and to support its members for their successful implementation as entrepreneurs in the forest sector, in particular in logging and logging.	Board of directors with 7 members.	Women are absent in leading positions.
Association Club Fortuna Since 2002	Supporting the activities of women leaders in the forest system. The popularization of the forestry profession, as well as for professional mutual assistance and training.	Board of directors with 10 members.	Women leaders in the board of directors – 10.

Of these organizations, only the Fortuna Club is primarily aimed at women in the forestry, representing a non-governmental association of women leaders in the system of the Executive Forest Agency at the Council of Ministers. It was established in 2002 with the idea of promoting the forestry profession, as well as mutual professional assistance and training. Associations, which are not registered at the Commercial register until the end of 2022, can be seen as not active or in a process of liquidation.

4 more associations were found during the research which is part of the focus group. Still no data regarding their activities or registration was collected and because of that, they are not presented in the table. NGOs in Bulgaria are primarily micro-sized with a small number of members. After 2022 due to the ongoing process of registration of the non-profit organizations in the Commercial register in Bulgaria, more punctual data of the active forestry associations will be available.

2.3.7 Education and training in the field of forestry

Based on data from the National Statistical Institute (NSI), the number of students in higher education institutions in the Republic of Bulgaria tends to decrease (see table 22). Such data could be explained by the negative demographic changes that have taken place in recent years. In particular, a negative natural increase⁵³ was reported in 2017 (-6.5 per 1,000 people (Eurostat, Population and population change statistics, 2019)), which is also considered a major factor influencing the demographic processes in our country (Eurostat, Contribution of natural change and net migration, 2017).

Migration, and especially the number of emigrants from Bulgaria is an additional factor influencing the number of students enrolled in higher education institutions. In this respect, in 2017 a negative mechanical growth (-5989) was reported in our country on the indicator "external migration".⁵⁴ As a result the numbers of both current and potential students in institutions offering higher education decreases. According to NSI, the number of forestry students in a master's degree for the academic year 2019/2020 is approximately 4 % less than the previous academic year. In the opposite aspect, the number of bachelor's students for the academic year 2019/2020 increased by approximately 6 % compared to the previous 2018/2019 academic year.

⁵³ The difference between the number of live births and the number of deaths during the year. The natural increase (or natural decrease) is negative when the number of deaths exceeds the number of births (see Eurostat Glossary on Demographic Statistics, 2000 Edition).

⁵⁴ See: https://infostat.nsi.bg/infostat/pages/reports/result.jsf?x_2=120

Table 22: Students in bachelor's and master's programs 2017 - 2020, in general and in forestry (Source: NSI, 2020)

Education	2017/2018		2018/2019		2019/2020	
	Bachelor's degree	Master's degree	Bachelor's degree	Master's degree	Bachelor's degree	Master's degree
Forestry	555,00	243,00	576,00	231,00	616,00	221,00
Bulgaria	146564,00	74680,00	141505,00	73311,00	139711,00	72224,00

In a more detailed analysis regarding women in forestry who obtained Bachelor's and Master's degrees, we can point out a relatively constant number without significant fluctuations over time. However, the number of male graduates is higher in comparison with those of females, ranging between two thirds and three-quarters of all students in forest science programs.

Table 23: Graduates tertiary education in forestry, 2017-2019 (Source: NSI, 2020)

												(Number)
2017		2018				2019						
Educational-qualification degree 'Bachelor'		Educational-qualification degree 'Master'		Educational-qualification degree 'Bachelor'		Educational-qualification degree 'Master'		Educational-qualification degree 'Bachelor'		Educational-qualification degree 'Master'		
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
60	16	43	15	37	17	37	16	39	18	48	12	

In Bulgaria, there are *vocational training* for jobs in forestry. Such training is offered by enterprises (including non-profit organizations) that are issued a license to have Vocational training centers. According to the National Agency for Vocational Education and Training, 64 organizations are offering vocational training for forester.⁵⁵

⁵⁵ See: <https://www.navet.government.bg/bg/registar-na-tsentravete-za-profesiona/>

2.3.8 Overview of initiatives and projects to support women in forestry

Although strategic documents focus on motivating the participation of women in forestry (however generally presented), the author of this paper did not find specific projects directly focused only on the issue. A project essential to the women in forestry which can be pointed out as a good practice is:

Project № CB006.1.31.070 “Innovative cooperation initiatives in cross-border region”. The project is co-financed by European Union through INTERREG- IPA CBC CCI Number 2014TC16I5CB006.

Links:

<https://keep.eu/projects/21016/>

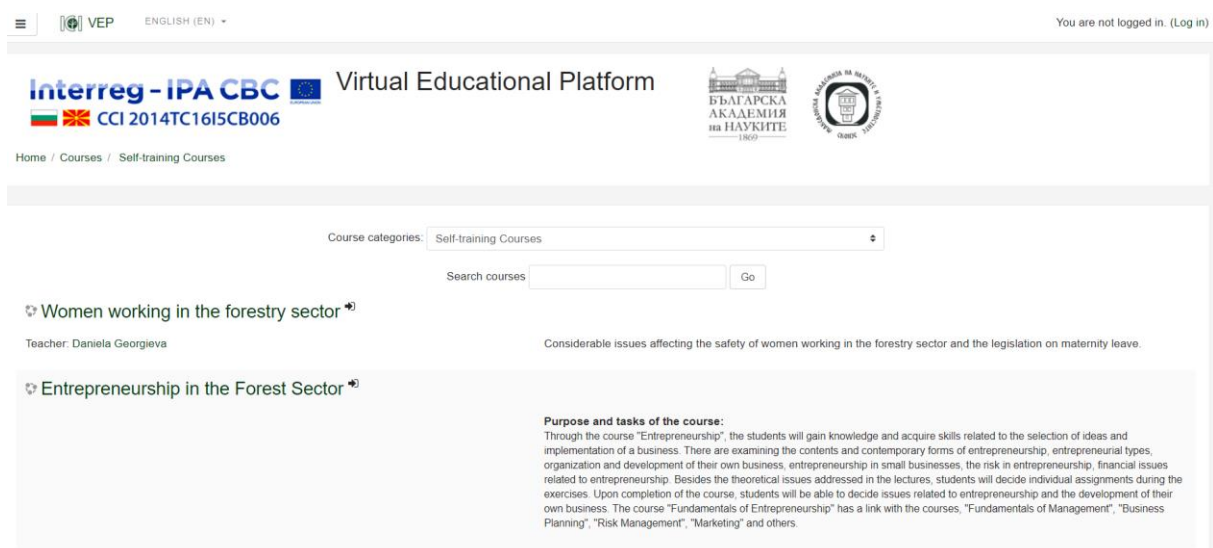
<http://vep.bas.bg/>

<http://vofis.bas.bg/index.php?route=information/news>

<https://www.iki.bas.bg/en/innovative-cooperation-initiatives-in-cross-border-region>

As part of the results in the mentioned project, which have a direct impact on supporting the participation of women in the forestry sector are:

- Study on the participation of women in forestry.
- Collection of primary information in the form of interviews and questionnaires.
- Creation of a virtual training platform (VEP) with training materials aimed at the problems outlined during the research.



Home / Courses / Self-training Courses

Course categories: Self-training Courses

Search courses: Go

Women working in the forestry sector ^{*)}
Teacher: Daniela Georgieva
Considerable issues affecting the safety of women working in the forestry sector and the legislation on maternity leave.

Entrepreneurship in the Forest Sector ^{*)}
Purpose and tasks of the course:
Through the course "Entrepreneurship", the students will gain knowledge and acquire skills related to the selection of ideas and implementation of a business. There are examining the contents and contemporary forms of entrepreneurship, entrepreneurial types, organization and development of their own business, entrepreneurship in small businesses, the risk in entrepreneurship, financial issues related to entrepreneurship. Besides the theoretical issues addressed in the lectures, students will decide individual assignments during the exercises. Upon completion of the course, students will be able to decide issues related to entrepreneurship and the development of their own business. The course "Fundamentals of Entrepreneurship" has a link with the courses, "Fundamentals of Management", "Business Planning", "Risk Management", "Marketing" and others.

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2.4 Country Report: Croatia

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2.4.1 Forest sector

The Republic of Croatia is considered as one of the countries with the highest forest cover in Europe. The share of forests and forest land is 46 %, covering 2.759.039,05 ha. Most data that is used in this report is from the General Forest Management Plan (GFMP) encompassing the period 2016-2025. According to this source, 76 % are state-owned forests and 24 % are privately owned.

On the forest management area, a total growing stock of 418.618.277 m³ was estimated, of which 334.914.019 m³ in forests owned by the Republic of Croatia and 83.704.258 m³ in private forests.

Table 24: Distribution and comparison of estimated growing stock by ownership (GFMP, 2016)

Private forests			State forests			Total
1.000 m ³	m ³ /ha	Share (%)	1.000 m ³	m ³ /ha	Share (%)	1.000 m ³
83.704	163	20	334.914	275	80	418.618

The total forest land in Croatia constitutes one, unique forest management area which is established in order to ensure the sustainable forest management of the forest land. Therefore, according to the national criteria, both forest land with and without tree cover is according to current legislative already sustainably managed regardless of its ownership, purpose and forest stand.

The forest management area of Croatia is divided into 684 management units owned by the Republic of Croatia and 407 management units in private ownership. Out of total number of management units owned by the state, 649 units are managed by the public enterprise Croatian Forests Ltd. and 35 are used or administered by legal administration bodies owned by the state (National parks, Ministry of Defence, Faculty of Forestry etc.).

The purpose of determining General Forest Management Plan (GFMP) is to ensure sustainable forest management through conservation of the natural structure and diversity of forests, including the permanent increase of the stability and quality of the economic and general forest ecosystem functions. (National forestry accounting plan for the Republic of Croatia, 2018).

The most important economic tree species, by percentage in the growing stock, are European beech with the share of 37.22 %, pedunculate oak (11.55 %), followed by sessile oak (9.38 %), European hornbeam (8.39 %), silver fir (7.0 %), and narrow leaved ash (3.19 %). Other species that are less represented are spruce (2.29 %), European

turkey oak (1.77 %), black locust (1.74 %), black alder (1.70 %), and Austrian black pine (1.43 %).

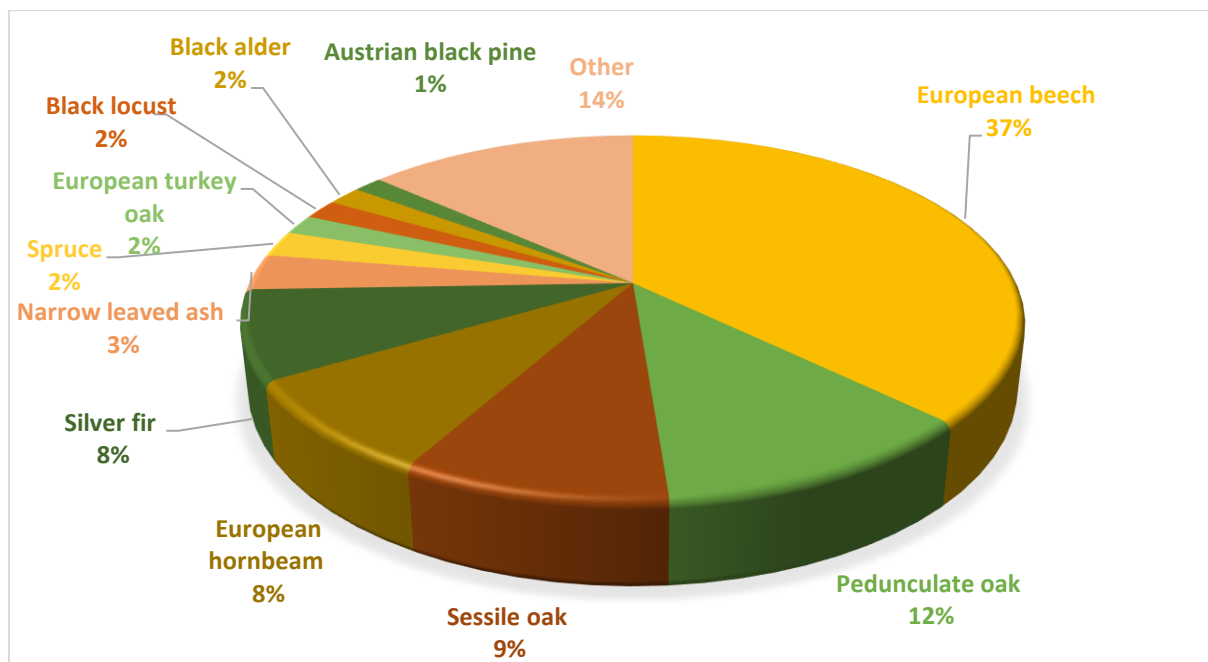


Figure 39: Growing stock for the most important economic species (GFMP 2016)

Even though 46 % of the total land in Croatia is covered by forests and forest land, the forestry sector share in the Croatian GDP is only 1.5 % (UNFAO, 2014). The most recent data from 2019 show a slight increase in the total value of the sold wood, as compared to the previous year. The increase of 11.5 % of the total value, and 13.1 % for the average prices, was caused by an increase in the value of industrial roundwood of 16.4 %.

Logging has slightly increased in 2019 (0.2 %). Expressed in the quantity of roundwood, it was an increase of about 10.000 m³ (Croatian Bureau of Statistics, Forestry in 2019, 2020).

Another important function of forests in Croatia is their participation in carbon sequestration. According to the National Forest Inventory (NFI), forests in Croatia store approximately 640.000.000 t of carbon. 20 % of that (126.3 million t) is stored in private forests, and the rest (80%) in the state-owned forests.

Under the influence of climate change, it becomes clearer that the forestry profession needs to take advantage of the multifunctional character of resources that manages using all its products and services in a sustainable way (National forest policy and strategy, OG 120/03).

Besides timber, there are many non-wood forest products and services provided by forests. Non-wood forest products and services comprise different forest fruits, mushrooms, handicrafts from wooden and non-wooden material, and especially social services like recreation, tourism, hunting, etc. (Sabadi et al. 2005). Non-forest products are potentially a large source of income and development of innovative entrepreneurship. Even though they always had existed and been used for private purposes, unfortunately there is just a few initiatives that use non-wood products for open market.

More intensive use of non-wood forest products and services opens several possibilities for the development of small entrepreneurship which can foster economic development in rural areas and can easily include females in the forest-based sector.

The main areas of work should be raising awareness on possibilities for improving private forest estate and starting private entrepreneurship based on intensified use of forest products and services. Those activities have to be initiated at state level to motivate and work in cooperation with new private entrepreneurs (Vuletić et al., 2009). Unfortunately there have been only few initiatives that supported small entrepreneurs connected to non-wood products. Part of the sector of non-wood products and services is still in development since the last published articles (2009) but definitely part of future plans for rural area development.

2.4.2 Labour market and job opportunities in the area of forestry

In 2018, the estimated population of Croatia was 4.087.843 inhabitants, with 1.975.052 men and 2.112.791 women. Of that number, 3.531.000 are working-age population. In 2018, approx. 1.655.000 inhabitants were employed, of which 103.000 were in agriculture including forestry, 453.000 in the industry, and 1.096.000 in the services sector.

Although on a solid growth path in recent years, Croatia is still recovering from a deep and long-lasting recession that started a decade ago. It recorded negative economic growth for six consecutive years (2009-2014), with a cumulative drop in real GDP of 12 %. The recession especially affected public finances and the labour market. There has been a recovery from 2015–2018, with cumulative growth of 11.5 % (2.9 % on average), but real GDP is still below the 2008 figure.

The unemployment rate in 2019 was 8.2 % while the economic growth experienced a slight increase of 2.9 %. It is currently not possible to estimate the GDP decline for 2020, but considering the recent pandemic in Europe, it is assumed that it will be significant.

The labour market structure is characterised by labour shortages resulting from long-lasting demographic trends linked to an ageing population and significant emigration to other European Union Member States.

Croatia still has one of the highest unemployment rates in the EU for both the adult and youth population, while both employment and activity rates are among the lowest in the EU following Greece, Spain, Italy and France. Slightly more than 40 % of the unemployed are considered long-term.

Table 25: Work force in the sector of Forestry and in the RC, 2014. (HZMO, HZZ-June 2014)

	Republic of Croatia	Sector of forestry
	Employed	
Total amount of employed people	1.426.550	7.580
Employed females	671.095	740
Employed males	755.455	6.840
	Unemployed	
Total amount of unemployed people	304.925	2.158
Unemployed females	161.985	382
Unemployed males	142.940	1.776
Unemployed without work experience	55.475	454
	Workforce	
Workforce total	1.731.475	9.738
Workforce female	833.080	1.122
Workforce males	898.395	8.616
	Unemployment rate (%)	
Unemployment rate total	17,61	22,16
Unemployment rate females	19,44	34,05
Unemployment rate males	15,91	20,16

The data from 2014 shown in the Table 25 indicate that the Forestry sector has a total of 9.738 members of the workforce, which is only 0.53 % of the total workforce in Croatia. Of that 7.580 are employed and 2.158 unemployed in the labour force, which gives an unemployment rate of 22.2 % with a much higher share for women than for men.

What stands out is the very low share of the female workforce, especially among employees, in which they make only 9.7% in the subsector. As in the total unemployed population, there is also a higher percentage of women: of the total unemployment in the sector their share is 18%.

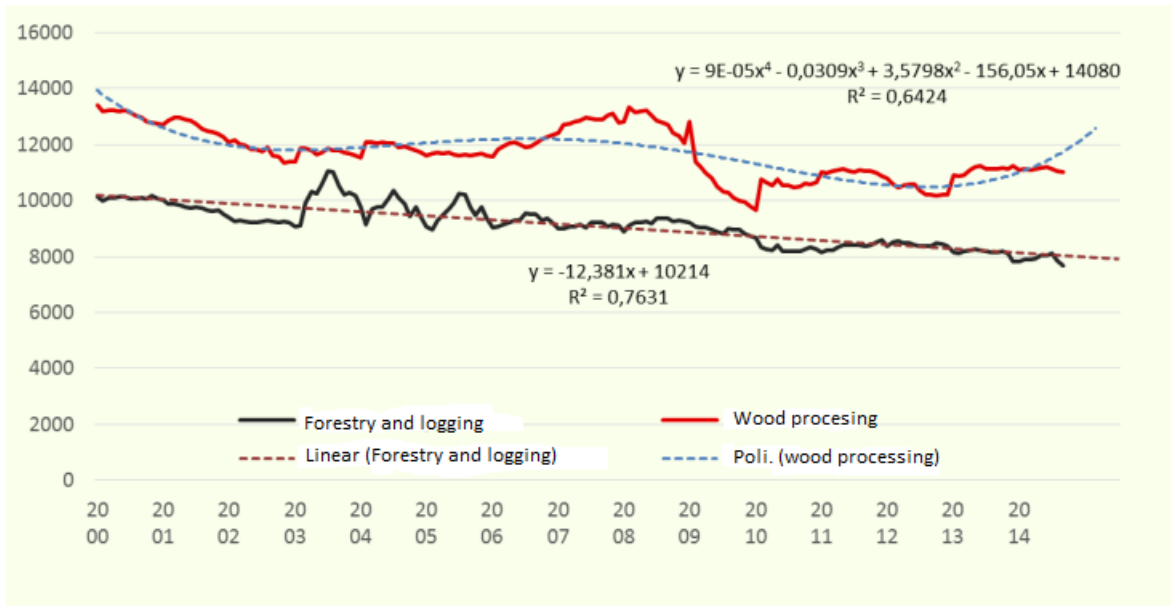


Figure 40: Key employment departments development in period from 2004 - 2014. (Source: DZS www.dzs.hr)

The data as shown in the previous figure indicate a continuous decrease of employment in the forest sector, in the period from 2000 to 2014, with relevant oscillations in the recession period up to 2008. In the wood processing industry, employment was growing until 2008, when it reached a historically low level. The recovery happened in 2012 but with further stagnation and with a forecast of a slight decrease in the future years.

Nonetheless, data from the report of the Ministry of Labour and Pension System from 2015 indicates that forestry and logging are the key professions for the forest sector and that there is big potential of employment in the wood processing industry.⁵⁶

Moreover, employment opportunities might rise in the nature protection sector, as well as in protected areas, such as nature parks. With the touristic development of nature protected areas, certain increase in demand is expected and with that the new job positions will be created for forest professionals and engineers.

⁵⁶ See: <http://www.kvalifikacije.hr/sites/default/files/documents-publications/2017-08/Metodologija%20za%20izradu%20i%20tuma%C4%8Denje%20profila%20sektora.pdf>

2.4.3 Forest ownership

According to the latest available data from the General Forest Management Plan, of the total forest area, 2.097.318,16 ha (76 %) is state-owned, and 661.720,89 ha (24 %) is owned by private forest owners. The distribution of the total forest area by ownership during the last ten-year period is presented in the table below. The process of restitution and overgrowing of abandoned agricultural land as a result of depopulation of the rural areas, in the period from 2006-2016, have resulted an increased share in private forest area by 79.950,59 ha (14 %).

Table 26: Total forest area by ownership over a ten-year period

Inventory	Private forests (ha)	Share (%)	State forests (ha)	Share (%)	Total (ha)
GFMP (2006)	581.770,30	21.64	2.106.916,94	78.36	2.688.687,24
GFMP (2016)	661.720,89	23.98	2.097.318,16	76.02	2.759.039,05

Sustainable forest management in Croatia has a long tradition of more than 250 years, but compared to the state-owned forests, private forest management was on a weak footing. The key reasons are systematic neglect of private ownership, small property size area, insufficiently independent forest property area, cadastre, and land registry inconsistency as well as lack of updated ownership records. Further, with the 1990s political changes, restitution processes were brought in. This resulted in the continuous increase in the share of private forests and these processes are still ongoing.

The potential of the private forests as economic as well as non-economic ones are not fully used and society demands in regards to forest resources are higher.

There is no information on national level about the number of forest owners according to gender. However, according to the results of a recent project related to Private Forest Owners Associations (PFOs) in Croatia, the vast majority of private forest owners are males (93.1% of interviewees based on the sample size of 350) (Source: WESSPROFOR project, unpublished data).⁵⁷

⁵⁷ See: https://www.cepf-eu.org/sites/default/files/document/FP1201_Country%20Reports_Joint%20Volume.pdf

2.4.3.1 Forest owner associations

After the year 2000, Croatia started with adjusting whole legislation according to demands of EU Regulations. This has also affected Croatia's forest act and legislations. The first step was making National Forest Policy and Strategy in 2003. According to this document, it was necessary to conduct a complete overhaul of the Forest Act which was adopted in 2005.

In both documents (The forest Act and the National Forest Policy and Strategy) for the first-time private owned forest was recognized and treated in an equivalent way as a state forest with the same possibilities and benefits. Those documents were the first motivation for private forest owners to materialize their rights, but individual demands were not very effective. Forest owners realized that only a collective approach will give positive results, so they started to establish associations. The first three associations were established in 2004 and in 2005. After establishing a Forest extension service by the Ministry in 2006 (according to the Forest Law), interest for the private forest was increased. In parallel with legislative changes many new associations were established. Associations were established usually to cover area of one municipality.

After some time, the FOA joined forces at national level and established the Croatian Union of Private Forest Owners' Associations (CUPFOA) on June 7, 2008 as an independent, non-partisan, interest organization of voluntarily associated associations of private forest owners, in order to satisfy the common interests of the Association members under the Law on Associations and the Statute.

The basic goal of the CUPFOA is to improve the quality and economic value of forest products and improve the management of private forests in the Republic of Croatia by planning associations and work of associations of private forest owners and forest owners and by participating in the implementation of projects in the field of forestry.

Some of the main activities of the CUPFOA are participation in the adoption and amendments to laws and bylaws in the field of forestry, environmental protection, and spatial planning. The organization cooperates with legal and natural persons engaged in forest products, and especially with professional organizations and institutions dealing with the improvement of forest management. It advocates for the application of the most modern methods in the development of forestry in the territory of the Republic of Croatia and the European Union. The important work that Association does is informing the public through the media about the situation, professional problems, and progress of forestry in the Republic of Croatia through publishing publications on professional and organizational topics related to the development of forestry and the activities of the Association.

The association organises training and professional excursions for members of the Association, and organizes professional and scientific conferences important for the sector of forestry and private forest owners.

The associations themselves operate at the local level where they implement projects and work together to improve the situation in private forests. Some of them have also launched machine rings to reduce the cost of procuring individual machines used in forestry and agriculture.

Although the share of women as owners is estimated not to be significant and they are usually not interested in getting involved in the work of associations although there are a few exceptions (the president of one association is a woman). The share of female FOAs members cannot be quantified but appears low.

2.4.4 Forest administration

The Ministry of Agriculture is the central public administrative authority for agriculture and forestry. The forest administration in Croatia is governed by the Directorate for Forestry, Hunting, and Wood Industry. In the Directorate there are 81 employees, from which 27 are females and 54 males, with a woman in the leadership position of the Directorate as Assistant Minister.

The main tasks regarding the forest sector are related to sustainable forest management, forest protection, and regulation of legal relations in forests and forest land owned by the state.

The Ministry coordinates and harmonizes Croatian agricultural and rural development policies with the relevant policies of the European Union related to agriculture, food, rural development, and fisheries. It participates in the implementation of EU projects and programs as well as other forms of international relations.

Certain public authorities are assigned to other state institutions, such as the Croatian Chamber of Forestry and Wood Technology Engineers that was established in 2006, and based on the Croatian Chamber of Forestry and Wood Technology Engineers Act (OG 22/06). The Chamber is an independent and individual professional organization that manages public authorities assigned to it. It protects the reputation, honour, and rights of its members and ensures that chartered engineers perform their duties conscientiously and abide by the law, and promotes, represents and harmonizes their interests before state and other bodies in at home and abroad. The members of the Chamber are engineers of forestry and wood technology. United in the Chamber they

represent and harmonize common interests, protect the public interest and the interests of third parties.

Professional jobs of the members of the Chamber are:

- designing, producing, evaluating, performing and supervising works in the field of cultivation;
- exploitation and opening of the forests;
- hunting;
- forest protection;
- horticulture; nursery production;
- consulting; product quality testing;
- court expert evaluation; preparation and revision of professional studies and plans;
- project control and professional documentation;
- professional training and licensing of works in forestry, hunting and wood processing.

The Chamber executes a number of tasks as a public authority:

- keeps a directory of certified forestry and wood technology engineers;
- issues, renews, and revokes licenses to legal and private persons for performing works in the field of forestry, hunting, and wood technology;
- determines the professional obligations of members and their performance following the Code of professional ethics;
- conducts professional exams for certified engineers.

Since 2008, the Chamber also organizes professional development and education for its members on regional level, as well as professional excursions and conferences and supports publishing of professional journals and books.

As well as in the Directorate for Forestry, Hunting, and Wood Industry, in the Chamber, the leadership position covers a woman as a President. The numbers of certified engineers from the Chamber show that the women are represented in smaller numbers than men. From the total of 1291 certified engineers, 1.022 are males (79 %) and 269 are females (21 %).

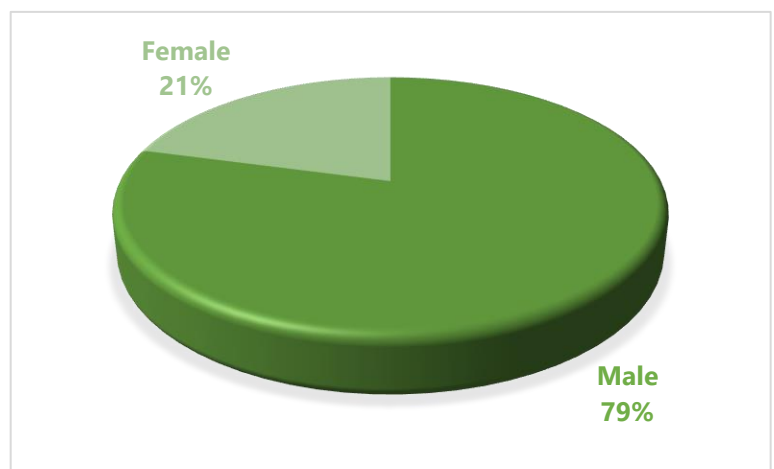


Figure 41: Certified engineers of forestry and wood technology

Croatian Forest Research Institute is a public research institution owned by the Republic of Croatia and is also given the public authority to manage certain affairs in forestry. Objectives and tasks of the Institute are part of the National Programme for Scientific-research work of Republic of Croatia and the Development Program of "Croatian Forests Ltd". Within the national framework, Croatian Forest Research Institute is working closely with the Ministry of Science, Education and Sports, and "Croatian Forests Ltd".

The Institute exerts public authority roles, based on the Plant Health Act, the Act on Forest Reproductive Material, and the Forest Act. It covers professional supervision over the production of forest seeds and seedlings and tests the quality of the forest seeds. It also deals with issuing the prescribed documents in national and international trade.

From the total of 83 employees, 48 are female and 35 are male, with a woman as a director of the Institute. For three continuous mandates woman was chosen to lead the Institute, so for approximately 10 years there has been a woman on the leadership position.

State inspectorate is a central state administration body that started operating in 2019. The department of the Inspectorate that monitors forestry activities is **Sector for Supervision in Forestry and Hunting**. The sector implements international agreements in forestry-related parts and regulates the relations and conditions of wood production.

The Sector for Supervision in Forestry and Hunting performs inspection and other professional tasks related to the application and implementation of laws and regulations in the field of forestry and hunting. It also offers professional opinions on the matter of implementation of the forest laws and participates in making law proposals and technical regulations for forestry and hunting.

Hence, women in Croatia's forestry sector cover high leadership positions. Nonetheless, there are still uneven numbers of male and female engineers and fewer numbers of women in the workforce which shows the area where the work of female initiatives should be focused.

2.4.5 Companies and enterprises in forestry and related services

Most of Croatian forests that are in state property are managed by state company "Hrvatske šume" (Croatian Forests Ltd.). Total forest area amount that the company is managing is 2.024.461. ha, which is 97 % of the total of the state-owned forests

"Croatian forests Ltd.", limited liability company, is a legal successor of "Croatian forests", public enterprise for forest and woodland management in the Republic of Croatia, p. o., Zagreb, founded on the basis of the Amending Forestry Act (OG 41/90), established on January 1st 1991. Today, Croatian Forests Ltd. is a three-layered commercial company owned by the state, with the headquarters in Zagreb, 17 regional forest administrations (subsidiaries) and 169 regional forest offices.

The total amount of employees in the company "Croatian forests Ltd.", was 8.011, which was a decrease of 193 employees in comparison with the previous year. From the total number of employees 1.464 (18,28 %) are female employees ("Croatian forests Ltd" Yearly report 2019).

The regional forest office is the basic organizational unit for performing all expert and technical activities in forest management and they are directly supervised by the regional forest administration. Forest management forest units is based on forest management plans (for the state-owned forests) for individual management unit approved by the Ministry of Agriculture.

"Croatian forests Ltd." in 2019 have sold 5.2 million m³ of wood assortments and gained income of approximately 256.340.000€ for the sold wood.

In last few years there have been more interests in domestic wood, as pedunculate oak (*Quercus robur*) from the Spačva region is being recognised as one of the most valuable wood in the world, and Croatian forests have a big area covered with old trees that can be used for furniture production. With supporting the development of wood industry which represents 10% share in Croatian exports, the "Croatian forests Ltd." is responsible for managing this valuable resource and preserve the biodiversity and nature balance in the forests.

In addition to this enterprise there is a significant number of small enterprises operating in the forestry sector. According to the current legal regulations, they must obtain a license from the Croatian Chamber of Forestry and Wood Technology Engineers for certain types of work.

The figure below indicates that the highest numbers of licensed contractors work in the areas of logging (368) and silviculture (225), which are also the fields of the forest

industry that are most developed and offer the most job opportunities. Followed by a high number (89) of licensed contractors which conduct tree markings. 66 of the licensed contractors' issues transport documents and 62 of them deals with the forest infrastructure. The least number of contractors deal with forest and hunting management plans (43) and forest reproductive material (45).

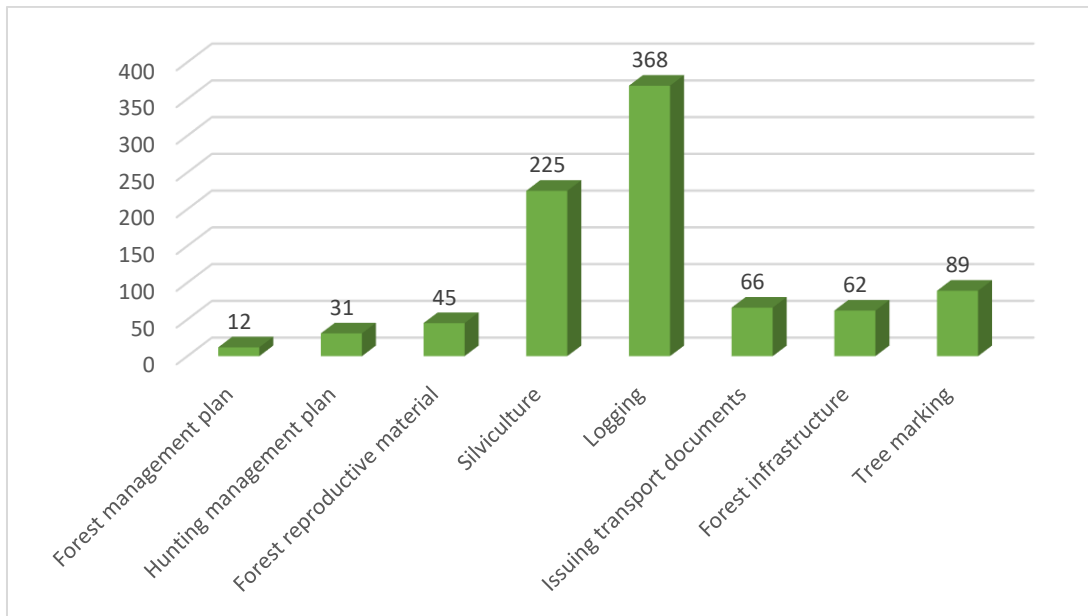


Figure 42: Number of licensed contractors for certain forest activities (November 2020)

2.4.6 Forest-focused interest groups

In Croatia, there are few organizations that work around forest-based topics. One of them is the **Croatian Union of Private Forest Owners Associations** which unites total of 18 private forest owner organizations and works as an independent Non-Government Organization. The main goal of the association is to amplify the economic value of the forest products in private forests and to improve the management of private forests in Croatia. The Union works as a teamwork of united associations and participates in the implementation of projects in the forest industry at the national and European level.

Another organization that works in the field of forestry is the **Wood Processing Industry Association** as part of the Croatian Chamber of Commerce. The Association gathers members who are engaged in the wood processing and production of saw timber, veneer, chipboard, parquet, floor and wall coverings, building elements, prefabricated houses, wooden packaging, furniture, and other wood products. The Council of the Association consists of 51 companies and their representatives.

The Croatian Employers Association has a department that focuses on the field of forestry and deals with the protection of employees and their representation in the forest sector. The **Association of Forestry, Game Management and Ancillary activities** actively participates in drafting laws and bylaws through the membership in the Economic and Social Council and collaborates with state and educational institutions, professional associations, forest owner associations, and legal and private persons engaged in the economic affairs.

As part of the Croatian Chamber of Agriculture, the **Private forest committee** was established to represent the interests of private forest owners in Croatia and to discuss the state of the private forests. The committee follows EU policies that are regarding private forests is consulted in the development of the new legislative documents that include private forests on national and European level.

Croatian wood cluster is another organisation that is involved in forestry as a medium that connects companies in forest sector. There are 77 members of the Croatian wood cluster and 5.300 employees. The Cluster represents wood processing sector on all levels, improving sustainable competitiveness and promoting inter-sectoral and trans-sectoral cooperation. Their goal is creating of long-term sustainable business model for strengthening competitiveness of wood processing sector by encouraging the activities in the field of research, development of technology, applying and commercialisation of innovation and encouraging of investments.

2.4.7 Education and training in the field of forestry

Forestry profession are among the oldest in Croatia. The training of forestry personnel began in 1860 with the establishment of the Economic Forestry Institute in Križevci, which was the first forestry school in this part of Europe. An academic education of forestry personnel started in 1989 with opening of the Forestry Academy in Zagreb.

The educational programs of forestry in Croatia are divided on three levels: high school education, Universities and professional programs for overqualification.

More recently, the concept of forest pedagogy has been included in schools. The project that implements forest education in school program is "**School in the Forest and a Forest in the School**" and is led by the state forest company „Croatian forests Ltd.". They cooperate with 17 different kindergartens, schools and colleges with the goal to implement forest experts in all public elementary schools in Croatia doing outdoor and indoor classes. This segment could be rather important for the raising awareness of the importance and the role of forests and forest sector. With further

progress of the forest pedagogy in Croatia, the project could evolve into a significant platform for female employment in forestry.



Figure 43: Forest pedagogy class in action (February 2020)

The last data that was systematically collected and processed was for the school year of 2012/ 2013. It shows that the share of the sector of forestry, on the national level, is quite small, with **986 enrolled students in high schools** representing 1.28 % of the total of the students in the vocational schools, and **1.036 in high education institutions** which makes 0,55 % of all university programs in Croatia.

Table 27: Students enrolled in high school a University programs in 2012/2013

HIGH SCHOOL PROGRAMS	Number of enrolled students in forestry educational programs	986
	Number of schools that offer forestry programs	10
	Number of schools that offer vocational programs	305
	Number of students enrolled in all vocational schools	84.001
	SHARE OF FORESTRY HIGH SCHOOL PROGRAMS IN RC %	1,28
UNIVERSITY PROGRAMS	Number of students in forestry university programs	1.036
	Number of universities that offer high education in forestry	2
	Number of all students enrolled in university programs	188.462
	Number of Universities that offer high educational programs	136
	SHARE OF FORESTRY UNIVERSITY PROGRAMS IN RC %	0,55

Source: (MZOS-SSS baza za strukovne programe; MZOS-VSS baza za visokoškolske programe, 2012/2013. godine)

The sector of forestry and wood processing technology include 6 different 4-year high school programs that offer forestry education, two three-year programs and 4 vocational retraining three-year programs, so 12 active educational programs in total (Agency for adult and vocational education, Sector profile, 2019).⁵⁸

On the level of 3-year programs, vocational high school in Karlovac, also has adult education programs of overqualification that can last up to two years. There are different training courses for chainsaw operator, manufacturer of forest tractors and buckler of wood assortments, hydraulic crane operator, chainsaw operator, and gusset cleaner operator of a lawnmower and thresher cleaner.

There are many more educational centres that have vocational educational programs and retraining. They are listed in the table below.

⁵⁸ See: <https://www.asoo.hr/UserDocsImages/projekti/kvalifikacije/ishodi/planiranje%20kv/sumarstvo.pdf>

Table 28: Educational institutions in the Eduforest network

Mreže / Institucije <i>Networks/Institutions</i>	Opis <i>Description</i>
Eduforest International	Eduforest predstavlja internet platformu koja ima za cilj promicati šumarsko obrazovanje, osposobljavanje i usavršavanje u Europi, te lakše umrežavanje aktera istih interesa. <i>Eduforest is an internet platform which aims to promote forestry education, training and further training in Europe and to facilitate the networking of actors.</i>
Europski šumarski institut <i>The European Forest Institute (EFI)</i>	EFI je vodeća javna šumarska istraživačka institucija u Europi. <i>The EFI is the leading forestry research network in Europe.</i>
Savez europskih šumara <i>Union of European Foresters (UEF)</i>	UEF je mreža privatnih i javnih šumskih organizacija koja također pruža pregled tečajeva treće razine osposobljavanja. <i>The UEF is a network of private and public forestry organisations; the network also provides overviews of third-level training courses.</i>
ENQuaFor	ENQuaFor je Europska mreža za kvalifikacije u šumarstvu. <i>ENQuaFor is the European Network for Qualification in Forestry.</i>
Europska mreža šumarskih poduzetnika* <i>European Network of Forest Entrepreneurs (ENFE)*</i>	ENFE pokreće i provodi razne programe koji se bave pitanjem vezanim za obrazovanje i osposobljavanje poduzetnika u šumarstvu. <i>The ENFE runs various programmes dealing with the issues surrounding forestry education and training.</i>

* ENFE kao samostalna organizacija nestaje tj. ista djeluje u sklopu novoosnovane Europske organizacije izvođača u poljoprivredi, ruralnim područjima i šumarstvu (Ceettar)!

* ENFE as an independent organization disappears, i.e. the same acts within the newly established European Organisation of Agricultural, Rural and Forestry Contractors (Ceettar)!

As for Universities, two of them offer undergraduate and one graduate program. The Faculty of forestry at the University of Zagreb has a long tradition of education since 1898. It offers three different undergraduate studies and five graduate ones. The other University that offers study connected to forestry is Karlovac University of Applied Sciences with undergraduate program of Applied sciences in gamekeeping and environmental protection.

Table 29: High education of forestry in Croatia

The Faculty of Forestry in Zagreb	
The Faculty of Forestry is an internationally recognized institution for the education of a highly skilled personnel required in the fields of forestry, wood processing and furniture production.	
Undergraduate studies 3 years	Graduate studies +2 years
Forestry	Silviculture and forest management with wildlife management Techniques, technologies and management in forestry
Urban forestry, nature conservation and environmental protection	Urban forestry, nature conservation and environmental protection
Wood technology	Wood technology processes Design of wood products
Applied science of wood technology (Virovitica)	
Karlovac University of Applied Sciences	
The mission of the Polytechnic University is continuous improvement of study programs, implementation of the program of lifetime studying, and researches in correlation with the needs of the economy	
Undergraduate studies 3 years	
Applied Science in Game Keeping and Environmental Protection	

2.4.8 Overview of initiatives and projects to support women in forestry

Chamber of Forestry and Wood Technology Engineers was a partner in 2014 to the Institute for Development and International Relations in the implementation of the project "Promotion of Entrepreneurship and Crafts in the Forestry and Timber Sector". One aspect of that project was the representation of women entrepreneurs in the above sectors.

Besides that, there is no history of more workshops organized specifically for females in the forest industry. Initiatives and projects organised as a support for women in forestry in Croatia are a matter of their future plans and aspirations.



Figure 44: Fairy of Velebit (author: Ana Bašić)

2.4.9 Literature

Links

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<https://www.asoo.hr/obrazovanje/strukovno-obrazovanje/kurikulumi-nastavni-planovi-i-programi/sumarstvo-prerada-i-obrada-drva/>

Publications

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- HZMO, lipanj 2014 https://www.mirovinsko.hr/UserDocsImages/statistika/statisticke-informacije/2014/2/Statisticke_informacijeHZMOa_2_2014_srpanj2014.pdf
- (Ministarstvo rada i mirovinskog sustava, Metodologija za izradu i tumačenje profila sektora, 2015) <http://www.kvalifikacije.hr/sites/default/files/documents-publications/2017-08/Metodologija%20za%20izradu%20i%20tuma%C4%8Denje%20profila%20sektora.pdf>
- Landekić M., and associates, Šumarski list 7-8, 2017., Vocational training of workers in the forestry sector – the situation in Croatia and trends in Europe https://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=274863



2.5 Country Report: Czech Republic

Authors: Petra Palátová, Vilém Jarský, Michal Hrib, Roman Dudík, Marcel Riedl, Martin Jankovský

2.5.1 Forest sector

The Czech Republic is a member country of the European Union, located in central Europe, surrounded by Slovakia, Germany, Austria and Poland. The capital city is Prague. The total area of the country is 78.870 km² and total number of inhabitants is 10.5 million people. The average unemployment rate reached 2% (2019), the average wage was 1.264 EUR (34.125 CZK). In comparison to the EU 28 countries⁵⁹, average GDP reached 90% of the EU level. The share of forestry on GDP is 0.69% (MoE, 2017; Report on forests, 2019).

Forestry in the Czech Republic falls under the Ministry of Agriculture. Statistical data and information concerning forestry in the Czech Republic are issued mainly by the Czech Statistical Office, the Forest Management Institute and the Forestry and Game Research Institute. The annually published report informing about the state of forests and forestry in the Czech Republic is the Report on the state of forests and forest management in the Czech Republic published by the Ministry of Agriculture. Important subjects are state enterprises - Lesy České republiky, s.p. (Forests of the Czech Republic) and Vojenské lesy a statky, s.p. (Military Forests), that are presented in subchapter 2.5.5 Forestry includes CZ NACE 02⁶⁰ *Forestry and logging*, that can be further divided into:

- Forestry and other forestry activities,
- Logging,
- Collection and harvesting of wild fruits and materials, except wood,
- Support activities for forestry.

Forestry and wood processing are among the industries with a long tradition in the Czech Republic. The related wood-processing industry is mainly represented by CZ NACE 16 Wood processing, manufacture of wood, cork, wicker and straw products, except furniture (CZ NACE 31) and in the category of paper industry can be found under CZ NACE 17 - Manufacture of paper and paper products. CZ NACE 32 covers so-called Other manufacturing (e.g. musical instruments, toys and sports equipment made also from wood). These CZ NACE sectors fall under the Ministry of Industry and Trade.

The area of forest land in the Czech Republic is constantly growing, in 2019 it was 2.675.670 hectares. Total area of forests owned by state is 1.461.000⁶¹ hectares, out of which Forests of the Czech Republic manages 1.218.000 hectares, Military forests

⁵⁹ Data from 2019

⁶⁰ Classification of economic activities used by European Commission, CZ prefix specifies that activities are carried out in the Czech Republic

⁶¹ There has been changes in this number in the past few years due to the ongoing process of returning forest properties from state to churches

manages 122 thousands hectares and 95 thousands of hectares are managed by the National Park Administrations (eAgri, 2020 a).

The average forest cover is 34.1%. Coniferous trees predominate, spruce (49.65%) has the highest share of all tree species, followed by pine (16.1%). In 2019, 32.58 million m³ of timber (to the top of 7 cm o.b.) was harvested, of which 31.31 million m³ were coniferous. This high number is hand in hand with the amount of salvage fellings. These past years were extreme in the amount of fellings, e.g. in 2015 the total amount did not exceed 16 million cubic meters of timber (Report on forests, 2015; 2019). The structure of output in forestry was as follows: sawlogs and veneer logs (29.28%), net annual increment of standing timber in cultivated forests (25.29 %), non-forestry secondary activities (inseparable activities - transport, game management etc.), forestry services (15.3%), other forest products (Christmas trees, berries, brush) – 7.79% followed by pulpwood and other industrial roundwood (6.46%) and fuelwood including wood for charcoal - 4.53% (CZSO, 2020).

Raw wood exports are to a large extent to EU countries (38.8% to Austria, 21% to Germany, 7.1% to Slovakia and 5.7% to Poland). Forests in the Czech Republic are certified by the PEFC system (1.771.054 hectares) and also FSC system (113.198 hectares). Entering forest is allowed without fee, also into the private forests (the exception is mostly in areas of military forests or nature protected areas). Visits to the forest are also associated with the collection of forest fruits. The most frequently collected fruits include mushrooms, blueberries, raspberries and blackberries. Even 65% of households collect mushrooms. Non-wood products are important as well as the average annual value of collected berry species is estimated to be worth more than 86 million EUR at 2018 prices (Riedl et al., 2020; Report on forests, 2020).

2.5.2 Labour market and job opportunities in the area of forestry

2.5.2.1 People employed in forestry and unemployment data of graduates

Changes in number of employees and structure for a period of 50 years can be found in work by Fanta and Šišák (2014), where the time period ends in 2011. The number of employees in forestry activities has been recently stable. In 2019 it was 13.615 persons (of which – 6.294 in private forests, 5.171 in state forests and 2.150 in municipal forests). The average wage is lower than the average wage of the national economy, but it has been slightly growing over the years (Report on forests, 2019).

For the purpose of providing complete information on the labour market, information on selected fields of study in forestry is presented in the table below. It displays data on secondary education with an apprenticeship certificate (categories H, E), full secondary vocational education with school-leaving examination (so-called “maturita exam” – category M) and continuing education (L5).

Table 30: Graduates in forestry and their unemployment (selected data)

Education category	Field	Number of graduates	Unemployment rate of graduates
H	Forest mechanizer	116	5.2 %
H	Forestry machinery repairman	72	4.2 %
H	Wood processor	6	0 %
E	Forestry work	8	12.5 %
M	Forestry	144	0.7 %
L5	Mechanization of agriculture and forestry	8	0 %

Source: Zelenka, 2019

In total and according to the latest data available, there were 697⁶² graduates from universities, that provide education in the field of forestry (Faculty of Forestry and Wood Sciences in Prague – FFWS and Faculty of Forestry and Wood Technology in Brno – FFWT), out of which 258 are women (37%). The unemployment rate for graduates from FFWS CZU is low – only 1.9%. The highest unemployment is for bachelor graduates, which is true also for FFWT. The total unemployment rate for FFWT is 2.1% (Zelenka, 2019).

⁶² All study programmes in total (2019)

2.5.2.2 Forest pedagogy

„The Ministry of Agriculture supports the educational activities covered by Forest Pedagogy, which brings visitors to a forest closer to the forest ecosystem, sustainable forest management, the meaning of forest management and the benefits that a forest brings to one (eAgri, 2020 c).“

A forest pedagogue is an expert with a forestry education or experience in forestry and a successful graduate of a certified forest pedagogy course. There is a list of subjects concerned, each of them having a contact person – from the whole list, the share of women and men is almost equal (26/25).⁶³

2.5.3 Forest ownership

Ownership and forest management is regulated by Forest Act and regulations implementing and following this act. The owner is obliged to manage his/her forest in cooperation with forest manager (a licensed natural or legal person who provides the owner with professional level of management and its compliance with the law). This is valid irrespective who the owner is (natural or legal person).

The Ministry of Agriculture supports forest management with services (fire-fighting services, advisory services) and financial contributions - restoration of forests damaged by emissions, skidding or dragging by horse, processing of forest management plans⁶⁴ etc. (eAgri, 2020 b). Advisory services are also provided by Forestry and Game Management Research Institute (FGMRI). Its aim is research in forest management and also consulting services for state administration and forest owners. Women make 19% in the management, which is 4 female representatives within 21 members (FGMRI, 2020; and from the documents of the organization).

There were no major changes in forest ownership structure in the last 20 years. The biggest change was around 5% of the ownership structure, when forest land was returned back from state to churches (SVOL, 2020b). There are still some ongoing changes between these subjects (state and churches), however the change will not be significant (estimation: up to 2%).

The most important owner of forests (with regard to the forest area) in the Czech Republic is the state, of which the state enterprise Forests of the Czech Republic manages most of the area. The ownership structure can be analysed in detail with regard to the specific form of ownership and gender issues. Presented data in this subchapter result from a project of the Ministry of Agriculture of the Czech Republic

⁶³ See: www.lesnipedagogika.cz; 3 contacts were not mentioned so no information on gender is available (total number is 54 contacts)

⁶⁴ Plans for forest management, usually for a period of ten years; according to the Forest Act

entitled *Forest ownership fragmentation and its impact on forest policy*. The input data for the analysis use data from the Cadastre of Real Estate⁶⁵ (managed by the State Administration of Land Surveying and Cadastre), which provides official data on property rights to real estates. The presented data are as of 1.1. 2020.

Land - forest plots - can be identified on the basis of the exact location and assignment to a specific owner (including co-ownership). The owner can be divided into 3 basic ownership categories – legal persons (LP), individuals (I) and non-share co-ownership of spouses (NSCOS). In Table 2, the state is also considered below the LP (for detailed description of LP see table 3) in the total number (from the ownership point of view, the state equals 1 LP). The identification of the owner's sex is based on the information of the part of the birth number (for NSCOS of both persons), which allows to determine whether it is a man or a woman.

In 2020, a total of 2.286,732 records of ownership are available, of which 3,626 records cannot determine ownership (in total, this is an area of 12.662 hectares).

Table 31: Ownership structure of forests in the Czech Republic

Category	Number in 2020	Forest area in 2020 (hectares)	Share of area
State		1.417.324	53.24 %
Legal persons	13.439	752.943	28.28 %
Individuals	346.345	464.807	17.46 %
Co-ownership of spouses	27.079	27.315	1.03 %
In total	386.863	2.662.389	100.00 %

In absolute terms, individuals predominate among private owners, who make up almost 90% of forest owners in the Czech Republic. The database also includes 27.079 NSCOS owners and 13.439 legal persons owning forests.

⁶⁵ See: <https://www.cuzk.cz/en>

Legal persons

As of 1 January 2020, there were 13,439 legal persons in the Czech Republic (in this case excluding state-owned forests) owning 28.28 % of forests; their more detailed division into groups is summarized in the table:

Table 32: Characteristics of legal persons

Type of legal persons	Number in 2020	Hectares in 2020
Municipalities	5.700	485.524,88
Companies	5.430	105.721,80
Church	1.286	140,546,63
Society	884	1,128,00
Unknown	54	463,32
Foundation	33	465,24
Science and research	23	15.542,09
Region	18	3.481,81
State (foreign)	10	69,10
Total	13.438	752.943

Individuals

As of 1 January 2020, there were more than 346.345 individuals as (co-)owners of forests in the Czech Republic. The average size of these assets is small, the size of individual assets, including the breakdown by gender, is summarized in the following table:

Table 33: Characteristics of individuals

Category (hectares)	Number of owners	Men	Women	Unknown gender
> 10000	1	1	0	0
> 1000 and <= 10000	24	20	4	0
> 250 and <= 1000	78	43	35	0
> 100 and <= 250	162	111	51	0
> 50 and <= 100	170	116	54	0
> 10 and <= 50	2,639	1,980	657	2
> 5 and <= 10	7,738	5,607	2,129	2
> 3 and <= 5	13,116	8,832	4,279	5
> 1 and <= 3	55,487	34,934	20,517	36
> 0,5 and <= 1	47,960	28,261	18,991	708
> 0,1 and <= 0,5	103,628	55,837	44,342	3,449
<= 0,1	115,342	54,342	52,280	8,720
Total	346,345	190,084	143,339	12,922

The table shows that only one individual owns assets of more than 10.000 hectares. Two thirds of individual owners own smaller areas than 1 hectare.

The importance of gender

As of 1 January 2020, the sex remained unknown in only 12.922 (3.7%) persons owning 1.642 hectares (0.4%). A more significant share of women (over 40%) in terms of number is only in the category of 250-1000 hectares and then in the two smallest size categories. Women do not predominate in any of the size categories, their relatively high share of the total number is due to the significant representation in the smallest size categories. The share of women in the total area owned by individuals is 30%. 51% of individuals own property without co-owners, resp. 70% of the area. Taking gender into account, the differences between male and female owners are further widening – there are 44% of women from the total number of owners who do not have a co-owner (compared to 58% of men).

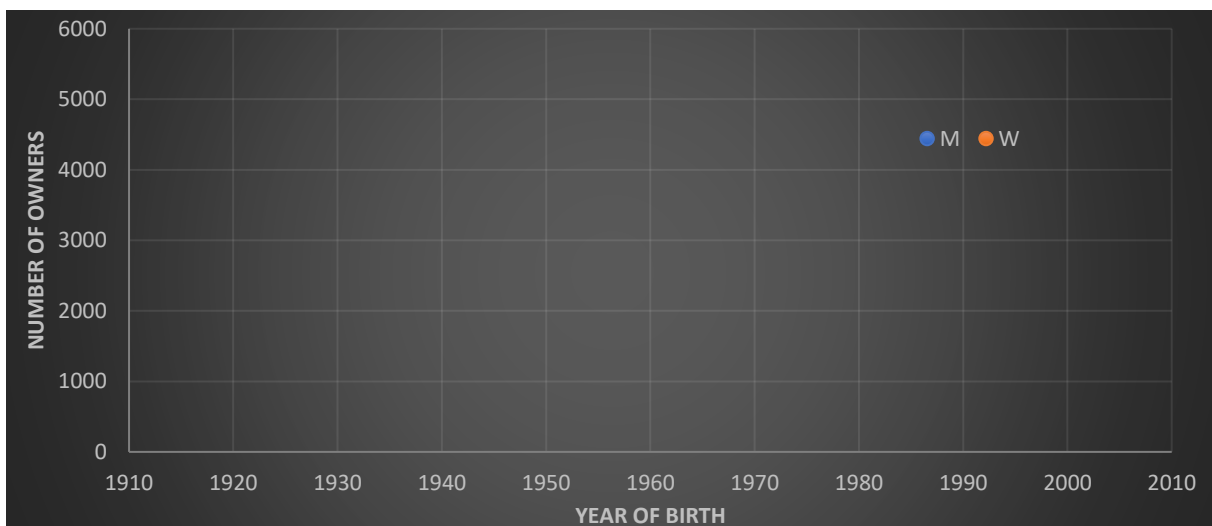


Figure 45: Number of owners born in certain years distinguishing the gender (M=male, F=female), own processing

The figure above shows the number of owners by gender in each age category. 46.6 % of the number of owners are people born between 1951 and 1970 with almost half the share (48.3 %) of the owned area. More than ¼ areas is owned by people born before 1950; 7% before 1940. A very small proportion of owners (0.3% of all, 0.1 % of area) are people objectively deceased, but still registered in the Cadastre.

2.5.3.1 Forest owner associations

Sdružení vlastníků obecních a soukromých lesů v ČR – The Association of Municipal and Private Forest Owners in the Czech Republic (AMPFO)

It is a voluntary non-profit organization for non-state forest owners and managers, founded in 1992. At present, AMPFO represents 20% of the total forest area in the

Czech Republic with more than 1.300 members (communities, towns, private forests, forest co-operatives, church, unions of small-scale owners). AMPFO mission is to participate in forming forest policy, standards, to draw attention to benefits of community and private forest properties, to increase prestige of forest staff and promote wood as a renewable resource. All members of the board are men. (SVOL, 2020a).

Sdružení vlastníků a správců lesních majetků ČR - Association of Forest Owners and Managers (AFOM)

The Association is an interest association that covers the group certification of forests for the region of the Czech Republic (CZ) using the PEFC system. The list of individual participants in group certification in the CZ can be found on the PEFC CR website⁶⁶. More detailed information was provided by AFOM.

From the total number of 311 certification participants, it is possible to deduce the legal form of certification participants, where natural persons make up about 15% of participants, municipalities 72%, state organizations 2% and other legal entities 11%. In this case, the participant means an entity that is interested in participating in forest certification. One such subject, resp. participant, however, may apply for the involvement of several of its forest management units in the certification. As for the contact person for individual participants in the certification, 90% are men and the remaining 10% are women. In the case of women, 38% of them have a university degree, the remaining 62% of women have a secondary education.

The contact person is a person (usually an employee of the participant) who is in charge of the formal communication of the certification participant with AFOM, e.g. he/she processes the formal application for participation in the certification, email communication is directed to him/her etc. An important person for every forest owner and also for the participants in the certification, is the position of the so-called professional forest manager (mentioned above). In the case of certification participants, women make up only 1% of the positions of professional forest manager, mainly women with a university degree.

⁶⁶ See: <http://drzitele.pefc.cz/tuh/index.php>

2.5.4 Forest administration

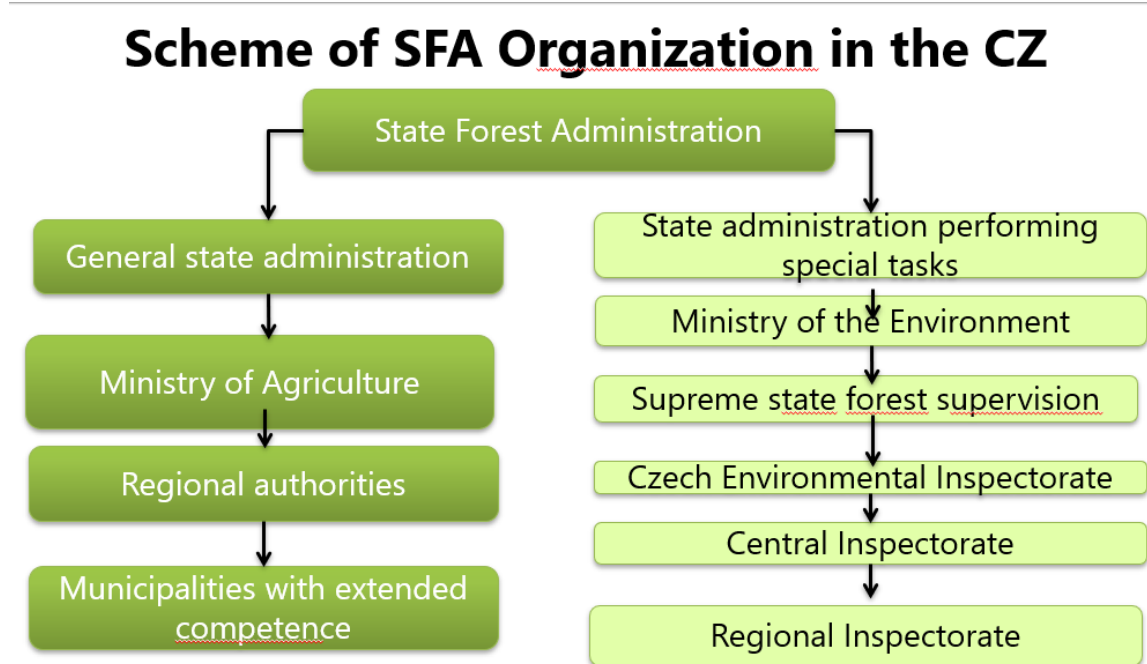


Figure 46: Scheme of state forest administration in the Czech Republic (own processing)

The organization of the state forest administration is implemented in two lines. The left part of the diagram describes the scheme of the general state forest administration. This involves the administrative bodies that perform and ensure administrative proceedings under the Forest Act No. 289/1995 Coll., Act on the marketing of forest reproductive material No. 149/2003 Coll. and Act on placing timber and timber products on the market No. 226/2013 Coll. The administrative bodies have control over the implementation of the above-mentioned laws which specifically regulate forest administration. The administrative bodies in this three-level succession are the Ministry of Agriculture at the highest instance and the regional authorities and municipalities with extended competence at the two lower instances. Municipalities with extended competence are authorities with decision-making competences delegated to them by the state.

The right part of the scheme describes the organization of state administration performing special tasks - especially the bodies of the Ministry of the Environment. According to Czech law, the Ministry of the Environment has the right of supreme state supervision and functions as the central state administrative authority and supreme inspection authority in environmental affairs. This manifests itself in the performance of practical activities of state forest administration in compliance with the environmental legislation enforcement. This is performed by the Czech Environmental Inspectorate, which focuses on forests and forest management as a component of the

environment and thus supervises potential threats or damage to forests not in accordance with the regulations of forest law (Forest Act), but by considering forests as part of the environmental protection.

For the purpose of our study, we will further deal with the bodies of the general state forest administration. Since the state administration reform in 2000, the general state forest administration has been organized into three levels. The model of the state administration is thus organized as a model of the so-called mixed state administration. This means that the central body of the state forest administration is the Ministry of Agriculture of the Czech Republic and the bodies which fall under the Ministry of Agriculture at the two lower levels are authorities operating under the bodies of territorial self-government (regional authorities and municipalities with the so-called extended competence). They perform delegated tasks including decision-making in administrative proceedings and other forest administration-related competences. This means that the state has transferred to these authorities (or entrusted them with) decision-making competences in matters of state forest administration, without creating its own system of special bodies of state forest administration. The state thus reimburses their staff costs for carrying out state forest administration.

For the sake of completeness, it is necessary to mention the deviating regime of the state forest administration in the national park forests, where the state forest administration in the territory of national parks is performed through the national park administrations and the Ministry of the Environment. These include forests in four national parks (NP, 2020):

- The Bohemian Switzerland National Park– BSNP (declared in 2000, share of forests: 96.1%)
- Podyjí National park (declared in 1991, share of forests: 85.1%)
- The Krkonoše Mountains National Park (declared in 1991, share of forests: 87.5%)
- Šumava National Park (declared in 1991, share of forests: 79.1%)

Looking at the gender structure, men as employees and directors predominate.

Table 34: Employees of National Parks

	Šumava NP	Podyjí NP	BSNP	Krkonoše MNP
Director	Man	Man	Man	Man
Deputies	4 men, 1 woman	3 men, 1 woman	5 men	3 men, 1 woman
Number of women and share of women	96 (34.8%)	11 (27.5%)	N/A	86 (31.2%)

A special body of the state forest administration is the Military Forest Office, which performs state forest administration in the so-called military districts - in forests inaccessible to the public, which serve military purposes and defense of the state. The area of these forests reaches approximately 125.000ha.

The first-instance bodies of the state forest administration are municipalities with the so-called extended competence. Currently, there are a total of 6.253 municipalities in the Czech Republic. However, state administration is not performed by all municipal authorities, but only by some - those in larger municipalities or cities. They are so-called municipalities with extended competence. There are currently 205 of these municipalities (municipal authorities). The second-instance (superior and appellate bodies) bodies are regional authorities. There are 13 regional authorities and the capital city of Prague, which has a special status and position of a regional authority.

In most administrative proceedings, the first-instance bodies of the state forest administration are municipalities with extended competence and the superior body is the regional authority. For some proceedings, such as the approval of forest management plans, the first-instance body as well as the appellate body is the regional authority (in such cases the superior body is directly the Ministry of Agriculture).

The highest body of the state forest administration is thus the Ministry of Agriculture, which has transferred part of its competencies to a so-called authorized person, which is the Forest Management Institute (FMI) in Brandýs nad Labem⁶⁷. This organization is an authorized person for acts and administrative proceedings of the state forest administration in accordance with the Act on the marketing of forest reproductive material and in accordance with the Act on placing timber and timber products on the market. The FMI maintains a central database with information about forests of the Czech Republic, forest management and hunting.

The numbers of persons performing the above-described state forest administration are given in the following tables.

⁶⁷ See: <http://www.uhul.cz/home>

Table 35: Numbers of persons performing general state forest and game management administration (as of 1st November 2020)

State forest administration body	Number of men persons (%)		Number of women persons (%)		Total persons
Ministry of Agriculture	23	60.5%	15	39.4%	38
Regional Authority	98	64.9%	53	35.1%	151
Municipalities with extended competence	483	66.6%	242	33.4%	725
Total	604	66.1%	310	33.9%	914

Source: FMI at the request of the authors of the study

Table 36: Employees of the authorized person - Forest Management Institute, broken down by sex (as of 31st December 2019)

Age	Men	Women	Total
To 20	0	0	0
21-30	40	13	53
31-40	74	40	114
41-50	100	64	164
51-60	29	40	69
61 +	38	19	57
Total	281	176	457

Source: FMI at the request of the authors of the study

Table 37: Employees of the authorized person - Forest Management Institute, broken down by educational attainment (as of 31st December 2019)

Education	Men	Women	Total
Elementary	2	7	9
Apprentice	6	15	21
Vocational	2	0	2
Full secondary	3	6	9
Full secondary vocational	48	78	126
Higher professional	11	5	16
University	209	65	274
Total	281	176	457

Source: FMI at the request of the authors of the study

A survey of the total number of persons who provide state forest and game management administration within the general state forest administration shows that

the representation of women has reached 34%. This trend does not differ significantly at the individual levels of the state forest administration. On the contrary, it remains approximately the same both at the Ministry of Agriculture (Forestry Section) and at the level of regional authorities and first-instance bodies - municipalities with extended competence.

Among the employees of the Institute for Forest Management - authorized person, the share of women reached 38.5% in 2019. None of the institutions has implemented a special program to support or increase the proportion of women in these jobs. If we also analyze for example the share of women in leading positions, this share would be even significantly lower, e.g. at the level of the Ministry of Agriculture (Forestry Section) there is not a single woman in the position of the head of a department or division. At regional authorities, the representation of women in leading positions of state forest or game management administration is 15%. At the level of municipalities with extended competence, however, women already occupy 35% of the leading positions in the state forest and game management administration.

2.5.5 Companies and enterprises in forestry and related services

Lesy České republiky, s.p. – Forests of the Czech Republic (LČR)

This state company was established by the Ministry of Agriculture of the Czech Republic in 1992. Total number of employees is 3.450 (VZ LČR, 2019). The main aim is to manage state-owned forest estates, waterways and swift creeks. LČR among other activities provide service to private small forest owners, namely the function of professional forest manager as prescribed by law for all small forest owners. LČR is certified under the PEFC system.

Its organizational structure is divided into three-levels:

- Headquarters,
- 11 regional units (directorates), 4 forest enterprises, 1 seed operation and 7 water management units,
- 64 forest management units.

In the management positions, there are no women. The CEO is a man, the 4 directors are men as well. The company's supervisory board consists of men only (10 members).

A substantial part of the silvicultural and logging operations is carried out by contractors on the so-called contractual territorial units (CTU). Individual contracts are competed in a public procurement competition, while specific contracts at CTU may be different in their content. Table 38 (below) presents a list of contractors who were successful in the public tender for the so-called complex contract (includes the implementation of operations in silviculture, logging and the purchase of wood by the contractor). These contractors represent larger business entities in forestry, which are economically strong enough to be able to implement a contract that usually lasts for 5 years. At the same time, these are entities to which banks are willing to provide high bank guarantees for the purpose of forestry contracts.

Table 38: Major suppliers of services in forestry in the Czech Republic in 2020

Major suppliers of services in forestry in the CZ	
ACLESIA, spol. s r.o.	Lesní společnost Ledeč nad Sázavou
AGRO-DŘEVO s. r. o. ⁶⁸	Lesní společnost Litoměřice, a.s.
Agrowald Rožmberk s.r.o.	Lesostavby Frýdek-Místek a.s.
ARBOLES, s.r.o.	Lesy Beskydy, a.s.
DEBLICE - lesy s.r.o.	LST a.s.
DŘEVO - MÁLEK s.r.o.	Marles s.r.o.
GIRAFFE BUILDINGS s.r.o.	Milan Maršalík
HEDERA ZIMA, spol. s r.o.	Opavská lesní a.s.
HOLZ CZ s.r.o.	PETRA spol. s r.o.
Ing. František Novák	Pradědský lesní závod, a.s.
JACER - CZ, a.s.	RM FOREST lesní společnost s.r.o.
Jihozápadní dřevařská a.s.	SOLITERA, spol. s r.o.
KATR s.r.o.	Stora Enso Wood Products Ždírec
KHL-EKO, a.s.	Sušická lesní a obchodní s.r.o.
Kloboucká lesní, s.r.o.	T.E.P. HOLZ, s.r.o.
Královské lesy s.r.o.	T.E.P.Z., s.r.o.
LDF Rožnov a.s.	TIS LIGNUM s.r.o.
LESCUS Cetkovice, s.r.o.	Triumfa Energo s.r.o.
Lesní společnost Bečov, s.r.o.	UNILES, a.s.

Source: LČR web pages, 2020

Vojenské lesy a statky, s.p. – “Military Forests”

Again, a state company, established by Ministry of Defence. Main activities are forest production, timber trade, gamekeeping, fishing, agriculture, security services for military buildings for the founder. The total number of employees is 2.415 (out of that 1.942 manual workers). The structure of organization is divided according to forest management localities and business activities (6 divisions), one Agriculture production division and one Tree nursery administration. At present, VLS provide approximately

⁶⁸ Legal form of the companies: s.r.o. = LLC, a.s. = PLC

half of all forestry activities on its own account, the second half through business entities on the basis of concluded contractual relations.

The director as well as division directors are all men. The financial deputy and production deputy directors are men. In the supervisory board: 9 members out of 10 are men, one is a woman (VZ VLS, 2019; web pages of the company).

2.5.6 Forest-focused interest groups

Česká komory odborných lesních hospodářů – Czech Chamber of Professional Forest Managers

The Czech Chamber of Professional Forest Managers z.s. is a civic, non-profit, voluntary, independent, non-political, professional association of foresters, who are licensed to work as professional forest managers. The Chamber was established in 2003. As of 2020, the Chamber has 157 registered members, who manage forests on an area of about 100.000 hectares (ČKOLH, 2020).

Sdružení taxačních kanceláří – Association of Mensurational Offices

It is an interest association of legal entities founded in 1997 mostly aimed at forest management planning. There are 11 member companies, all of which have male representatives. The company is headed by men - chairman and 2 vice-chairmen (STK, 2020 a,b).

Sdružení lesních školkařů ČR – The Forest Nursery Association of the Czech Republic

The Forest Nursery Association of the Czech Republic covers 68% of total forest seedling production area in the Czech Republic. It was established in 1995 and currently has 67 members (21 women work in leading positions within the membership base) who manage 1.026 hectares of forest nurseries. Objectives of the association are protection and promotion of the members' interests, collaborate with research institutions, provide latest information and opportunities for improvement of forest management practices, participate in solving problems in the forest nursery sector and also organize extension and training courses for members. In the Presidium and Control commission, there is only 1 woman and 9 men. (SLŠ ČR, 2020 and from the documents of the organization).

Česká asociace podnikatelů v lesním hospodářství – Czech Association of Entrepreneurs in Forestry

It is a professional, voluntary, association of legal entities, companies doing business in the field of forestry and wood processing, whose main interest is to defend the legitimate interests of small and medium-sized enterprises of regional importance. It was founded in 1995. The association has 13 full members and 1 associate member. The board consists of 5 men, the supervisory board consists of 3 men (ČAPLH, 2020 a, b).

Asociace lesnických a dřevozpracujících podniků – Association of Forestry and Wood Processing Companies

It is an association that envisages cooperation with other professional unions and other civic associations of the forestry and timber sector, as well as with all state administration bodies of the Czech Republic and the EU with the aim of promoting the legitimate interests of its members. The subject of the association's activities is within the economic and legislative environment, sustainable forest management and use of wood, promotion of wood as raw material, support for education and research activities. Presidium is formed by men - 5 members (ALDP, 2020; from the documents of the organization).

Lesnicko-dřevařská komora – Forestry-wood Chamber (FWCH)

It is an interest association of legal entities from the forestry and primary wood production sector (also legal entity itself). FWCH is an interest community in the sense of the statute of the Agrarian Chamber of the Czech Republic. The FWCH currently has 13 members, representing the most important business entities in the forestry-wood sector, state-owned forest managers, institutions from academia and research, vocational education and companies focused on lifelong education in the field. In fact, its members are also some of those included in this subchapter 2.6. The board and supervisory board have 8 members, only one woman (LDK, 2020; from the documents of the organization).

Česká lesnická společnost – Czech Forestry Society

It is a voluntary, non-political, professional social organization, associating natural and legal persons, established in 1990. The main activity of the association is to ensure the growth of the professional level and education of its members and other interested parties, to focus on development in forestry, forestry research, to work with youth, especially in the form of forest pedagogy, to protect nature and landscape in the Czech Republic and comment on basic issues in the field of forestry, lumbering, cultural landscape protection and nature protection. In the Committee and the Control Commission of the association, women make up 20% ("employees"). In the Committee itself women make up 14% (12 men and 2 women). Furthermore, women make up

15.5% ("members") in the membership base of the association (Česles, 2020; from the documents of the organization).

Českomoravská myslivecká jednota – Czech-Moravian Union of Hunters

The Czech-Moravian Union of Hunters is associating hunters since 1923. It has 60.000 members. For them and for the general public, the union protects hunting as a cultural heritage and takes care of its sustainable development. Within the Union, there are also other organizational units, one of them is "Club of ladies of the Czech hunters⁶⁹". The club members are from all Czech regions, from more than 60 hunters' unions. The total number of women in this club exceeds the number of 150 (ČMMJ, 2019 a,b).

Lesnická práce, s.r.o. (publisher)

Is the largest national publisher of literature in forestry and also serve operator of Silvarium⁷⁰, which is the most visited forest information server in the Czech Republic with 100.000 visits per month. There are 12 employees in total (5 men and 4 women) and in management 4 people, out of that 1 woman (from the documents of the organization).

⁶⁹ See: <https://www.damyceskemyslivosti.cz/en/>

⁷⁰ See: <http://www.silvarium.cz/>

2.5.7 Education and training in the field of forestry

Stages of the education system

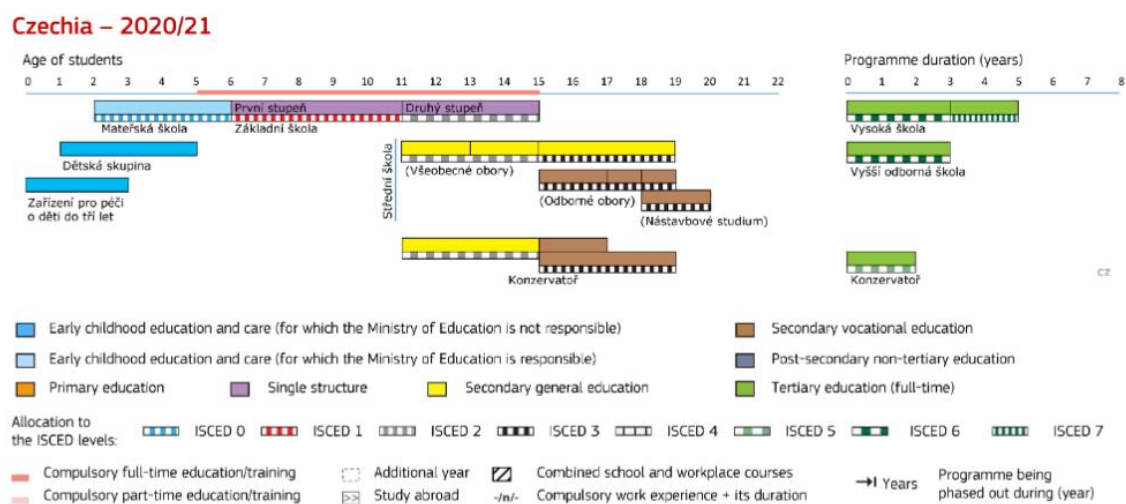


Figure 47: Education system in the Czech Republic

Source: Eurydice 2020/21

The figure provides an overview of the education system in the Czech Republic. With regard to the education in the field of forestry, it is covered by high schools, higher vocational schools and universities, so basically it starts at the age of 15 years. Study programs that end with an apprenticeship certificate are more practical and graduates usually enter the work process directly (as forest mechanizers, repairers of forestry machinery and equipment, skilled workers in forest production and related activities, in conversion depots and in the field of production of reproductive material, in activities in forest establishment, workers' activities in founding, cultivation and forest and in minor forest produce).

Students with so-called Maturita exam (leaving exam) after 4 years of studies at high schools can start working or continue their studies at a higher vocational school or universities (maturita is a prerequisite for an admission to study). These graduates are employed as forest technicians, within the state administration (forestry, hunting, nature protection etc.), but also as independent entrepreneurs in forestry, hunting, timber trade and primary wood production, as professional consultants etc.). Graduates of higher vocational schools work mainly as forest managers, independent entrepreneurs, or in state administration and nature and landscape protection. The total number of 6 high schools provide forestry education with school-leaving exam, 2 of them together with higher professional education.

University education in forestry is provided by two faculties - Faculty of Forestry and Wood Sciences of the Czech University of Life Sciences Prague and Faculty of Forestry and Wood Technology at the Mendel University in Brno. Both provide bachelor, master and doctoral study programs.

Universities

Faculty of Forestry and Wood Sciences (FFWS CZU Prague)

Female employees represent 25% of all employees. At leading positions, 7 % are women (57) – vice-dean, 2 members of academic senate, 1 member of scientific council. Within academic and scientific workers, women represent 26.6% (49 women). Among all students (irrespective the programs and type of study – full-time, part-time) women represent 33.5 %. Share of female graduates among all graduates is 35.3% (VZ FLD and VZ ČZU, 2019).

Table 39: Students (number of studies) in 2019

Type of study	Bachelor study programs		Master study programs		PhD studies		In total
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Total number of students	894	454	205	196	131	18	1898
Female students	281	165	72	67	47	4	636
Share of women (%)	31.4	36.3	35.1	34.2	35.9	22.2	33.5
Share of women (%)	33.08		34.7		34.2		

Source: Annual report of the University (CZU Prague, 2019)

Table 40: Graduates (as of 2019)

Type of study	Bachelor study programs		Master study programs		PhD studies		In total
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Total number of students	166	54	84	43	18	0	365
Female students	61	22	26	12	8	0	129
Share of women (%)	36.7	40.7	31	27.9	44.4		35.3
Share of women (%)	37.7		29.9		44.4		

Source: Annual report of the University (CZU Prague, 2019)

Krejčí et al. (2018) published an article in which they investigated the intention of forestry students (from FFWS CZU) to work in the field of forestry after graduation. Total number of respondents was 168 (out of which 67% were men). 45,2% (76 students) answered they *would work* in the field, 40% *would probably work in the field* (67 students), 10% *would rather not work in the field* (16 students) and 5% *not intended to work in forestry* (9 students).

Faculty of Forestry and Wood Technology (FFWT Mendel University in Brno)

Leading positions are advocated by women from 11% (8 women in total – 2 vice-deans, 3 members of academic senate, 2 members of scientific council, 1 head of the department). Among academic and scientific employees, women's share is 28.9% - 87 women (VZ Mendelu, 2019).

Table 41: Students (number of studies) in 2019

Type of study	Bachelor study programs		Master study programs		PhD studies		In total
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Total number of students	840	129	260	67	93	25	1414
Female students	334	33	129	19	32	8	555
Share of women (%)	39.8	25.6	49.6	73.1	34.4	32	39.3
Share of women (%)	37.9		45.3		33.9		

Source: Annual report of the University (Mendel University in Brno, 2019)

Table 42: Graduates (as of 2019)

Type of study	Bachelor study programs		Master study programs		PhD studies		In total
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	
Total number of students	160	18	118	24	9	3	332
Female students	77	7	38	3	4		129
Share of women (%)	45.3	38.8	32.2	12.5	44.4	0	38.9
Share of women (%)	47.2		28.9		30.8		

Source: Annual report of the University (Mendel University in Brno, 2019)

Higher vocational schools (higher professional education)

Higher vocational education is provided by the Higher Vocational School of Forestry and Secondary Forestry School of Bedřich Schwarzenberg in Písek, and the Czech Forestry Academy Trutnov - secondary school and higher vocational school (in both cases in a part-time study). In Písek, female graduates make up 25% (but there is a small number of graduates, a total of only 8 students). Due to little interest, the first year of higher education in Trutnov has not been opened recently, and there are currently no graduates in this study program.

Forestry high schools

In total, 6 high school provide education in forestry with a maturita exam (4 years of study). Information below present the structure of employees and graduates with respect to gender where possible. Only high school in Hranice provide education only in forestry (with maturita exam). Other schools provide also other fields of study (e.g. study programmes with an apprentice certificate), however the number of graduates is always presented only for Forestry with maturita exam due to the aim of this study.

Table 43: Summary table for high schools in the Czech Republic

Name of the school	Gender issue
High school of Forestry Hranice	<ul style="list-style-type: none"> • 79 employees (more women than men – 42) • Pedagogical workers: mostly men, women’s share is 34.6% (9 out of 26). • Management: Principal is male, 2 deputies are male, 1 deputy is woman. <p>Women graduates’ share is 26.5% (13 from 49).</p>
High school of Forestry and Secondary Forestry School Šluknov	<ul style="list-style-type: none"> • 55 employees (27 females) • Pedagogical workers are mostly men, there are 14 women (35.9%). • Management of the high school is completely set up by men (principal and 3 deputies).
Czech Forestry Academy Trutnov - secondary school and higher vocational school <i>Also higher vocational school</i>	<ul style="list-style-type: none"> • 46 teachers in total, in that 11 women (22.4%) • No female in leading positions (man is a principal and 2 male deputies).
High school of Forestry Žlutice	<ul style="list-style-type: none"> • Share of women is higher than share of male employees. 13 women out of 21 in teaching staff (61.9%) • Principal and 2 deputies are all women <p>There are no data for gender with respect to graduate students. In all studies there were 14 graduates in total.</p>
High school of Forestry and Secondary Forestry School Křivoklát	<ul style="list-style-type: none"> • Total number of teachers is 29 – with 10 of them being females. • Men are at leading positions (principal and 1 deputy).

	Total number of students, who successfully passed the leaving (maturita) exam is 14.
Higher Vocational School of Forestry and Secondary Forestry School of Bedřich Schwarzenberg in Písek Also higher vocational school	<ul style="list-style-type: none"> • Women's share among teachers is 23% (34 teachers in total). • Principal and deputy are both male. <p>Female graduates represent 19.6% in total number of 46 graduates (maturita exam).</p>

Source: Source: web pages of the high schools (SLŠ Hranice, SLŠ Křivoklát, SLŠ Písek, SLŠ Šluknov, SLŠ Trutnov, SLŠ Žlutice, 2020) and their annual reports (VZ Hranice, VZ Křivoklát, VZ Písek, VZ Trutnov, VZ Šluknov, 2020; VZ Žlutice, 2019)

2.5.8 Overview of initiatives and projects to support women in forestry

In the Czech Republic, we are not aware of direct initiatives aimed at promoting women in forestry. The truth is that Czech Republic belongs to the countries where the differences between men and women exist, the so-called gender pay gap is 20,1 %. That is also the issue of current project of The Ministry of Labour and Social Affairs. Studies (documents available) are as follows: *Current disparities in remuneration of women and men in the Czech Republic (2017)*, *Gender pay gap in the Czech Republic (2018)*, *Tracking down unequal pay (2020)*, *Legislative options of equal pay for women and men (2020)*. The national strategy documents are *Action Plan for Equal Representation of Women and Men in Decision-making Positions for 2016 to 2018* and *Government Strategy for Equality of Women and Men in the Czech Republic for 2014 – 2020 (Equal pay, 2020)*. At the Office of the Government of the Czech Republic, there is also a Department of Gender Equality.

2.5.9 Literature

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2.6 Country Report: Germany / Bavaria

Authors: Kathrin Böhling, Roland Schreiber

2.6.1 The forest sector

Bavaria is considered a major forest state in Germany. The Bavarian Ministry of Economic Affairs started to support the “Forestry, Wood and Paper Cluster” in 2006. It covers the forest-based industries, including forestry, sawmilling, woodworking, manufacturing, pulp and paper, publishing and printing. They are considered key for Bavaria’s economic and regional development, contributing 3.5% to the total GDP. The annual turnover of the Cluster is substantial. It increased from 30.3 Billion (Md.) € in 2006 to 40.6 Billion (Md.) € in 2018 and occurred mainly in wood construction, sawmilling and furniture manufacturing (Fig. 36). Within this overall picture, forestry represents the smallest share. It generated a turnover of 1.1 Billion € in 2018, which is a steep increase however if compared to the 100 Mio. € turnover in 2004.

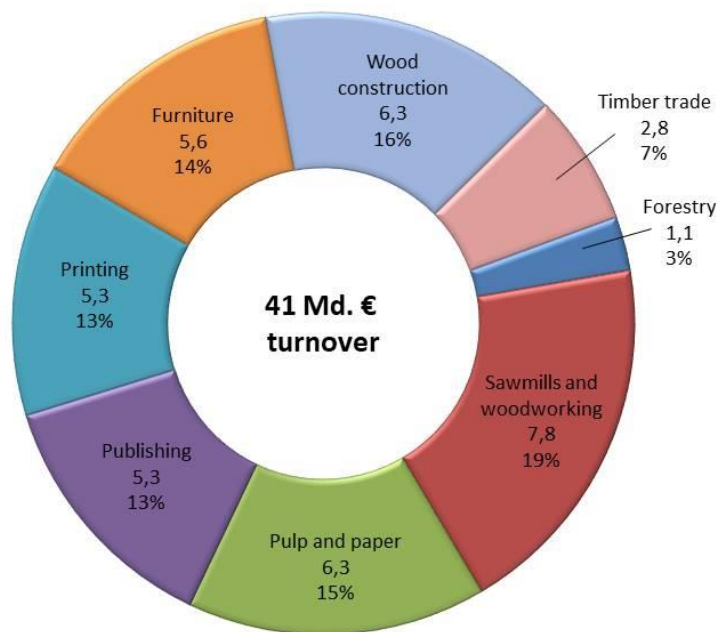


Figure 48: Turnover forest-based industries in Bavaria (2018)

Source: Forestry, Wood and Paper Cluster, Munich, Bavaria (n.d.)

Forestry in Bavaria provides significant volumes of raw materials to various industries. It managed to increase its efficiency and turnover in the early 2000s, while selling most of the timber and wood products domestically. E.g., whereas Bavaria exported 2.2 Mio t round wood in 2006 (mainly to Austria), in 2014 it imported 450.000 t (mainly from Czech Republic). This change in timber trade is ascribed, among others, to the increased sawmilling capacities and the growing demands of the pulp and paper industry (Knauf et al. 2016).

More than one third or 2.45 Mio ha of Bavaria’s land surface is covered by different types of forests. (Norway) Spruce (42%), pine (17%), (European) beech (14%) and oak (7%) are the main trees in Bavaria. Other recurrent species include (silver) fir, larch, maple and ash tree, yet in much smaller numbers. Two thirds of forests are coniferous (64%) (“Nadelwald”), more than one third are deciduous (36%) (“Laubwald”) (Status: 2012). As shown in the figure below, the share of deciduous forests increased significantly over the last 40 years. The Bavarian forest law (1974) defines the goal to preserve or restore natural forests appropriate to the location, which means mixed forests with higher shares of hard wood and game management. Mixed forests generate higher yields, increase productivity and resilience, and sustain the protective function of forests (Tretter 2017).

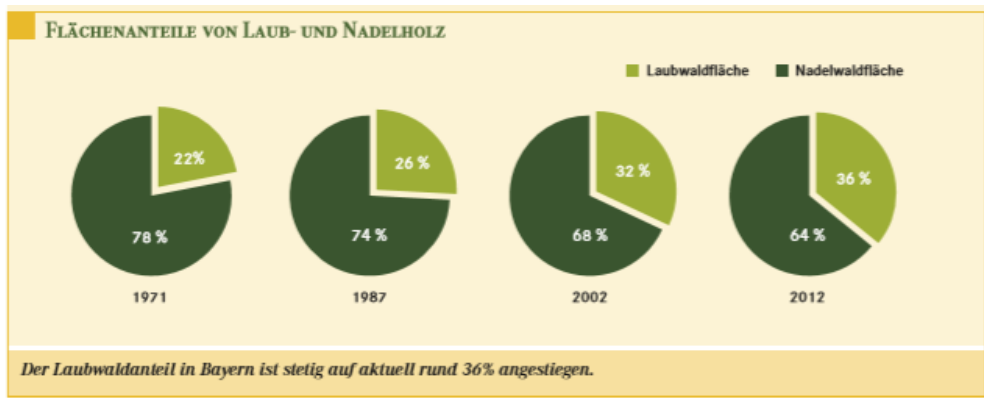


Figure 49: Share of coniferous and deciduous forests in Bavaria over time

Source: Bavarian State Ministry of Food, Agriculture and Forestry (n.d.)

The annual growing stock of Bavarian forests was 29.5 Million m³ between 2002 and 2012, which equals 1 m³ per second. Of these, 95% (28.1 Million m³) was harvested or remained as dead wood in Bavaria’s forests. More recent data is currently not available but it appears likely that rising temperatures, changing carbon dioxide concentrations and the higher frequency of extreme weather events affected the more recent annual growth rates substantially (Mette and Kölling, 2015).⁷¹ Adapting forests to climate change and increasing the resilience of forest ecosystems are important goals of Bavaria’s forest policy. Over the last 20 years, several initiatives were created and incentives provided to reach out to private forest owners for these ends (see section 2.6.4). Forests and harvested wood products store 18 Mio t CO² annually, which represents 23% of Bavaria’s total annual emissions.

⁷¹ See: C.M. Zohner et al. (2020) Late spring frost risk between 1959 and 2017 decreased in North America but increased in Europe and Asia. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 117 (22) 12192-12200 (01/10/2020)

Timber harvesting is the major source of income generated with forests (> 90%). However, differences apply depending on the size of the forest holdings. Whereas large-scale forest owners (> 200 ha) and the Bavarian State Forest Company are major providers of round wood and other forest products, small-scale forest owners (< 50 ha) use harvested timber mainly for private purposes (energy, buildings) (Hastreiter 2019).

The Bavarian State Institute of Forestry assessed alternative sources of income from forests (Kantelberg and Koch 2017). Structural changes in forest ownership and growing attention for payment schemes for ecosystem services triggered this assessment. It revealed the forest sector's one-sided emphasis on timber harvesting (round wood, energy wood) and showed that limited interest and incentives hampered the creation and support of markets for:

- **Non-wood forest products**
Berries, honey, mushrooms, herbs, game, seedlings, Christmas trees, agro-forestry, bottled water
- **Forest services**
tourism, nature protection, hunting, event management, forest pedagogy, renewable energy (hydropower, location for wind turbines)

Hence, there is attention for the potential to generate alternative sources of income from forests, yet limited action. It depends on strong personal motivations and abilities to collaborate across sectors whether business opportunities beyond timber harvesting are developed.



Caption:
Most frequent NWFP-notions in analysis of regional marketing initiatives: Christbäume = christmas trees; Wildbret = game meat; Wild = game; Brennholz = fire/fuel wood; Honig = honey; Führungen = excursions; Wanderwege = trails; Forstpflanzenproduktion = forest seedling production

Figure 50: Non-wood forest products

Source: Bavarian State Institute of Forestry, Kantelberg/Koch (2017)

Prices for round wood have dropped significantly between 2018 and 2020 whereas concepts for the marketing of regional products for rural development gained further ground. Both might trigger the development of non-wood forest products in Bavaria's forest sector.

2.6.2 Labour market and job opportunities in the area of forestry

There are currently 4.900 jobs in forestry in Bavaria (from 3.700 in 2007). Bavaria is the major provider of round wood in Germany and key to the forest-based industries. Forestry incentivizes job creation. Its employment effects in sawmilling, wood construction, the manufacturing of furniture, pulp and paper, printing and publishing depends on the extent to which these industries rely on domestically sourced forest products. The present Cluster statistics, on which the figures below rely, do not cover the >1.400 foresters and forest professionals employed at the Bavarian Forest Administration. Moreover, non-wood forest product entrepreneurs are not included. Finally, the Cluster statistics do not distinguish between male and female. Sections 2.6.4 und 2.6.5 provide specified employment data for Bavaria's forest administration and corporate setting.

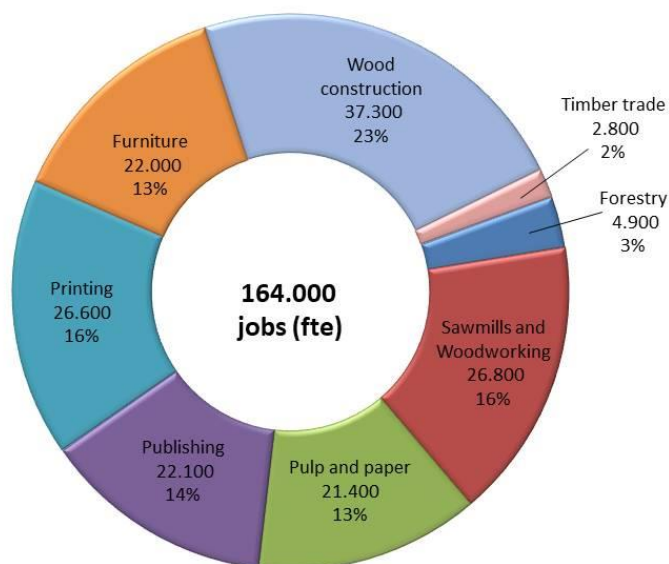


Figure 51: Employment in forest-based industries in Bavaria (2019)

Source: Forestry, Wood and Paper Cluster, Munich, Bavaria (n.d.)

Constructing with timber generated major employment effects – from 27.200 FTE (Full Time Equivalent) jobs in 2007 to 37.300 in 2019. A slight increase can also be observed in the furniture industry, whereas the woodworking and sawmilling as well as pulp and paper industries were able to keep employment constant at high levels. Printing and publishing witnessed significant cuts – from roughly 60.000 in 2007 to less than 50.000 in 2019, while increasing their turnover from 4.5 Billion € in 2004 to 5.3 Billion € each in 2018 though (numbers not covered in figure below).

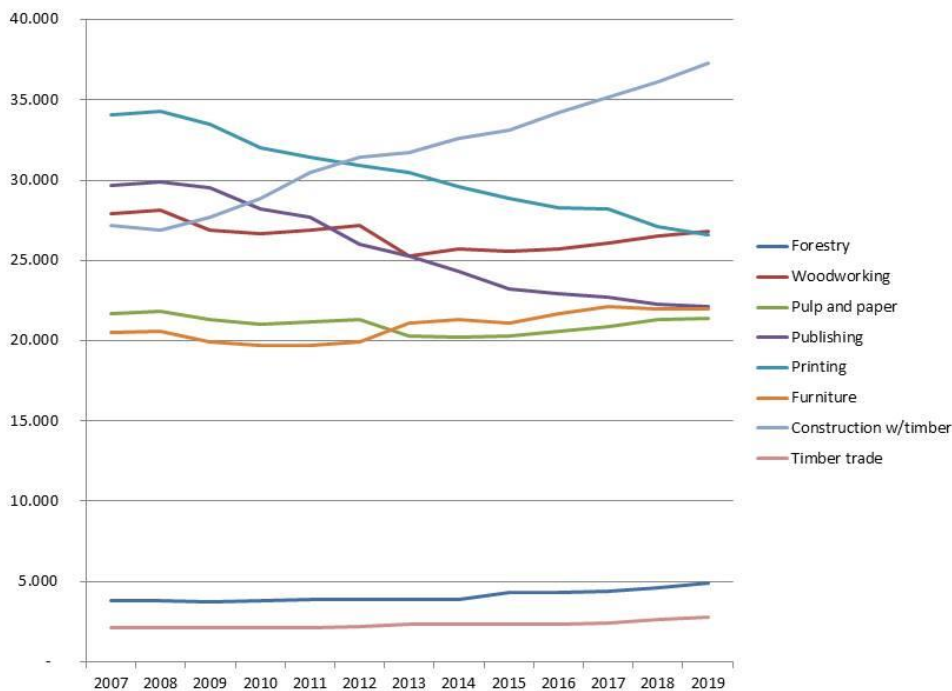


Figure 52: Employment trends in forest-based industries

Source: Forestry, Wood and Paper Cluster, Munich, Bavaria (n.d.)

The increase of jobs in forestry coincides with two major developments in the forest sector. First of all, a major reform of the forest administration which led to the creation of the state-owned forest company Bayerische Staatsforsten in 2006. The Company started managing Bavaria's 755.000 ha of state forests for profit and generated high turnovers until 2018. Secondly, Bavaria's Forest Owner Associations (FOAs) advanced their professional services for private owners and facilitated wood mobilization (Suda et al. 2017) (see section 2.6.3.1).

Currently, climate change affecting forests generates significant impacts on the forest sector. In October 2020, a trade union survey revealed that forest professionals

experience higher workloads and are challenged to manage a broader range of tasks.⁷² Almost 13.000 forest professionals from across Germany participated in the survey. Forest damage due to bark beetle and natural hazards created higher workloads for afforestation, rejuvenation, transportation of round wood, risk management and safety measures. Moreover, regulatory oversight, offering consulting services to forest owners as well as engaging with the public became more burdensome. Finally, the large majority of respondents indicated that tasks require advanced know-how (e.g. silviculture, ecology, and digitization).

The need to adapt forests to climate change has been on the agenda of forest science and policy in Bavaria for at least 15 years (e.g. Böhling & Arzberger 2013; Kölling 2007, 2012; Petercord et al. 2008) and has reached forest owners.⁷³ Starting in 2008, the state of Bavaria initiated several programs to support forest owners with funding for climate-tolerant, mixed forest stands and resources for project management. Building on these programs, a large-scale forest conversion strategy was adopted in 2018 which aims at adapting 200.000 ha of private forest land to climate change over the next 10 years. It entails 200 Mio. € and 200 additional jobs in the forest administration; i.e. 20 Mio. € and 20 new colleagues per year.

The share of women in the forest workforce has steadily increased over the last two decades, yet at low levels, ranging between 5 and 15% (see sections 2.6.4 and 2.6.5). Whether climate change or other developments in the context of forests and forestry drive up their share remains to be seen. At her opening speech for an exhibition on women and forests, Bavaria's forest minister Michaela Kaniber emphasized: "We must do much more for stable and climate-tolerant forests. To achieve this, we need the women as never before."⁷⁴

2.6.3 Forest ownership

The Free State of Bavaria is considered a major forest country within the Federal Republic of Germany. Almost 2.5 Million ha or more than 35% of its land are covered by forests. Forest cover is largest in the states of Rhineland Palatine and Hesse with 42%, each with 850.000 ha and 895.000 ha respectively. Germany as a whole is covered by 11.420.000 ha of forests, which amounts to one third of the land (BMEL, 2014).

⁷² See: <https://igbau.de/Ergebnisse-der-IG-BAU-Umfrage-Wald-Klima-Schutz-Hohe-Arbeitsbelastung-der-Forstbeschaeftigten-im-Klimawandel.html> (accessed 23/11/2020)

⁷³ For instance, Bavaria's forest administration is faced with higher numbers of funding applications for forest measures. In some parts of Bavaria, applications have doubled or tripled even between 2019 and 2020

⁷⁴ See: <https://www.stmelf.bayern.de/wald/publikationen/211876/index.php> (accessed: 24/11/2020)

Table 44: Forest ownership in Bavaria

		2013		2019	
		Forest cover (ha)	Share (%)	Forest cover (ha)	Share (%)
Federal forest land		38.000	1.5%	37.350	1.5%
State owned forest land		755.000	30.5%	759.366	30.4%
Municipalities		276.000	11.2%	280.519	11.2%
Public ownership		1.069.000	43.2%	1.077.235	43.2%
Private forests	< 5 ha	455.000	32.3%	450.409	31.8%
	5 – 20 ha	478.000	34.0%	480.224	33.9%
	20 – 200 ha	261.000	18.4%	263.222	18.5%
	> 200 ha	213.000	15.1%	223.216	15.7%
Private ownership		1.406.000	56.8%	1.417.070	56.8%
Total		2.475.000	100%	2.494.305	100%

Source: Bavarian State Institute of Forestry / Hastreiter (2020)

Private ownership dominates Bavaria's forest ownership pattern. 56.8% or 1.4 Million ha of forest land is owned by private, mainly small-scale forest owners (Hastreiter 2019). Moreover, the state of Bavaria is the largest forest land owner among German states. Forest cover in Bavaria increased across the different ownership types more recently but has not changed the ratio of public and private forests. The distribution of public, private and institutional ownership differs somewhat for Germany as a whole. Private forest owners hold one third (33%), almost half of forest land is in public ownership (48%) whereas municipalities, churches and foundations own 19% of German forests (private institutions).

Forest inventory data for Germany from 2012 revealed that the growing stock is highest in Bavarian forests, namely 396 m³ per ha (Germany: Ø 336 m³ per ha).⁷⁵ Moreover, high volumes are more likely in private forests <100 ha. The highest volume can be found in private forests <20 ha, namely 464 m³ per ha.⁷⁶ The issue of high wood volumes and the decreasing role of farming in rural areas gave rise to research on forest

⁷⁵

See: <https://bwi.info/inhalt1.3.aspx?Text=3.01%20Eigentumsart&prRolle=public&prInv=BWI2012&prKapitel=3.01> (29/09/2020)

⁷⁶

See: <https://bwi.info/inhalt1.3.aspx?Text=3.02%20Eigentumsgrößenklasse%20im%20Privatwald&prRolle=public&prInv=BWI2012&prKapitel=3.02> (29/09/2020)

ownership changes. As in many other European countries, the forest ownership structure has become more diverse in Germany.

In Bavaria, the notion of “urban forest ownership” attracted a lot of attention in the early 2000s. As part of this research, a study on different owner types was conducted, which found that the share of private forests in female hands is significant (Schaffner 2006). There are 622.475 forest owners in Bavaria including the state, churches, municipalities and foundations. Of these, 605.307 are individuals: 40 % are women, 60% are men.

Table 45: Number of forest owners in Bavaria (2019)

Women	Men	Institutions public, private	Total
245.091	360.216	17.168	622.475

Source: Bavarian State Institute of Forestry / Hastreiter (2020)

The number of female/male owners does not overlap with forest size. Roughly one third of private forests is in female hands. As shown in the table below, women own almost 450.000 of private forest land, either as sole owners or shared with spouses and family members. The larger share is owned by men. Ownership by women, men and institutions increased over the last decade. Shared ownership, however, decreased. Because women tend to become older while forests are still mainly inherited, the share of forests in sole female ownership will continue to increase. The average age of private forest owners in Bavaria is 56.5 years for men and 59.8 years for women (Status: 2011).

Table 46: Private forests owned by individuals and private institutions

	2009		2019	
Private ownership (2019)	Forest cover (ha)	Share (%)	Forest cover (ha)	Share (%)
Female	199.960,6	14.1%	219.962,7	15.5%
Male	719.795,9	50.8%	795.460,3	56.1%
Shared (f/m)	338.385,5	23.9%	222.682,4	15.7%
Churches, foundations	157.389,4	11.1%	178.964,4	12.6%
Total	1.415.531,4	100%	1.417.069,8	100%

Source: Bavarian State Institute of Forestry / Hastreiter (2020)

Suda et al. (2009) projected that the share of private forest owners with no farming background will increase to 60% in 2030. In 1977, the share of these non-traditional forest owners was 9%. They tend to lack the skills and know-how as well as the machinery needed to manage their forests. These changes were perceived to affect the sustainable management of private forests. In the face of growing demands for forest biomass, small-scale ownership structures are considered a significant impediment. Moreover, the dramatic effects of climate change on forests, especially in the North of

Bavaria, require more active management. Over the last decade, Bavaria's forest administration has therefore invested in additional measures to adapt forests to climate change and increase their resilience.

The growing diversity among forest owners went hand in hand with different attitudes and motivations towards forests and forestry. Research on urban forest owners in Bavaria, which included female ownership, revealed a multi-faceted range of motivations, including timber extraction for energy and buildings, recreation, nature protection, family tradition or independence (Enzenbach et al., 2008; Krause, 2011). Female owners tend to hold smaller forest holdings in Germany (Judmann 1998; Steinkamp 1983). Moreover, the average forest holding of female owners is less than 2 ha in Bavaria as compared to 3.4 ha held by the average male owner (Status: 2004) (Schaffner, 2006). If forest holdings are small, hands-on knowledge lacking and no dependence on forest income exists, timber extraction is not a primary concern of female forest owners (Schwenninger 2018).

2.6.3.1 Forest ownership associations

In Germany, local and regionally based forest owner associations (FOAs) provide a range of management services to their members, including:

- Buying and selling timber;
- Managing forest holdings;
- Consulting (business administration, subsidies);
- Education and information (presentations, discussions, excursions);
- Public relations (mobilizing forest owners for active forest management).

Forest owner associations emerged from private initiatives in the years following the Second World War when small groups of individual private owners collaborated in order to manage the effects of storms and other calamities in their forests jointly (Huml 2010). As of 2019, there are 134 forest owner associations across Bavaria with >172.000 members and representing 1.3 Mill. ha of forest land. Looking at the > 600.000 private individuals with forest ownership, a modest 30% are FOA members, yet representing 70% of forest land, which means that FOA members tend to own larger forest holdings.

The overall volume of marketed timber is 4.568.831 cm³ (spruce: 83%, pine and other soft wood: 11.4%, hard wood: 5.2%). On average, a Bavarian forest owner association organizes 1.404 members, covering roughly 10.600 ha (StMELF, 2020). There are no disaggregated data for female/male membership available. Looking at the distribution of membership across the ownership size categories, as listed in the table below, implies that a smaller share of female owners is represented in the associations than their male peers.

Table 47: Member structure of Bavarian FOAs (Status: 31/12/2019)

Forest size (ha)	Members		Forest cover Members (ha)		Ø Values FOAs	
					Members	Forest cover (ha)
< 1	24.172	14.0%	13.233,3	1.0%	197	108
1 – 5	91.056	52.7%	244.099,3	17.1%	740	1.822
5 – 10	33.272	19.3%	225,878,5	17.2%	271	1.836
10 – 20	16.164	9.4%	213.453,5	16.3%	131	1.735
> 20	8.018	4.6%	632.915,3	48.3%	65	5.146
	172.682		1.309.508		1.404	10.647

Source: Bavarian State Ministry of Food, Agriculture and Forestry & Forest Owner Associations in Bavaria

FOAs tend to be less interested in very-small scale forests of < 2 ha because of high transaction costs for wood mobilization. Nonetheless, they are considered an important means to overcome the structural deficits of small-scale forests and ensure the integrated management of private forests in Bavarian forest policy (Schreiber & Hastreiter 2009). After a large forest reform in 2005, the state's forest administration delegated information, management and advisory tasks to the owner associations by means of subsidies and with support of civil servant foresters. FOAs receive funding for a broad range of activities they are engaged in (within the De Minimis EU regulations), including marketing of timber, training of their members, and for provision of forest stewardship contracts. Moreover, as support provided by the Bavarian State Forest Administration civil servant foresters are allocated to FOAs to reach out to the individual members to raise awareness for and ensure successful applications of state subsidies (e.g., silviculture, road building).

A recent study evaluated the performance and future challenges of FOAs (Suda et al. 2017). The response rate was rather high (63%). 85 out of the 136 FOAs that existed at the time of study participated in the evaluation. The study revealed that FOAs evolved into competitive organizations for the marketing of forest timber whereas the spectrum of forest services has become broader. It covers production and marketing of forest biomass for energy, the professionalization of devising forest stewardship contracts to individual owners, and the provision of training activities and information events. The large majority of the participating FOAs perceive the growing share of "urban forest owners" as a significant business opportunity.

Currently, there are 134 FOAs in Bavaria. Of these, 22 list women as managing directors or as board members. The figure illustrates their unequal distribution across Bavaria's regions – from zero in Upper Bavaria, Upper and Lower Franconia, and Upper Palatine to 3 from 20 in Swabia and significantly higher shares in Middle Franconia and Lower Bavaria.

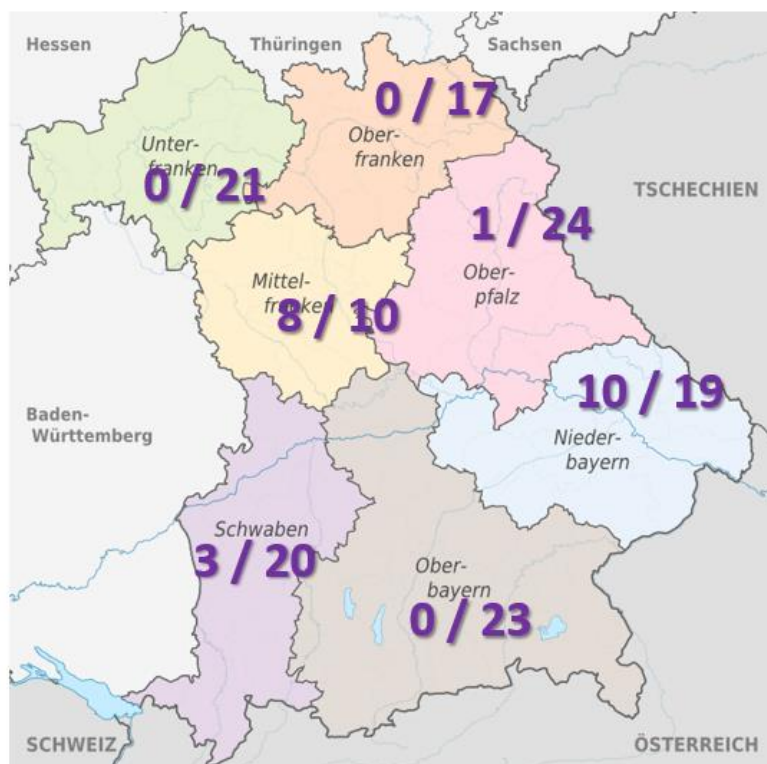


Figure 53: Female leaders in Bavarian FOAs (Source: Own elaboration)

Seven board members participated at a workshop, organized by LWF in October 2019, and shared their views and perspectives. The workshop addressed their

motivations to act as board members, their perspectives on mixed teams, opportunities and challenges of acting as board member, and finally, their views on future developments. The table below summarizes key insights to these questions.

The FOAs in Bavaria do not play a major role for female ownership in the forest sector. But they have potential to evolve into important arenas for women to assume responsibilities for the active management of forests, the development of business opportunities and to interact with stakeholders in forest administrations, policy and society.

Table 48: Results from LWF Workshop with female leaders of Bavarian FOAs

Motivation to act as board member	<ul style="list-style-type: none"> • Act as role model for other women in male domain • Use opportunity to perform • Recognition • Forests and nature • Importance of FOA
Merits of mixed teams	<ul style="list-style-type: none"> • Pooling of different perspectives breeds successful teams • Helps to become established in male-dominated structures • Creates positive image of forests and forestry in public • Addresses growing diversity of forest owners • Improves work organization

<p>Opportunities and challenges as female board member</p>	<ul style="list-style-type: none"> • Requires trust, training and competitive attitude <p>Opportunities:</p> <ul style="list-style-type: none"> • Become active and get things done • Attract women • Address societal concerns • Generate interest in FOAs, forests and forestry in society • Partner with forest administration and other FOAs <p>Challenges:</p> <ul style="list-style-type: none"> • Technical know-how and knowledge of business operations is limited, incl. issues related to marketing of timber • Communication with managing director and office may be ineffective • Responsibilities and division of labour sometimes unclear
<p>Hopes for future development</p>	<ul style="list-style-type: none"> • Solid business operations and viable business opportunities • Resilient forests • Good teamwork • Acceptance of women in leading positions • Supportive networks in policy and forest administration (local level) • Co-create new projects with partners in civil society

2.6.4 Forest administration

Forests are complex ecosystems that provide a range of goods and services. Forest administrations play key roles in safeguarding these services, ensuring a balancing between them and providing extension. They can affect management decisions by way of regulations, taxes, incentives and advice. In Bavaria, private forest owners enjoy relatively high degrees of freedom in decision-making over forests, including definition of goals and means in forest management planning, the types of trees to be harvested or the imposition of environmental regulations (Nichiforel et al. 2018). Private forest ownership is based in the “freedom with responsibility” principle.

Providing advice and access to funding are key tasks of the Bavarian State Forest Administration.⁷⁷ It defines its overall aims as follows:

- strengthening the competitiveness of sustainable forestry
- warranting the multiple functions of forests
- supporting forest owners to assume their responsibilities
- creating awareness for forests and acceptance of forestry in society

The Bavarian forest administration consists of: (a) the forestry department in the State Ministry of Food, Agriculture and Forestry, (b) the forest branches in the local Offices for Food, Agriculture and Forestry, (c) the Bavarian State Institute of Forestry as well as

⁷⁷ Moreover, the Bavarian forest administration oversees the state forest company “Bayerische Staatsforsten”, which is obliged to manage the state forest in due form and sustainable.

(d) the ten educational centres for forests. Forest extension and regulatory oversight is conducted via the 47 local Offices, which are widely dispersed across the country. These Offices report to the State Ministry, consist of an agriculture and a forest branch, each led by high-rank civil servants. The Offices' forest branches are subdivided into four to eight forest districts, led by civil servant foresters (with training as forest engineers).

As of October 2020, an administrative reform will start reducing the number of local Offices to 32. Forest administration staff will not be cut. Demographic changes in leadership positions are used to merge the smaller Offices into bigger ones and respond to lower demands for farming educations with cuts in the number of schools for farming across the country. This "re-orientation" of the local Offices is justified with reference to climate change, animal wellbeing, resources protection, biodiversity and digitization.

The Bavarian Forest Administration is subject to the Equal Opportunities Act, which was adopted in 1996 (amended in 2006) and is obligatory for the public sector. It seeks to achieve a higher share of women in those areas where they are underrepresented, enhance equal opportunities for men and women, and ease the reconciliation of work and family life. It regulates, for instance, that female candidates should be preferred over male candidates if requirements for performance, expertise and eligibility are equally met. In line with the Act, employers report data and measures to achieve equal opportunities for women and men at the workplace. This section draws on the information as provided in the recent equal opportunities reports from the State Ministry of Food, Agriculture and Forestry and of the Bavarian State Institute of Forestry (2018).⁷⁸

Overall, Bavaria's forest administration employed 1.414 staff members in 2017 (FTE) (Status: 30.06.2017): 989 as civil servants and 425 in additional functions for forest work, administration, research and extension. 84% (831) of civil servant staff are trained foresters, covering the two higher civil servant ranks: Q4 (Univ. M.Sc. + 2 yr training position) and Q3 (Univ. of Applied Sciences B.Sc. + 1 yr training position). The figure below shows that the number of female foresters among civil servants in Bavaria's forest administration has increased over the years: from 98 (2013) to 123 (2017), representing an increase of 25.5%. In the same period, the share of male foresters at high civil servant ranks decreased by 6.7% from 759 to 708 FTE staff.

⁷⁸ Gleichstellungskonzept 2018 für das Bayerische Staatsministerium für Ernährung, Landwirtschaft und Forsten sowie nachgeordnete Bereiche; Gleichstellungskonzept der LWF 2018-2023

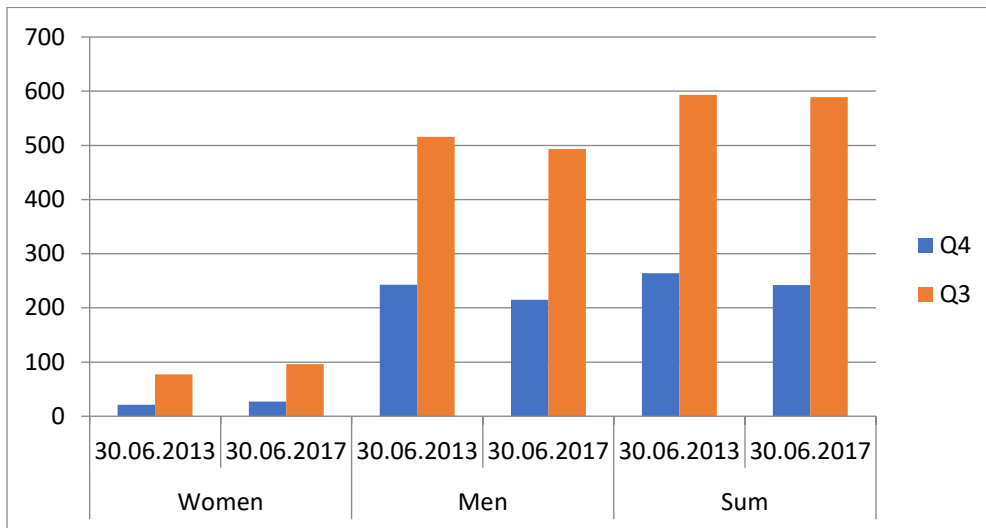


Figure 54: Civil servant foresters at Bavarian forest administration

Source: Bavarian State Ministry of Food, Agriculture and Forestry, Equal Opportunities Report, 2018

Despite this increase (and a growing share of female graduates from forest study programs), the share of women holding leadership positions is still relatively small. One forest unit in the ministry (out of 8) is led by a woman (12.5%), two out of the 47 local Offices are led by women (4.26%), two women hold deputy leadership positions in the Offices (4.26%), whereas eight positions as leader for Office units are held by women (out of roughly 100) (2%).

Research and knowledge transfer is organized in eight units at the Bavarian State Institute of Forestry: none of them is led by a woman, one is co-led by a woman whereas the Institute's administrative unit however is. Part-time job opportunities and leave options for (child-)care are far more often used by women. Of the overall group working in part-time or being on leave, female forest professionals constitute 44.4% as compared to the 11.2% among their male peers.

The Bavarian State Institute of Forestry employs roughly 200 employees. Its share of female employees is higher than in the State Ministry and the local Offices yet has not changed over the years. Almost 40% are female, 60% are male staff, which is slightly lower than the average value for Bavaria's overall state administration staff (52.4%).

Table 49: Share of female/male staff at Bavarian State Institute of Forestry

Year	Staff	female	male	Share	
				female	male
2013	199	79	120	39.7%	60.3%
2014	216	82	134	38.0%	62.0%
2015	198	77	121	38.9%	61.1%
2016	186	71	115	38.2%	61.8%
2017	196	78	118	39,8%	60.2%
Forest administration (2013)⁷⁹	1.519	512	1.007	33.7%	66.3%
Total Bavarian administrations	338.449	177.436	161.013	52.4%	47.6%

Source: Bavarian State Institute of Forestry, Equal Opportunities Report, 2018

Looking at the different qualification levels (Q4, Q3) and distinguishing between the civil servant and regular employee (permanent and non-permanent contracts) tracks, reveals that the Bavarian State Institute of Forestry attracted a slightly higher share of female civil servant foresters over the years, but displays lower numbers of female forest professionals to work in its applied research and knowledge transfer activities.

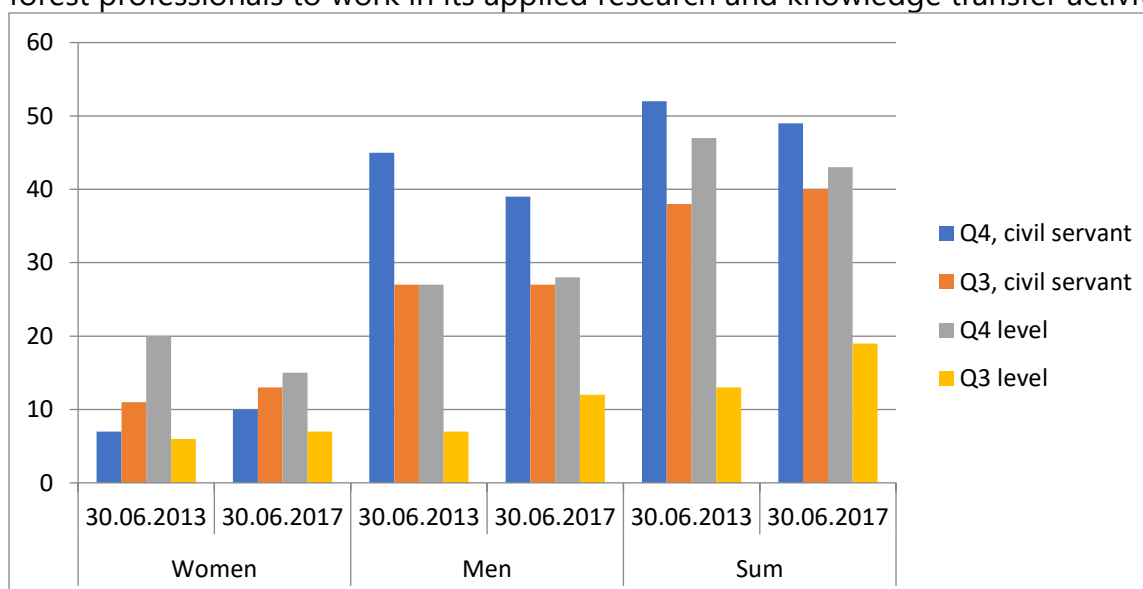


Figure 55: Foresters and forest professionals (f, m) at Bavarian State Institute of Forestry

Source: Bavarian State Institute of Forestry, Equal Opportunities Report, 2018

⁷⁹ Covers total number of forest administrative staff in State Ministry of Food, Agriculture and Forestry, Offices of Food, Agriculture and Forestry and Bavarian State Institute of Forestry. The number of staff had decreased to 1.4014 in 2017 and is currently increasing.

An analysis of job applications in the years between 2015 and 2017 showed that the share of invited female candidates for Q4 or Q3 positions was slightly higher than for male candidates (f: 14.8%; m: 13.8%). Eventually, however, men were far more successful when applying for Q4 and Q3 jobs than women (m: 27.2%; f: 18.1%). In its equal opportunities report, the Bavarian State Institute of Forestry acknowledges the qualifications of the female candidates and explains that a strict application of the performance criterion guided decision-making.



Abbildung 3: Educational centre for forests (Gramschatzer Wald)

elementary school (120.000 elementary school students in 2018).⁸⁰ The educational centres for forests complement the Offices' pedagogy activities. Three out of 10 are led by women (30%).

An estimated one third share of female foresters is represented in the field of forest pedagogy. There are approximately 200 foresters in the local Offices with responsibilities in forest pedagogy. They organize information events about forests and forestry for the general public, offer forest visits (180.000 visitors in 2018) or conduct the mandatory forest days for students from 3rd grade

The State ministry dedicated a section on measures to increase women in leadership positions, stating that a higher share of women can be achieved only when new jobs are filled. The key components for selection of leadership personnel include excellence in the trainee-tracks for the civil service, performance, expertise, eligibility as well as the regular job appraisals. The 2018 equal opportunities report adds additional requirements, including communication and social skills and emphasizes that more efforts need to be made to encourage women to apply for leadership positions. The report defines gender equality as parity in selection decisions with female / male representation in the candidate pool.

As it stands, equal opportunities guidelines have been put on paper. Over the last 15 years, however, they have had limited effect in Bavaria's forest administration.

⁸⁰ Presented numbers are estimations (personal communication with Dirk Schmechel, LWF)

2.6.5 Companies and enterprises in forestry and related services

This section portrays the corporate setting of forestry in Bavaria, covering:

- Bavarian State Forest Company (“Bayerische Staatsforsten”)
- Forest enterprises
- Companies buying and selling timber, round wood, residues, incl. transportation

There is limited data available for female participation in forestry. Numbers for female representations exist only for the Bavarian state forest company. Because of scarce evidence, a short note on non-wood forest product entrepreneurs in the field of care, recreation and health concludes this section.

The **Bavarian State Forest Company** was created in 2005 after a major reform of the forest administration. The reform separated governmental oversight, information and advice for private owners from the management of state forests. The Bavarian State Forest Company is a state-owned company and the biggest of its kind in Germany. It manages an overall area of 808.000 ha of which 755.000 ha is forest land, provides jobs for 2.435 employees and generated a revenue of 650 Million € over the last 15 years. The annual cut was usually around 5.1 Million m³ but lower in 2019 because of the higher timber volumes on the market that had resulted from severe rates of natural hazards.

The Bavarian State Forest Company defines sustainability as close-to-nature forest management and is expected to exemplify best practices.⁸¹ The Company is subject to governmental oversight by means of a supervisory board, consisting of nine members

Our sustainability concept



Natural, sustainable forestry

- No clear cutting
- Selective cutting with natural regeneration → permanent forests
- Protection of old forests and habitats
- Mixed forests adapted to locality, climate and soil
- Natural regeneration
- Soil protection → e.g. skidding lines with a distance of 30 m
- Detailed natural booking and statistics
- Forestry planning according to diverse forest functions

Figure 56: Close-to-nature forest management at Bayerische Staatsforsten

⁸¹ Source of figure: Company presentation at field excursion, May 2015

representing ministries, employees and business. Except for Bavaria’s forest minister none of them is female. Moreover, it consults an advisory group to address societal issues related to forest and game management. The committee consists of 24 members from different groups, two of them are women.

The number of female foresters increased continuously over the last 15 years – from 3.4% in 2005 when the Bavarian State Forest Company was created to 11.4% in 2020. There are currently 607 foresters (Q3, Q4) (2005: 661). As indicated in the figure below, the decrease of male foresters in the Q3 track was compensated by an increase of female foresters. The share of male foresters in the Q4 track stayed more or less the same as compared to a slightly increased share of female foresters at this level, though still rather low (2020: 15 fQ4 / 131 mQ4).

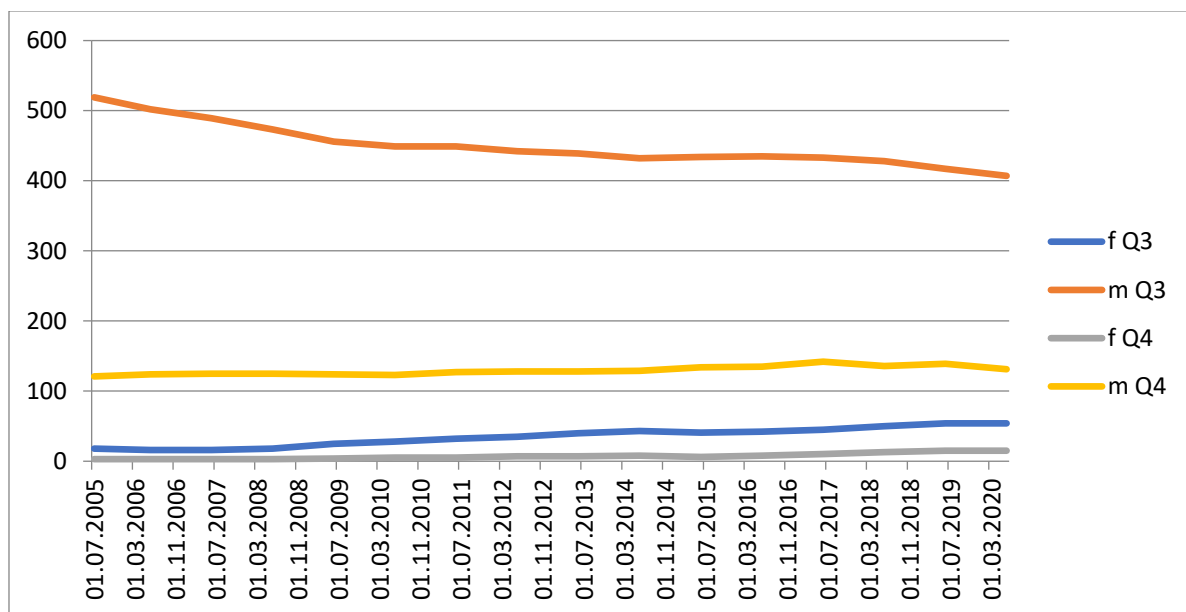


Figure 57: Foresters (f, m) at Bayerische Staatsforsten (2005-2020)

Source: Bayerische Staatsforsten, 2020

The share of women in the overall workforce at Bayerische Staatsforsten is higher than among the group of foresters. Almost one out of five employees is female (2020: 18.1%; 2006: 12.5%). Its latest equal opportunities report (2016) reveals the distribution of male and female employees across the four qualification tracks (Q1 – Q4). Q3 and Q4 require higher education whereas Q2 targets employees with 3 yr vocational trainings in administration and as lumberjack. The Q1 track is for employees with on-the-job training and includes, for instance, seasonal workers for tree planting. Moreover, because of the Company’s history as part of public service, staff may be civil servants (“Beamte”) or regular employees (“Angestellte”).

The table indicates that women work mainly at lower paid positions. If they are civil servants, it is at Q2 level mainly, which qualifies for administrative clerk positions either at headquarters in Regensburg or in one of the forests enterprises. Women work in forest engineering and management positions at higher levels but far less often than their male peers in the more attractive civil servant pool.

Table 50: Staff Bayerische Staatsforsten at different qualification levels

		Women	Men	Total	Share	
					Female	Male
Q1	Civil servants	0	0	0		
	Employees	64	16	80	80%	20%
	Sum	64	16	80	80%	20%
Q2	Civil servant	6	23	29	21%	79%
	Employees	219	79	298	73%	27%
	Sum	225	102	327	69%	31%
Q3	Civil servants	27	373	400	7%	93%
	Employees	51	122	173	29%	71%
	Sum	78	495	573	14%	86%
Q4	Civil servants	3	110	113	3%	97%
	Employees	10	41	51	20%	80%
	Sum	13	151	164	9%	92%

Source: Bayerische Staatsforsten, Equal Opportunities Report, 2016, p. 14

The Bavarian State Forest Company defines equal opportunities in the workplace as a HR strategy. A larger share of women is considered as an opportunity to generate internal diversity, to breed new ideas, and to communicate a modern corporate image. The Company supports Girls Days, the participation of female employees in a mentoring program for future foresters (see below) and provides internships. Similar to the forest administration, recruiting is considered crucial for enhancing the share of highly trained women.

The share of women in decision-making positions at Bayerische Staatsforsten was close to zero, when it started its operations in 2005 and increased significantly over the last decade. Nonetheless, it is still rather low in absolute terms given the relatively high share of potential candidates from the forest study programs.

Forest enterprises are significant players in Bavaria’s forestry sector. The total number of forest enterprises has doubled between 2005 and 2013 from 1.300 to 2.780. The overall workforce ranges at 5.000 people, which translates into the far lower number of 1.575 full-time equivalent (FTE) jobs, including owners, though (Borchert & Becker 2015). Forest enterprises are mainly very small-scale and family-run businesses, with activities in harvesting, sorting of wood, tendering, planting and fuelwood – less in maintenance of forest roads or landscaping. Their primary clients are private forest

owners with FOAs playing important roles for the commissioning of contracts, followed by the State Forest Company and municipalities.

Only a small share of the forest enterprises (486) provides jobs to non-family employees; of these 84% are full-time enterprises (to be differentiated from the smaller number of forest enterprises, which are run alongside other regular jobs or businesses). They may be categorized as microenterprises, which are defined by the EU Commission with fewer than 10 employees and an annual turnover that does not exceed 2 Mio. € (COM (2003) 1422). More than 90% of the workforce has vocational training, yet less than 20% in the area of forestry. They partner with **companies for transportation of round wood (230) and timber trade (610)** (Knauf et al. 2016). There is no data for female participation in these businesses.

Forest enterprises and companies for transportation of and trade with wood seem to attract very little interest among female forest engineers as a study from the forest faculty of the University of Applied Sciences Weihenstephan-Triesdorf revealed (n=59) (Schönfeld 2011). Instead, strong preferences were given to careers at/in:

- Forest Administration or the Bavarian State Forest Company (46%)
- Forest Owner Associations or large-scale private forest owners (5%)
- Forest pedagogy (5%)




Apparently, there are none to very few female foresters with jobs in the timber and wood industry, interest groups/NGOs, in nature conservation, in development work or in management positions in other sectors. Interestingly, however, a significant number of respondents picked "other" (12%) or "not applicable" (24%).




A niche for employment represents the small group of **self-employed forest experts** (74 in Bavaria) (Knauf et al. 2016, p. 100). The services they provide to private and municipal forest owners include forest inventory, forest value assessments, ecosystem mapping and forest management.

Forests have become popular spaces for recreation and learning. There is a rise of forest "Kindergartens", a growing trend of "forest bathing", while forests are increasingly discovered as spaces for therapeutic purposes or yoga (Friedmann et al. 2019). The current COVID-19 pandemic resulted in more people visiting forests. Awareness for the interrelations between forests, human wellbeing and health is growing in Bavaria's forest sector. Discussions about options for the development of new business opportunities, however, are still in their infancy.

2.6.6 Forest-focused interest groups

Table 51: Overview forest-focused interest groups in Bavaria

Interest group	Goals	Structure	Representation Women
<p>Association for the protection of German forests – Bavarian chapter (since 1949)</p> 	<p>Nature conservation organization that seeks to sustain beauty and resilience of forests and supports close-to-nature forestry</p> <p>Advocacy for nature and protection of natural resources</p> <p>Reaching out to people in society with forest pedagogy and education</p>	<p>Board of directors with 13 members and small head office in Munich</p> <p>Umbrella organization at federal level with 13 state chapters</p> <p>Membership: 1.100 (Bavaria); 25.000 (across Germany)</p>	<p>State chapter: Bavaria</p> <p>Women leaders in board of directors (2 out of 13, incl. chair)</p> <p>4 out 13 state chapter chairs are female</p>
<p>Association of forest enterprises in Bavaria (since 2004)</p> 	<p>Create positive image of forest enterprises</p> <p>Reaching out to policy-makers at state level</p> <p>Enhance internal and external cooperation (w administrations, associations, trade unions, research and tradition clubs in rural areas)</p>	<p>Managing board of directors with 3 members and regional representatives</p> <p>Membership: 44 member companies</p>	<p>Women are absent in leading positions</p>
<p>Association of forest technicians in Bavaria (since 1985)</p> 	<p>Founded as club of forest technician graduates from Forestry School in Bavaria to support development of training program</p> <p>Reaching out to policy-makers at state level</p>	<p>Managing board of directors with 4 members</p> <p>Membership: 200 individuals</p>	<p>Women are absent in leading positions</p>
<p>Association of forest professionals in Germany – Bavarian chapter</p>	<p>Self-description as trade union for forest professionals to foster job creation, develop career opportunities</p>	<p>Board of directors with 6 members</p>	<p>Women are absent in leading positions</p>

<p>(since 1950)</p> 	<p>and qualification standards, and ensure qualified jobs in rural areas</p>	<p>Umbrella organization of seven regional chapters</p> <p>Membership: 19.000 individuals (incl. leading staff in forest administration and state forest company, administrative staff, forest engineers, lumberjacks, forest educators)</p>	
<p>Bavarian forest owner association</p> <p>(since 1918)</p> 	<p>Committed to sustainable forest management that secures livelihood of owners and safeguards forest functions for society as a whole</p>	<p>Presidency, Executive board, Supervisory board (12 out of 25 board members are nobility)</p> <p>Umbrella organization for 7 regional forest owner associations</p> <p>Membership: 160.000 owners (individuals, municipalities, churches)</p>	<p>Women are largely absent in leading positions: none in presidency, one in executive board, 3 (out of 25) in supervisory board</p>
<p>German Forestry Society – Bavarian chapter</p> <p>(since 1899)</p> 	<p>Initiates forest policy debates, engages in public relations and offers excursions to improve framework conditions for forests and forestry</p> <p>Organizes bi-annual conferences (seminars, keynotes, excursions)</p> <p>Bavarian chapter follows closely implications of the major forest reform (2005) to sustain shared identity among forest professionals</p>	<p>11 federal state chapters across Germany</p> <p>Young Network Forestry with representatives from federal states and universities</p> <p>Small head office in Göttingen</p> <p>Voluntary chairpersons and network representatives</p> <p>Membership: 6.000 individuals</p>	<p>Women leaders at state (1 out of 4) and federal levels (2 out of 11), and in topical fields (1 out of 14)</p> <p>Female managing director of head office</p> <p>Female representatives in Young Network Forestry (7 out of 19)</p>

Source: Own elaboration

2.6.7 Education and training in the adrea of forestry

There are essentially three career opportunities for forestry in Bavaria: (a) vocational training as lumber jack; (b) higher education for forest engineering at B.Sc. level; and (c) higher education for diverse tasks in forest management, governmental oversight and advisory functions at M.Sc. level. As the figure below indicates, the different career paths are permeable. It is possible to build on vocational training for entering a study program in higher education or to start with a B.Sc. program at a University of Applied Sciences and conduct an M.Sc. program at University.

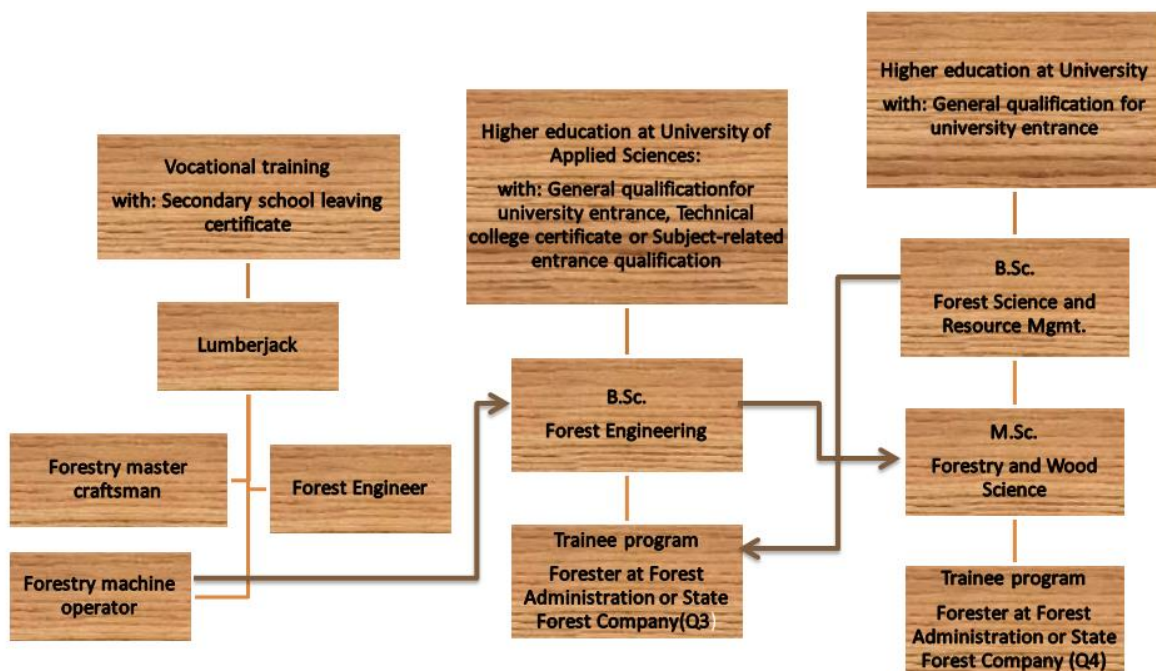


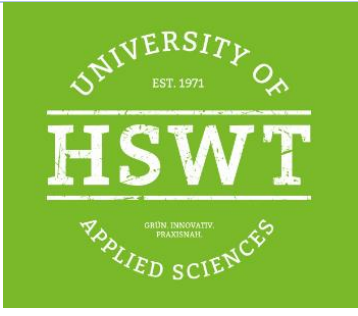



Figure 58: Education paths in the field of forestry

Source: Own elaboration

In Bavaria as in any other states in Germany, the share of women in the vocational training programs is low. It is substantial, though, in the forest programs at the University of Applied Sciences Weihenstephan-Triesdorf (HSWT) and Technical University of Munich (TUM). The table below provide an overview.

Table 52: Training programs in the field of forestry

Vocational training		
<p>Lumber jack (btw 2012-2020)</p>	<p>Ø 87 students start 3 yr training annually</p> <p>Significant increase btw 2012 and 2020 from 65 to 105</p> <p>Share of female lumber jack trainees is constantly low at Ø 3</p>	
<p>Forest engineer (btw 2003-2020)</p>	<p>Ø 21 students start 2 yr training program annually</p> <p>In total, 6 women have enrolled in program</p>	
Higher education		
<p>Forest engineering BSc. (2007-2019)</p>	<p>Ø 133 students enrol annually</p> <p>Share of female students starting the program is 27.8%, with a peak of 36.8% in 2019</p> <p>Share of female graduates is Ø 25.8% with a peak of 36.8% in 2019</p>	
<p>Forest Science and Resource Mgmt. BSc. Forestry and Wood Sciences MSc. (2009-2019)</p>	<p>Ø 180 students enrol annually for BA and Ø 52 for M.Sc. programs (increased significantly more recently with Ø 130 btw 2009-2015 and Ø 230 since btw 2016-2019)</p> <p>Share of female students starting the programs is 33,7% for the B.Sc. and 30,7% for the M.Sc. program</p> <p>Share of female graduates is 33% in both B.Sc. and M.Sc. programs</p>	

Source: Own elaboration with data from "Waldbauernschule", "Bayerische Forstschule", HSWT, TUM

The University of Applied Sciences Weihenstephan-Triesdorf offers two mentoring programs for their female students. The junior program targets university beginners and matches the younger mentees with older students to help them become familiar with life at university. The second program targets prospective graduates to partner them with volunteering mentors from business, research and administrations during a one-year time period. This program seeks to enhance the share of women in engineering professions including forest engineering. Students develop social skills and confidence. Mentors may find interesting candidates for the workforce of their organisations. The program is met with great resonance at the forest and forestry faculty. The number of tandems increased considerably over the last 10 years: from 2 in 2010 to 17 in 2020.

2.6.8 Overview of initiatives and projects to support women in forestry

Workshops (in German):

- Der Wald wird weiblich [The forest turns female. Workshop for female forest professionals at Bavarian State Institute of Forestry]. March 2007
- Waldbesitzerinnen – eine Zielgruppe?! [Female forest owners – a target group?!] Workshop at Forestry School Kehlheim. June 2014
- Frauen in forstlichen Gremien [Women in forest associations]. Workshop for female directors of forest owner associations at Bavarian State Institute of Forestry. November 2019

Activities to engage with female forest owners:

- Female forest owners' days [Waldbesitzerinnen-Tag], several, mainly between 2007 and 2016, in Eastern Bavaria; covering broad range of topics: key issues in management, support organisations; joint organization by local forest offices, community of interest female forest owners and other stakeholders
- Forest walks for women [Waldbegänge für Frauen], have become popular more recently, mainly in Western Bavaria; organized by local forest offices with forest owner associations; aim at raising awareness in female ownership of forests; sometimes with female politicians



Figure 59: Example of forest walk for female owners (2019)

Initiatives (in German):

- IG Waldbesitzerinnen [Community of interest female forest owners in Bavaria]⁸²
- Forstfrauen [Women of Forestry]⁸³

2.6.9 Literature

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⁸² No website

⁸³ See: <https://forstfrauen.de/>

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2.7 Country Report: Romania

Authors: Laura Bouriaud, Ramona Scriban

2.7.1 Forest sector

According to the National Institute of Statistics, the national forest fund of Romania represents 6592 thousand hectares, e.g. 27.7% of the country's surface⁸⁴. The forests are in public or private property and it constitutes an asset of national interest⁸⁵.

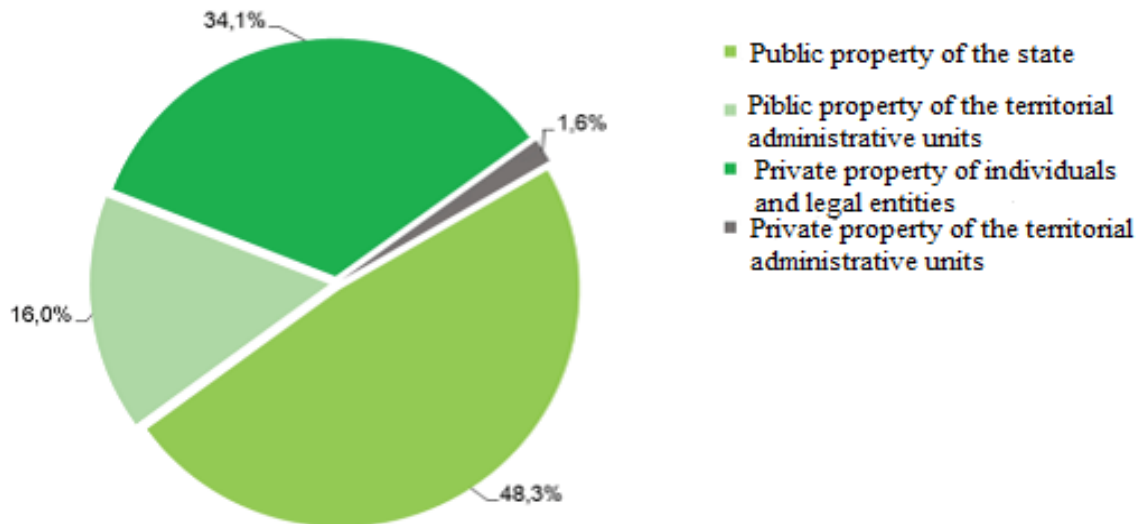


Figure 60: The structure of the forest fund, by forms of ownership, at the end of 2019⁸⁶

Out the total national forest fund, 48.3% is owned by the state, the rest belonging to different forms of property, respectively 34.1% to private property of individuals and legal entities, 16.0% to public property of territorial administrative units and 1.6% to private property of territorial administrative units. The state-owned forest fund (about 3.3 million ha) is managed by Romsilva, the National Forests Authority (established by HG1335/1990), which operates as an autonomous organization from a financial point of view.

We can mention that in the period 2011-2012 there were approximately 720.000 ha of FSC certified forest, among which 680.000 ha of state forests managed by Romsilva

⁸⁴ National Institute of Statistics (Institutul Național de Statistică) https://insse.ro/cms/sites/default/files/field/publicatii/statistica_activitatilor_din_silvicultura_in_anul_2019_1.pdf

⁸⁵ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

⁸⁶ https://insse.ro/cms/sites/default/files/field/publicatii/statistica_activitatilor_din_silvicultura_in_anul_2019_1.pdf

and 36,000 ha of private forests⁸⁷. In Romania, 40% percent of the forests are included in nationally protected areas⁸⁸.

Romanian forests are unevenly distributed: 59.70% of forests are in the mountain area, 33.80% in the hills region, respectively 6.50% in the plain region⁸⁹. This spatial distribution, which covers various forms of relief, divides forests into two functional categories, namely: forests with special functions of protection of water, soil, climate and objectives of national interest, forests for recreation, forests for protection of genetic resources, as well as forests in protected natural areas of national interest (57.3% of the national forest fund); forests for protection and production (42.7% of the national forest fund)⁹⁰.

Regarding the composition of Romania's forests, deciduous forests represent a proportion of 70%, having as main species beech (*Fagus*) and oak (*Quercus spp.*), respectively coniferous forests represent 30% of the surface, being mainly made of spruce. We have, therefore, 31.51% beech (*Fagus sylvatica*), followed by spruce (*Picea abies*) with a percentage of 19.95%. Another species that has a significant proportion in the formation of forests is oak (*Quercus spp*) with 16.72%. The composition of forests is complemented by various other deciduous and coniferous species, which have a lower participation rate. Among the species with a low share of participation, fir (*Abies alba*) stands out with 4.36% percent.

⁸⁷ http://sgg.gov.ro/docs/File/UPP/doc/rapoarte-finale-bm/etapaII/MMP_FR_Environment_Water_Forestry_Vol_2_FORESTRY_ROM_FINAL.pdf

⁸⁸ ASFOR, Starea sectorului forestier din România, <https://asfor.ro/starea-sectorului-forestier-din-romania/>

⁸⁹ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

⁹⁰ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

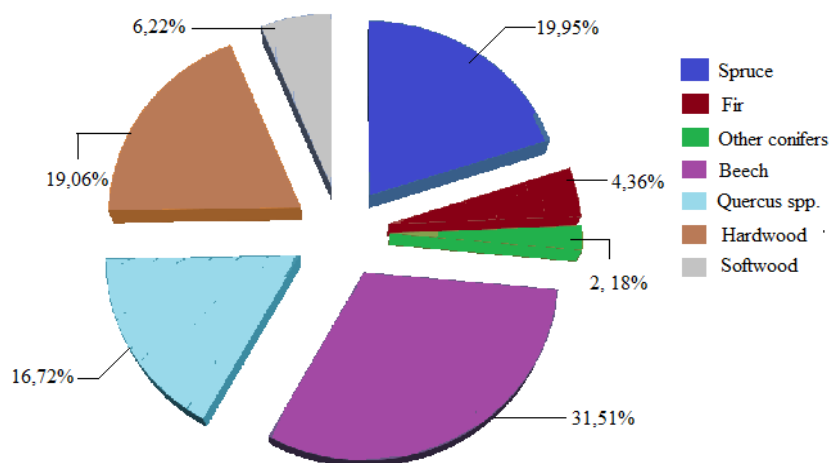


Figure 61: Distribution of forests by species and groups of species⁹¹

Timber represents in Romania the main renewable resource. Romania must continue to use this resource to develop local communities and encourage economic activities that create many jobs in rural areas, where there are not many other employment alternatives. The forest economy participates with 3.5% in the formation of GDP⁹². The most important economic branch, starting from the available wood resource, is the furniture industry, with a total production of over 2.2 billion euros and exports of 1.88 billion euros in 2014, that is almost 2.5 times higher than in 2004⁹³. Romania has a strong wood industry, with a total turnover of 6 billion euros, with exports of 4 billion euros and a net foreign exchange contribution of over 3 billion euros annually.⁹⁴ Romania is a major exporter of forest products, including furniture, lumber and particle board.⁹⁵

Along with wood, as the main resource provided by the forest to the national economy, other products are harvested, in smaller proportions, from the forests of Romania. Thus, referring to 2017, the following non-timber products were harvested from the national forest fund: forest seeds 8.7 tons; berries 3182.7 tons; truffles and edible mushrooms

⁹¹ <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-pădurilor-în-anul-2017.pdf>

⁹² ASFOR, 2020, Measures meant to support the development of the forest economy in Romania (ASFOR, 2020, Măsuri menite să sprijine dezvoltarea economiei forestiere în România) <https://asfor.ro/2020/03/06/masuri-menite-sa-sprizine-dezvoltarea-economiei-forestiere-in-romania/>

⁹³ FORDAQ, 2015, National Forest Inventory. How to see the forest behind the trees (FORDAQ, 2015, Inventar Forestier Național. Cum se vede pădurea de după copaci), <https://www.nostrasilva.ro/wp-content/uploads/2015/11/Raport-starea-sectorului.pdf>

⁹⁴ FORDAQ, 2015, National Forest Inventory. How to see the forest behind the trees (FORDAQ, 2015, Inventar Forestier Național. Cum se vede pădurea de după copaci), <https://www.nostrasilva.ro/wp-content/uploads/2015/11/Raport-starea-sectorului.pdf>

⁹⁵ http://sgg.gov.ro/docs/File/UPP/doc/rapoarte-finale-bm/etapa-II/MMP_FR_Environment_Water_Forestry_Vol_2_FORESTRY_ROM_FINAL.pdf

495 tons; hunting products five thousand lei; fish products 9061.0 thousand lei; bee honey 63.7 thousand lei.⁹⁶ In 2018 and 2019, the products harvested and marketed showed the following situation: the quantities sold for the main forest products registered, compared to 2018, increases in hunted meat (+ 13.0%), in total wood (+0.9 %) and decreases in the rest of the forest products, the highest being registered in forest seeds (-44.1%), berries (-28.9%) and truffles and other edible mushrooms from the spontaneous flora (-16.7 %).⁹⁷

The growth rate of forests, according to the data of the National Forest Inventory (results Cycle II 2014-2018), the forest area has not decreased in Romania, on the contrary, it is higher than the area officially included in the forest management in the national forest fund.⁹⁸ We have, therefore, 2,354,789,867 m³ of wood with an average volume of wood/ha of 340 m³/ha, with an average annual increase of 7.8 m³/year/ha.⁹⁹

The possible annual volume to be harvested from Romania's forests in 2017 was 22.05 million m³, of which 19.45 million m³ of forest area for which the law requires the development of forest management and 2.6 million m³ of forest areas for which the law does not require the preparation of forest arrangements.¹⁰⁰ Thus, Romania harvests approximately 60% of the forest growth, compared to a European average of over 60%.¹⁰¹

In the context of identifying problems (for example: excessive legislation, difficulties in reducing the volume of illegally cut timber, non-application of forms of support to stimulate forest owners and managers in order to conserve and improve the biodiversity of forest ecosystems, lack of transparency, non-quantification of ecosystem services forestry, etc.) identified in the forestry sector, Romania is developing the National Forestry Strategy 2018-2027. It corresponds to the principles

⁹⁶ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

⁹⁷ National Institute of Statistics, 2019, Statistics of Forestry Activities (Institutul Național de Statistică, 2019, Statistica activităților din Silvicultură), https://insse.ro/cms/sites/default/files/field/publicatii/statistica_activitatilor_din_silvicultura_in_anul_2019_1.pdf

⁹⁸ ASFOR, State of the forestry sector in Romania (ASFOR, Starea sectorului forestier din România), <https://asfor.ro/starea-sectorului-forestier-din-romania/>

⁹⁹ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

¹⁰⁰ Ministry of Waters and Forests, 2017, Report on the state of Romania's forests (Ministerul Apelor și Pădurilor, 2017, Raport privind starea pădurilor României), <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Starea-p%C4%83durilor-%C3%AEn-anul-2017.pdf>

¹⁰¹ ASFOR, State of the forestry sector in Romania (ASFOR, Starea sectorului forestier din România), <https://asfor.ro/starea-sectorului-forestier-din-romania/>

of sustainable development and has the role of providing landmarks and predictability to the forestry sector for the next 10 years. The general objective of this strategy is to harmonize the forest functions with the present and future requirements of the Romanian society through the sustainable management of the national forest resources.¹⁰²

Such a strategy aims to capitalize on the potential of this sector and find a balance between the protection functions and the economic functions of the forest.

2.7.2 Labour market and job opportunities in the area of forestry

In the forestry and wood processing sector, 128,000 people are directly employed, to which are added about 186,000 employees working in related sectors (www.pwc.ro).

The main employers in the forestry and wood processing sector, including related sectors, are the forestry structures with administrative role, logging companies, forestry design companies, companies providing forestry services, primary wood processing companies, furniture companies. The situation of these companies operating in Romania in 2015 and 2019 is presented in table 53.

¹⁰² Ministry of Waters and Forests, 2017, National Forestry Strategy 2018-2027 (Ministerul Apelor și Pădurilor, 2017, Strategia Forestieră Națională 2018-2027) http://www.mmediu.ro/app/webroot/uploads/files/2017-10-27_Strategia_forestiera_2017.pdf

Table 53: Number of companies in the forestry sector (source: INS, 2015; 2019)

CAEN code	Activity	2015*	2019*	The difference (%)
0210	Forestry and other forestry activities	1166	2170	86
0220	Forest harvesting	2326	6625	184
1610	Sawmills	3030	7812	158
1621	Manufacture of veneer and wood panels	129	342	165
1711	Manufacture of cellulose	5	24	380
3101	Manufacture of office furniture	820	2516	206
3102	Manufacture of kitchen furniture	199	838	321

The CAEN Code 210 also includes the forestry structures with administrative role: the state and private forest districts. Currently, there are 327 state forest districts and 147 private forest districts in Romania (Duduman and Drăgoi, 2019). The 327 state forest districts are subordinated to RNP ROMSILVA, INCDS Marin Drăcea and RAAPPS. Most of the private forest districts (111) are members of the Association of Forest Administrators (<https://ocoalesilvice.ro/>).

Regarding the number of employees in the state forestry administration, the study carried out allowed to obtain only general information. Thus, RNP ROMSILVA was on the 3rd place at national level in terms of number of employees in 2019 ([Top firme din Romania](#)), managing in 2018 an area of 3.14 million hectares of Romanian forests (www.romsilva.ro).

Out of the total area managed by RNP, 2.49 million hectares are certified. According to the certification reports (www.info.fsc.ro), for this area, the total number of employees is 10,610, of which 9397 are men (88.6%) and 1213 women (11.4%). Additionally, within this area, 29,105 employees of different contractors are operating, out of which 25,967 are men (89.2%) and 3138 women (10.8%) (table 54).

Table 54: Number of employees and their distribution by sex for the state forest area managed by RNP-ROMSILVA and certified in FSC system (www.info.fsc.ro)

Certificate	No. of employees		Contractors		Certificate code	Area (ha)
	B	F	B	F		
DS MM	603	89	1202	320	FM/COC-006293	287377,0 ha
C1	3102	382	9070	776	FM/COC-004023	781212,0 ha
C2	1436	210	6483	686	FM/COC-006293	287377,0 ha
C3	1091	98	1634	235	FM/COC-006294	219242,0 ha
C4	1473	179	2750	450	FM/COC-006295	218242 ha
C5	1912	221	3100	500	FM/COC-006296	625598,0 ha
C6	480	34	1728	171	FM/COC-006297	12716,0 ha
TOTAL 1	9397	1213	25967	3138	-	2490052,56 ha
TOTAL 2	10610		29105		-	

Other information regarding the employees working in the forestry administration for the non-certified forests in the public property of the state cannot be found on the RNP ROMSILVA website.

With regard to forests managed by private forest districts, it is very difficult to obtain information on the number of employees. Many of these forest districts do not have a website. The only information found on the AAP website indicates a number of about 3.500 employees for the 111 forest districts which are members of the association, of which 73% are forest specialists (engineers, technicians, foresters) (<https://ocoalesilvice.ro/cine-suntem/>).

Besides the forest districts, the CAEN code 0210 includes also the forestry design companies, or the services providing companies in forest sector, other than harvesting companies. Although there are two associations of forestry designers (*Asociația Firmelor de Proiectare în Silvicultură* and *Asociația Silvicultorilor Proiectanți*), they do not have web pages, being really difficult to find centralized information on the number of employees at such firms.

Bursa.ro shows that, according to Frames data, in 2018 there were 3305 active harvesting companies (CAEN code 0220), which totalled 15480 employees, and in the wood processing sector (CAEN code 1610 - wood cutting and planning) 2884 companies were active, with 23.590 employees (www.bursa.ro/industria-lemnului-in-sectiune-05365830).

Brief information on employees in the wood industry can also be found on the website of the Wood Industry Association - Prolemn (pro-lemn.ro/organizare/), referring to about 6.000 employees of the member companies.

In the last 5 years, the number of wood exploitation companies has increased, while the number of wood processing companies has decreased (tables 55 and 56).

Table 55: Structure of the forestry sector by number of employees (cf. INS, 2015)

CAEN code	Activity	No. of companies by number of employees (excluding RNP) - 2015				
		Micro	Small	Medium		Large
		<10	11-50	51-100	101-250	>250
0220	Logging	1985	318	15	4	0
1610	Sawmills	2391	543	56	30	7
1621	Manufacture of veneer and wood panels	79	23	5	12	9
1711	Manufacture of cellulose	4	1	0	0	0

Table 56: Structure of the forestry sector by number of employees in 2019 (<https://www.datefirme.ro/>)

CAEN code	Activity	No. of companies by number of employees (excluding RNP) - 2018 or 2019				
		Micro	Small	Medium		Large
		<10	11-50	51-100	101-250	>250
0220	Logging	2167	320	14	5	0
1610	Sawmills	1604	384	34	18	4
1621	Manufacture of veneer and wood panels	53	14	6	6	8
1711	Manufacture of cellulose	4	0	0	0	0

Table 57 presents a summary of the results obtained from the analysis of the main sources of public information available online on the number of employees in the forestry sector in Romania and their distribution by sex.

Table 57: Centralized information related to labour market and employment opportunities in the forestry sector in Romania

CAEN code	Activity	Sections	Year	Source	Reporting area (mil ha)	No. of employees		
						Men	Women	Total
0210	Forestry and other forestry activities	RNP ROMSILVA	2019	rosilva.ro	3,13	No data	No data	16500
			2020	FSC reports	2,59 (only FSC certified forests)	9297	1213	10510
		AAP (111 private forest districts)	2020	ocoalesilvice.ro /cine-suntem/	1,4	No data	No data	3500
		Forestry design and service companies, excluding timber exploitation	-	-	-	No data	No data	No data
0220	Logging	-	2018	FRAMES data	-	No data	No data	15480
1610	Sawmills	-	2018	FRAMES data	-	No data	No data	23590
1621	Manufacture of veneer and wood panels	-	2019	www.datefirme.ro/	-	No data	No data	about 22000
1711	Manufacture of cellulose	-	2019	www.datefirme.ro/	-	No data	No data	about 25000
3101	Manufacture of office and shop furniture	-	2019	www.datefirme.ro/	-	No data	No data	about 4500
3102	Manufacture of kitchen furniture	-	2019	www.datefirme.ro/	-	No data	No data	about 20

2.7.3 Forest ownership

Over the past 30 years, Romania has gone through a period of transition towards a market economy with major institutional changes that have taken place in the forest sector through the restitution of forests and the privatisation of the forestry and industrialisation sector. At regulatory level, the rigid legislative system was maintained, based almost entirely on command and control instruments, not adapted to the socio-economic changes and to the new biodiversity conservation framework. The system did not have the expected efficiency, which is reflected in a clear social tension, involving all stakeholders interested in and affected by the management of forests: private owners, public and private administration, forestry/logging and

industrialisation companies, environmental protection organisations, civil society etc (RFPDP, 2019).

Forests included in the Forest Fund. Law 46 of 2008 defines forests as having an area of at least 0,25 ha covered with trees that should reach a minimum height of 5 m at maturity under normal vegetation conditions. According to the National Statistical Institute, at the end of 2018 the national forest fund in Romania covered 6.58 million hectares out of which 6.418 million hectares are forests (INSSE, 2018).

The national legal framework plays a crucial role in defining the following components of the forest management system:

- The forms of ownership – either public or private and the property regimes – either state and municipal property, common property or private property.
- The property rights assigned for each property regime defined as the rights and duties assigned in respect to the utilization of the forest resource.
- The organizational structures set to assure the implementation of forest management.
- The integration of forest ecosystem services in forest management planning.

Forms of ownership. In Romania, the re-establishment of forest property regimes, is related to the process of giving back the forest lands to former owners, commonly known as forest restitution, after the fall of the communism in 1989. The process took place gradually, based on three main laws (18/1991, 1/2000 and 247/2005) that resulted from important political debates (Lawrence, 2007; Ioraş and Abrudan, 2006; Abrudan et al, 2009).

According to the first restitution law (Law 18/1991), only individual private pre-1948 owners of forests received one hectare of forest per person. Approximately 353.000 hectares of forest (5.5%) were privatized to more than 400.000 individual owners. The restitution of forests to local communities was integrated in the second restitution law (1/2000) and set the rules for the restitution of all areas for previously owned forest in case of towns and villages, all area for forest in case of forest communities (or maximum 20 hectares per community member). The same law increased the limits to a maximum of 10 hectares for individuals and 30 hectares for churches and schools. More than 2 million hectares have been claimed under this law, thus increasing the share of non-state forest to 35%. Currently, about 80.000 ha are validated under this law but not restituted given ongoing court disputes. The last restitution law (Law no. 247/2005)

aims to re-establish the pre-nationalisation ownership structure and according to its provisions all forest (including protected areas) should be restituted to the former owners irrespective of size, location and ownership type. Currently, 49% of the Romanian forests are in non-state ownership (Nichiforel et al, 2015).

Using the DPSIR framework Scriban et al (2017) shows that the “confusing” and “without vision” (National Court of Accounts, 2013) approach used for forest restitution has generated social conflicts (Dorondel, 2008) and created opportunities for short term profits (Bouriaud, 2005) with serious consequences for the stability of forest ecosystems (Griffits et al., 2012) but with important benefits for the political system (Bouriaud and Marzano, 2014).

According to the Romanian Forest Code (2008), the forest ownership categories are (figure 62):

A. Public ownership – 1.13 million hectares

A1. State owned forests – 1.04 million hectares;

A2. Municipal forests – 93 thousand hectares. The holder of the municipal forest is an administrative unit (local government) such: commune, municipality, city or town. The members of the communities are represented by the inhabitants of those administrative units.

B. Private ownership – 2.24 million hectares

B1. Individual owners: forest owned by individuals

B2. Community forests: composesorates, obsti and other community forests.

B3. Other institutions: Churches and monasteries; associations and foundations; other moral entities.

In Romania, the private property on forestlands is related to property rights restitution and by so far the land restitution has been a sensitive issue for the Romanian politicians. The result is a piecemeal approach to restitution, characterised by a gradual increase of the private ownership on forest lands, based on three main restitution laws (1991, 2000 and 2005) although the initial pattern of forest ownership before 1948 has not been retrieved (FACESMAP Country Report, 2015).

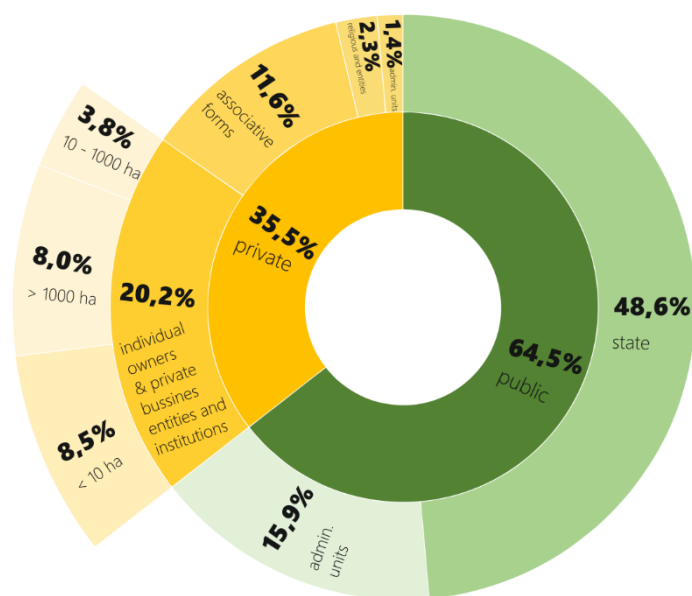


Figure 62: Distribution of forests in Romania by types of ownership (RFPDP, 2019)

2.7.3.1 Forest owner associations

The main forest owner association in Romania is the AAP (Asociația Administratorilor de Păduri - Forest managers' association) and they are the professional association that represents forests districts in Romania that manage forest fund or provide forestry services to other owners than the state. At the moment, the AAP has as members 111 of private forest districts (figure 63).

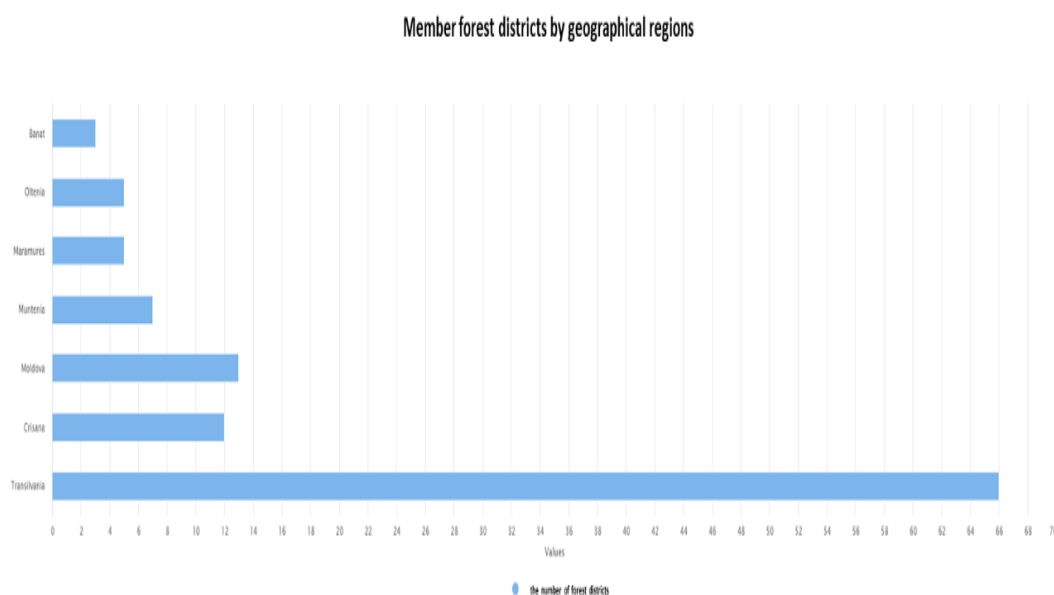


Figure 63: The distribution of total members of forest districts by geographical regions¹⁰³

The members forest districts of the association manage a total of 1.4 million hectares, which represent 22% of the national forest fund area.

Administration of forests. As regard the administrative structure in charge of forest management, there are legal differences between forms of ownership. While state forests can be only administrated by a state forest district, for municipal forests different administrative situations may exist:

- The municipality can create (together or in association with different other owners) a private forest district. The association of multiple owners may be often needed as according to the legal requirements a forest district can be established only if the area to be managed is larger than 5.000 ha. In this case, the assumption is that the forest administration responds more promptly to the needs of the municipality, i.e. the mayor and the local council have a stronger voice in the decisions on how the administration should be performed. Yet, it is not necessary that such decisions are in favour of the community and can promote e.g private interest of the mayor or members of the local councils.
- The municipality can administrate the forest by a contractual basis with a private forest district, which they did not establish. In this case the decisions on how

¹⁰³ <https://ocoalesilvice.ro/cine-suntem/>

private forest district should perform the administration is less influenced by the owner.

- The municipality can administrate the forest by a contractual basis with a state forest district. Also in such a case the decisions on how private forest district should perform the administration is less influenced by the owner.

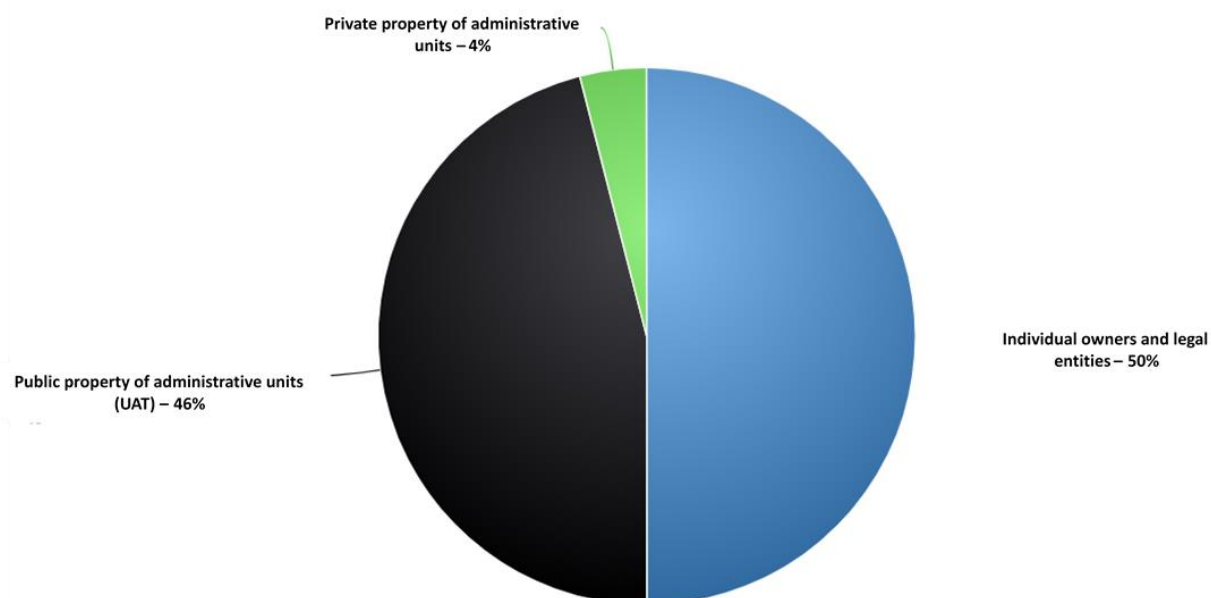


Figure 64: Forest area managed by the Association of Private Forest Managers

The forest area managed by the AAP is made by the type of property which can be: individual owners and private legal entities, public property of administrative units (UAT) and private property of administrative units.

2.7.4 Forest administration

Forests represent a renewable resource that provide a range of products and services. Forest administrations play an important role for a sustainable management by way of regulation, control and advice.

The Romanian forest administration consists of the Forest department in the State Ministry of Water and Forests which is central public authority responsible for the national forest fund. On this department there are three directions: Forest and forestry development, Policy and strategies in forestry and Game Management¹⁰⁴. Ministry of

¹⁰⁴ <http://www.mmediu.ro/app/webroot/uploads/files/-organigrama.pdf>

Water and Forests implements the policy at the national level in the fields of water, forestry and game management and also elaborates the strategy and specific regulations for the development of these activities. The vision of the Ministry of Water and Forests is to be a transparent, reliable and responsible institution, to serve the interests of society and to actively pursue the issue of environmental protection in Romania (<http://apepaduri.gov.ro/>). The Forest department is led only by men.

According to INS reports (2017) the surface of forest lands in Romania at 31.12.2017 was about 6.56 milion ha. Public state property managed by National Forest Administration - is about 3.13 milion ha.

Nine regional Forest Guards with 609 employees are responsible to ensure the control and to monitor and enforce the forestry regime application within the national forest area. The Forest Guards are public institutions, subordinated to the central public authority responsible for the national forest area. Data concerning the women's participation in the structure of Forest Guards are not available.

Subordinated to the central public authority is also The National Agency for Protected Natural Areas (ANANP) founded in 2016 by Law no. 95/2016 and GD 997/2018. The main objective of ANANP is the unitary and efficient management of protected natural areas and the conservation of natural habitats. This institution is led by a civil servant (women) but with no education in forestry¹⁰⁵.

2.7.5 Companies and enterprises in forestry and related services

This section portrays the corporate setting of forestry in Romania, covering:

- National Forest Administration (Regia Națională a Pădurilor - Romsilva) and
- Private forest districts - established by forest land owners' other than the state.

The National Forest Administration (NFA) – Romsilva is managing the state forest that represents almost half (48%) of the total forest area in Romania. NFA was founded in 1990 (HG 1335/1990) as legal entity and acts under the authority of the Ministry of Environment, Water and Forests. NFA is empowered to manage state forest lands principally by the Forest code (Law 46/2008) and GD 229/2009. The key role of NFA is to ensure forest regime implementation in state forests and act for protection,

¹⁰⁵ <http://ananp.gov.ro/conducere/>

conservation and sustainable management in order to increase the contribution of the forests to the improvement of the environment conditions and to ensure the national economy with wood, forest products and specific forest services.

In 2017 were authorized 467 forest districts of which: 316 state forest districts managed by NFA, 144 private forest districts, 6 experimental forest districts of the National Institute for Research and Development “Marin Drăcea” and 1 forest district under the Autonomous Administration - State Protocol Patrimony Administration (MAP, 2017).

By its 41 forest directorates and 316 forest districts, NFA manages 3.13 million ha (31.12.2018) of which 3.03 million ha is forest land. NFA provide also by service contracts the management for 1.12 million ha belonging to other owners. The total area of national forest fund for which NFA provides management or services is 66% (MAP, 2017- State of forests).

The number of employees of the NFA at the end of 2019 was about 16,825 of which 15,715 are working in the 41 Forest directorates. A distribution of the employees (for the year 2012) according to the studies graduated of the forest directorates can be observed in the figure 65. There are few data concerning the share of women in NFA.

There are no women holding leadership positions in NFA - general manager and Administration council. According to the data presented on the official site (http://www.rosilva.ro/rnp/organizare_p_58.htm) the share of women holding leadership positions in forest directorates and forest districts is very small. Only one forest directorate is led by a woman and five out of the 316 forest districts are led by women, which means under 2%. The forest districts managers are civil servant foresters with professional trainings from universities.

NFA manages also 22 national and natural parks with a total area of 853 thousand ha. Forest area represents 583 thousand ha of which 397 thousand ha are public state property. The total numbers of employees within the park administration in 2017 was 326 of which 190 were rangers. There are no data concerning the share of women.

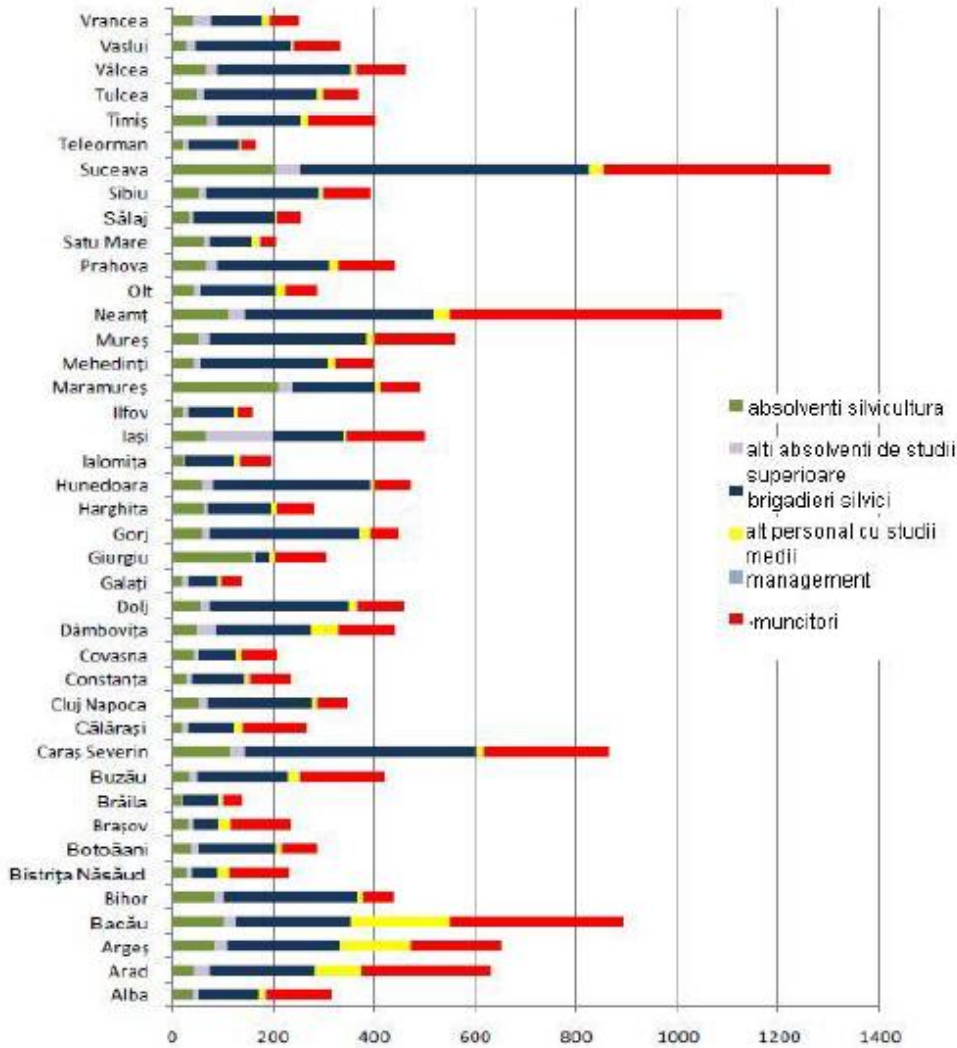


Figure 65: The employees of Forest directorates' in 2012 (Source: Analiza Funcțională a Sectorului Mediu și Păduri în România – Vol. 2.)

Caption: Green - foresters with professional trainings from universities, grey- employees with university training other than forestry, black - workforce with vocational training in the area of forestry, blue- management, red – workers.

In 2002 had established the first **private forest district** as an alternative for state forest district management. Further, the number of private forest districts has increased rapidly in Romania. In 2017 were authorized 144 private forest districts. The highest amount of these forest districts - 111 with a total area of 1.4 milion ha (22% of national forest fund) - are owned by the Forest managers' association (AAP-Asociația Administratorilor de Păduri). The Association was founded in 2004 and is functioning as a professional association of: public property of administrative-territorial units, private property of administrative-territorial units and private property of individuals

and legal entities (figure 2). In 2015, it received the status of public utility by Decision no. 405 of 03/06/2015 (<https://ocoalesilvice.ro/>). The key roles of the Association are: to ensure the sustainable forest management, to offer information and education in biodiversity conservation and to be a dialog partner with the state authorities. The share of women in the overall workforce at private forest districts is not available. According with the data presented on the official site of AAP and web pages of private forest districts (<https://ocoalesilvice.ro/membri/>) there are only men which leads these forest districts.

2.7.6 Forest-focused interest groups

The main forest interest groups in Romania are:

- ✓ forest owner association; Federatia Nostra Silva (grouping several forest owners associations);
- ✓ forest professionals' association(s): Progresul Silvic; Asociation Prolemn; Asociația Administratorilor de Păduri;
- ✓ forest contractors: Asociația Forestierilor din Romania- ASFOR;
- ✓ other interest groups/NGOs with a view on: forests and nature conservation: WWF, GreenPeace, Agent Green, Comunitatea Declick, Kogayon, Coalitia Natura 2000; forests and rural development: Fundatia ADEPT;

2.7.7 Education and training in the field of forestry

In Romania the education in the field of forestry is provided by:

- Forestry high schools - vocational training and
- Universities with bachelor, master and PhD programmes - for higher education.

Over the time, the number of forestry high schools has varied. Initially, there were 6 forestry high schools (Câmpulung Moldovenesc, Năsăud, Timișoara, Brănești, Brașov and Gurghiu) evenly distributed to cover all areas of the country. Subsequently numerous classes of forestry or environmental protection were created in high schools with technological vocation. The number of girls enrolling in forestry high schools varies from year to year, but in recent years is increasing. The Forestry high school of Câmpulung Moldovenesc (Colegiul silvic Bucovina) have the highest number of students enrolled annually. The share of girls is about 30%. Also the number of women

with higher education in Forestry that are teaching at this high school increased continuously over the last 25 years and now is about 50% (data obtained from Colegiul silvic Bucovina).

CONCURSURI INTERNAȚIONALE

Concursul european YPEF (Young People in European Forests) – Polonia (septembrie 2011)

- elevii **AROMĂNESEI RĂZVAN, TURCU BOGDAN, BADALE OANA**, coordonatori: Ing. Cuciurean Alina, prof. Popescu Ramona, ing. Cîrlugea Șerban, mst. Frunză Daniela

[Galerie foto](#)

European Championship in Forestry Skills Luxemburg 2010

- elevii **POPESCU AUREL, ROTARU FLORIN**, coordonatori: Ing. Holuta Aurel, Ing. Eross Daniela, Mst. Frunza Daniela, Ing. Cuciurean Alina, Ing. Popescu Claudiu

[Galerie foto](#)

CONCURSURI NAȚIONALE



Argint pentru Liceul Tehnologic Silvic Gurghiu, la Naționala de Competențe în Silvicultură

24 aprilie 2019 Codruta ROMANTA Lasa un comentariu

Ediția a IX-a a Concursului Național de Competențe în Silvicultură a fost găzduită în acest an de Liceul Tehnologic Silvic Gurghiu, concurs ce s-a desfășurat în perioada 15 – 18 aprilie. În cursa pentru locul I s-au înscris cele șase licee de profil din țară: Liceul Tehnologic Silvic Gurghiu, Liceul Tehnologic Silvic „Dr. Nicolae Rucăreanu” Brașov, Liceul Tehnologic de Silvicultură și Agricultură „Casa Verde” Timișoara, Colegiul Silvic „Theodor Pietraru” Brănești, Liceul Tehnologic Silvic Năsăud, Colegiul Silvic „Bucovina” Câmpulung Moldovenesc. Miza concursului a fost participarea la etapa europeană care se va desfășura în luna mai în Suedia.

Clasamentul a arătat astfel:

Rezultatul pe echipe:

Locul I – Colegiul Silvic „Bucovina” Câmpulung Moldovenesc
 Locul II – Liceul Tehnologic Silvic Gurghiu
 Locul III – Liceul Tehnologic Silvic Năsăud

The students (boys and girls also) are involved in different national and international scholar competitions in forestry¹⁰⁶




For the training of staff with higher education required for the forestry sector there are 2 Forestry faculties in: Brașov and Suceava and other 5 Departments of Forestry – 4 in Agricultural Universities: Timișoara, Cluj, Craiova and București and 1 in Faculty of Environmental Protection in Oradea. The share of women with higher forestry education that are teaching in universities is around 12% (for Faculties of Suceva - www.silvic.usv.ro and Brașov- <https://silvic.unitbv.ro>).

An analysis of job applications for NFA for the years 2018 and 2019 showed that the share of invited female candidates was 16.8% in 2019 and 17.8% in 2018. The share of women that succeed the application procedures was 28% in 2019 and 19% in 2018¹⁰⁷.

¹⁰⁶ <http://www.silvagrupo.ro/RezultateConcursuri.html>
<https://glasulvailor.ro/2019/04/24/argint-pentru-liceul-tehnologic-silvic-gurghiu-la-nationala-de-competente-in-silvicultura/>

¹⁰⁷ http://www.rosilva.ro/rnp/rezultate_concursuri_angajare_p_1047.htm

Table 58: Forestry education program in Romania

Forestry high schools		
Forestry high school	Colegiul silvic Bucovina Ø 84 students enrol annually. The share of girls is about 30%	
	Colegiul silvic "Theodor Pietraru" Brănești Ø 24 students enrol annually	
Vocational school for forest technicians	Colegiul silvic Bucovina Ø 84 students enrol in the 1 st year of which 26% are women	
Higher education		
"Ștefan cel Mare" University - Forestry Faculty (btw. 2016-2020)	Ø 75 students enrol annually In the last 5 years share of female students starting the program varies between 13 and 23%.	
"Transilvania" University of Brașov - Faculty of Silviculture and Forest Engineering	Ø 186 students enrol annually	

Forestry Faculty of Suceava offers one mentoring program for the first year students (man and women) regarding school dropout - "*Education and Friendship, Learning and Collaboration to reduce the university dropout by Forestry Faculty students.*" – EPIC.

2.7.8 Overview of initiatives and projects to support women in forestry

Stefan cel Mare University of Suceava organized, through the Mommypreneurs project, free courses in Entrepreneurship and Digital Competences for mothers with a maximum age of 29 years, who are on maternity leave or have completed maternity leave and do not have a job.

The Mommypreneurs project is funded by Iceland, Liechtenstein and Norway through European Economic Area (EEA) and Norwegian Grants.

The project started in January 2019 and will be implemented for 24 months by eight partners from seven European countries: Cyprus, Italy, Lithuania, Poland, Portugal, Romania and Spain. The implementation period was extended by 3 months to compensate for the gaps caused by the restrictions imposed by the coronavirus pandemic. <https://www.facebook.com/mommypreneurs.eu/>

The Women Power Code project is funded by the Erasmus Plus program and aims to eliminate gender differences in IT. The project is intended for women over the age of 40 who want to acquire and develop their programming skills, thus increasing their participation in the STEM / ICT sector. Project implementation duration: 36 months, September 1, 2017 - August 31, 2020. The partnership consists of: Civic Computing (UK), North-East Regional Development Agency (Romania), Digital Leadership Institute (Belgium), Eurocrea Merchant (Italy), Stichting Business Development (Netherlands), Daniel SG LTD (Bulgaria), BIOANIM (Slovenia).

<https://www.womenpowercode.eu>

EVA - Evolution Value Entrepreneurship for women on the labor market (EVA Project) Romania ranks last in the EU in terms of equal opportunities between women and men, obtaining the lowest score (35.3, compared to the EU average of 54) in analyzing the place of women in the family, at work, earnings, decision-making power, leisure and health, according to the Gender Equality Index compiled by the European Institute for Gender Equality in Brussels.

EVA Project was conducted between May 2014 and December 2015 and addressed women in Bucharest, Ilfov, Bacau, Galati counties. It aims to develop a unitary, integrated, functional and sustainable model to facilitate women's access to the labor market and the environment business at the level of the communities from the 3 regions (South-East, North-East and Bucharest - Ilfov), ensuring the promotion of gender equality and combating discrimination.

In order to carry out this mission and to contribute to increasing the quality of life of as many women in Romania as possible, the EVA team laid the foundations of the EVA Network community.

Obtained results:

- qualification of a number of 1.000 women in different occupations (barber, manicurist, pedicurist, babysitter, social worker, elderly caregiver at home, florist-decorator);
- certification by graduating short-term professional training courses for 150 women with higher education (project manager and entrepreneurial skills);
- 653 hours of consulting for the elaboration and implementation of the business plans developed within the granted courses;
- increasing the quality of life for a number of 1.000 people who were informed about the qualification opportunities and the chances for the active participation of women in the labor market;
- the establishment of EvaNetwork - the first interprofessional network of women entrepreneurs, whose mission is to support the integration of women on the labor market and the partnership in order to start a business
- 5 prizes were awarded for initiating independent activities for women participating in entrepreneurial skills courses;
- 15 women EVANetwork members were trained and certified as a mentor-trainer;
- The interactive platform www.evanetwork.ro was created, which offers members access to studies and research on equal opportunities and gender, consulting, etc.

- <http://www.4change.ro/proiecte-finalizate>

- www.evanetwork.ro

Over time, in Romania, the following projects have been implemented to support women:

1. Project Justice has no gender, (1 May 2017- 31 October 2019), /2016/RGEN/VAWA¹⁰⁸
2. Project - Female participation in high-tech enterprises, (2013-2018 and 2019-2023)¹⁰⁹ /

¹⁰⁸ <https://anes.gov.ro/proiecte-in-curs-de-implementare/>

¹⁰⁹ <https://www.interregeurope.eu/femina>

3. Project - Politici familiale, ocupare și roluri de gen: o analiză privind influența factorilor culturali asupra atitudinilor față de participarea femeilor pe piața muncii, (2007-2013)¹¹⁰
4. Program "Promovarea egalității de gen și a echilibrului dintre viața profesională și cea privată" finanțat prin mecanismul financiar SEE 2009-2014¹¹¹
5. Project, "Investește în oameni!", Activitatea 5 – Studiu .Situția Femeii – Perspectiva Socio-Profesională, (2007-2013)¹¹²
6. Project, Analiza diagnostic în domeniul egalității de gen în România în perioada 2014-2019¹¹³

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2.8 Country report: Serbia

Authors: Jelena Nedeljković, Marina Nonić, Mirjana Šijačić-Nikolić, Dragan Nonić

2.8.1 Forest sector

According to FAO Global Forest Resources Assessment (FRA) data, the total forest area in Serbia is around 2,720,000 ha (around 30% of the territory). In the period 2015-2020, forest expansion was 660 ha·yr⁻¹, deforestation was 40 ha·yr⁻¹, and forest area net change was 620 ha·yr⁻¹. Reforestation was 4.290 ha·yr⁻¹ in the period 2015-2020 (FRA, 2020).

Concerning the species composition, most of the forests are covered by European beech (29.4%), followed by Turkey oak forests (15.3%), forest group of acacia, aspen, and birch (9.9%), sessile oak forests (7.7%), Hungarian oak forests (7.1%), pine forests (5.6%), hornbeam forests (5.3%), and spruce forests (3.8%) (Šijačić-Nikolić et al., 2020). Serbia's forest area by designated management objectives in 2020 is shown in the figure below.

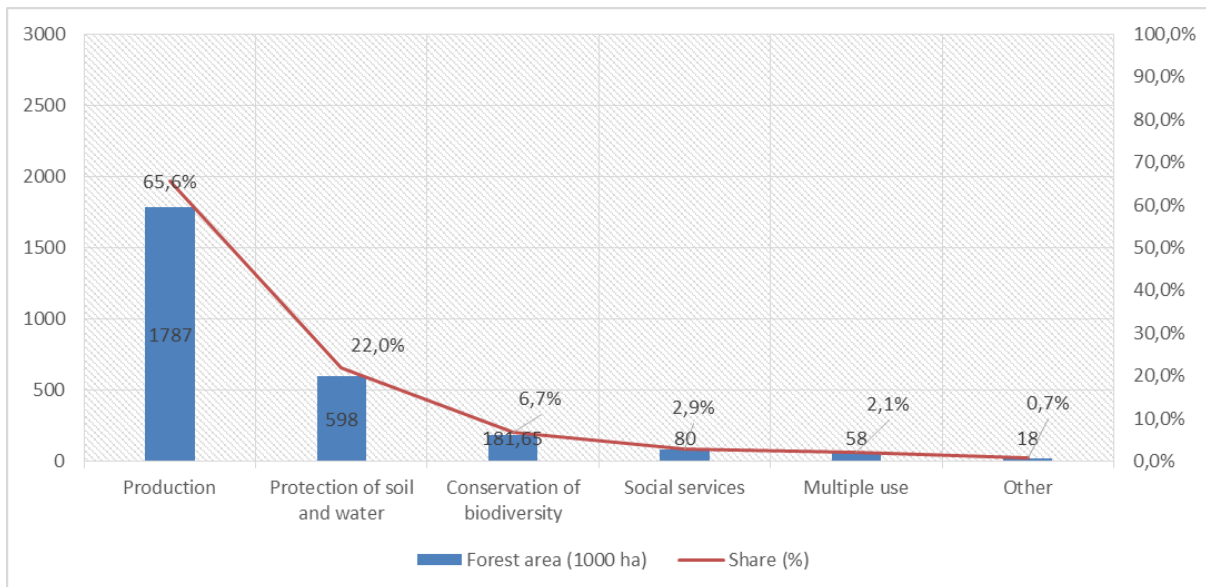


Figure 66: Share of forest area by primary designated management objectives

Source: FRA, 2020¹¹⁴

Almost $\frac{2}{3}$ of forests are productive, and around $\frac{1}{4}$ are forests whose primary designated objective is the protection of soil and water (FRA, 2020).

Serbian forests consist of a diversity of ecosystems, and range in quality from well-stocked forests to severely degraded and depleted coppice and shrubland. Pure broadleaf stands dominate with 59.0%, mixed broadleaf stands cover 29.3%, pure coniferous stands 8.7%, mixed broadleaf and coniferous stands 2.4% and mixed stands

¹¹⁴ Calculations are based on Forest Directorate data, forest users official data (PE "Srbijašume", PE "Vojvodinašume", PE "NP Tara", PE "NP Kopaonik", PE "NP Fruška gora", PE "NP Đerdap", PE "Šume Goč", Faculty of Forestry), forestry school, statistical offices and previous FRA reporting (FRA, 2020).

of conifers cover only 0.6% of the total forest area. The total area of well-preserved forests in Serbia accounts for 70.6% (Banković et al., 2009).

High stands occupy 27.5%, coppice regenerated stands 64.7%, artificially established stands 6.1%, and plantations (poplar and willow clones) 1.7% of the total forest area (Banković et al., 2009). The total growing stock of forests amounts to 418.000.000 m³ of wood, the net annual increment of timber is 10.878.000 m³ and annual felling are 5.606.000 m³ (UNECE, 2020b).

As stated in the Forestry Development Strategy, the state of the total growing stock in Serbia, especially its privately-owned part, is unsatisfactory (2006). Serbian forests are characterized by the low standing volume of about 161 m³·ha⁻¹ and a low annual increment of about 4.0 m³·ha⁻¹, unfavourable structure by origin (high stands occupy 27.5%, coppice regenerated stands 64.7%, artificially established stands 6.1% and plantations: poplar and willow clones 1.7% of the total forest area), etc. (Banković et al., 2009).

The structure of private forests is the biggest problem for sustainable management (Pezdevšek Malovrh et al., 2017). Private forests have dominant coppice origin. Their growing stock is 183.000.000 m³, net annual increment is 4.416.000 m³ and annual fellings are 2.203.000 m³ (UNECE, 2020b). The overall potential for wood mobilization in private forests is 616.689 m³·yr⁻¹, and the average utilization amounts to 57% of the annual increment (Pezdevšek Malovrh et al., 2017).

The annual volume of timber felled in 2016 for commercial purpose in Serbia was more than 3.1 million m³, 76% were produced in state-owned forests by the state enterprises, while the largest part of this wood volume (50%), is used as firewood (RAS, 2019).

The share of forest area certified by FSC¹¹⁵ in Serbia is 45.3%. The share of state forests certified by FSC is 85.5%. Private forests are not certified (Pezdevšek Malovrh et al., 2019).

The forest-based industry contributes 1.4% of the total GDP in Serbia (RAS, 2019) and its contribution to total exports accounted for cca 6% with a steady positive trend of growth in recent years (CEEC, 2020). The share of forestry and logging in GDP, without the participation of the processing timber is 0.3% (CEEC, 2020).

¹¹⁵ FSC is one of the most influential forest certification schemes implemented in many Southeast European countries and the only certification scheme implemented in Serbia. State forests managed by the public enterprise "Srbijašume" were partly FSC certified in 2009 (6 forest estates), and the process of certification was completed in 2012, when the remaining 11 forest estates were FSC certified. State forests managed by the public enterprise "Vojvodinašume" were FSC certified in 2008 (Pezdevšek Malovrh et al., 2019).

Forestry is, besides agriculture, the most important primary economic activity in rural areas of Serbia. Yet its potentials are far from being fully utilized. The value of main marketed forest ecosystem services, like biodiversity conservation, recreational functions, protective functions, and historical values, cannot be evaluated separately because of particular calculation forms, but it is displayed like other revenues in forestry enterprises financial balance sheets (Šijačić-Nikolić et al., 2020).

Covering more than ¼ of the land area, Serbian forests provide valuable market and non-market goods and services. The most important forest products recognized by local communities in Serbia are timber (firewood), non-wood forest products (NWFPs) (forest fruits and other edible plants, mushrooms, medicinal and aromatic plants) and game (for meat), as well as the use of materials for making natural dyes, processing leather and non-biological resources such as stone, clay, gravel, sand, etc. (Šijačić-Nikolić et al., 2020).

In many rural areas, forests provide employment and additional income. For example, 11-20% of households collect NWFPs in Serbia and for 6.1% these products represent income contribution (13.9% of collected weight is sold) (Lovrić et al., 2020). The income from NWFPs commercialization is considered as “very important” and “important” for the household budget in rural areas (Nedeljković et al., 2015).

2.8.2 Labour market and job opportunities in the area of forestry

It is important to notice that all data presented below include only the public sector, i.e. no workforce in privately-owned companies was recorded.

Data show that the forest sector (which consists¹¹⁶ of the subsectors: forestry and logging; wood manufacture; and paper manufacture) accounts for “2.2% of all employment, and the wood and paper manufacturing subsectors employ 10% of the industry workforce” (UNECE, 2020a). Employment in forestry and logging sub-sector accounted for 0.3% in Serbia in 2019 (SO, 2020).

Serbia experienced “a drop of 38% in its forest sector workforce, mainly because the pulp industry halved in size” in the period 1990-2015 (UNECE, 2020a). In the same period, Serbia’s workforce in forestry and logging sub-sector decreased by 25%. While lower employment rates were reported for forestry and logging in 2000 and 2010, employment has increased more recently (FRA, 2020).

¹¹⁶ According to the International Standard Industrial Classification of All Economic Activities (ISIC) of the United Nations statistics division (UNECE, 2020a).

Table 59: Employment in forestry and logging in Serbia

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Σ	F	M	Σ	F	M	Σ	F	M	Σ	F	M
Employment in forestry and logging	12.00	1.90	10.10	8.06	1.10	6.96	7.64	1.12	6.52	9.09	1.45	7.64
...of which silviculture and other forestry activities	6.00	0.95	5.05	6.45	0.55	5.90	6.11	0.56	5.55	7.27	0.72	6.55
...of which logging	3.60	0.00	3.60	0.81	0.00	0.81	0.76	0.00	0.76	0.91	0.00	0.91
...of which gathering of NWFPs	1.20	0.38	0.82	0.40	0.22	0.18	0.38	0.22	0.16	0.45	0.29	0.16
...of which support services to forestry	1.20	0.57	0.63	0.40	0.33	0.07	0.39	0.34	0.05	0.46	0.44	0.02

Source: FRA, 2020

Note: Because of lack of detailed data regarding employing sub-categories, like silviculture, logging, NWFP, and support services, estimation was done on the level of 80% of silvicultural activities, 10% of forest processing, 5% of NWFP and 5% of support services. The only exception was for the year 1990, where the contribution of forest processing was about 30%, while silviculture was 50%, NWFP 10%, and 10% of other services (FRA, 2020).

Employment of women in forest sector decreased marginally in Serbia in the period 1990-2010 (from 28% to 27%) (UNECE, 2020a) but has also increased in absolute terms more recently. Overall, however, the share of women employed in the forestry and logging remained more or less the same between 1990¹¹⁷ and 2015, ranging between 14 and 16% (FRA, 2020).

In sub-category “silviculture and other forestry activities”, the share of female workforce was 16% in 1990 (the highest), and decreased 2000 (9% in 2000 and 2010 and 10% in 2015). This sub-category has the highest share of the female workforce, compared to other sub-categories (FRA, 2020).

According to available data, no female workers were recorded in the period 1990-2015 in sub-category “logging” (FRA, 2020). The share of female workforce in sub-category “gathering of NWFPs” was the highest (6%), while in other years the share dropped (3% in 2000, and 4% in 2010 and 2015) (FRA, 2020). In the sub-category “support services to forestry”, the share of female workers was 10% in 1990 (the highest), 5% in 2000 and 6% in 2010 and 2015.

¹¹⁷ At that time, Serbia had a larger total area of the state and a joint state-owned enterprise in the field of forestry was formed on the entire territory, with about 10,000 employees. Today, the situation is much different.

2.8.3 Forest ownership

In Serbia, there are two types of forest ownership: state and private.

Table 60: Forest ownership in Serbia

Serbia	Forest cover (ha)	Share forest cover (%)	Share ownership (%)
Public ownership	1.157.950	43	100
State (e.g. Germany, Slovenia)	/	/	/
Provincial (Federal states, e.g. Bavaria)	/	/	/
Communal (Municipalities, e.g. Augsburg)	/	/	/
Private ownership	1.561.580	57	100
...of which owned by individuals	1,537,630	n.a	98
Individuals (f)	n.a	n.a	
Individuals (m)	n.a	n.a	
...of which owned by private business entities and institutions	23.950	1,5	2
...of which owned by local, tribal and indigenous communities	/	/	/
Other/unknown	/	/	
Total	2.719.530	100	
Source: FRA, 2020			
n.a. no data available			

According to the Law on Forests (2010), state forests are forests owned by the State, by administrative units of the public administration, or by institutions or corporations owned by the public administration. Private forests are forests owned by a physical or a legal person (companies, churches and religious communities). There is no precise data on the participation of individual sub-categories within the category of private forests because some private forest owners associations (PFOAs) are not active anymore, and the processes of privatization and restitution are still in progress (Nonić et al., 2015). In addition, there is no official data available on the share of female forest ownership.

The structure of private forests in Serbia is characterized by a big number of forest owners, small to average area of forest property and a lot of small forest parcels. Such forest ownership structure is the biggest problem for efficient management of the forests (Nonić et al., 2015).

Table 61: Structure of private forests in Serbia

Area of private forests (ha)	1.058.400
Estimated number of forest owners	900.000
Forest property size per owner (ha)	1,27
Number of forest parcels	3.900.000
Average size of forest parcels (ha)	0,30
Source: Glück et al., 2011	

The structure of private forests by property size classes and the number of owners are presented in the table below. More than 72% of owners have properties smaller than 1 ha, 26% of them own property from 1 to 10 ha, and 2% of the total number of forest owners have forest property bigger than 10 ha (Glück et al., 2011).¹¹⁸

Table 62: Structure of private forest property by the number of owners

0,01-1 ha	1-10 ha	10-20 ha	20-30 ha	over 30 ha	Total
638.322	233.846	8.372	1.516	426	882.482
Source: Glück et al., 2011					

After 2006 (i.e. after the adoption of Law on Restitution of property to churches and religious communities), a new sub-category of private forests - church forests – occurred in the private forest ownership category. By the end of December 2017, of the 33.867 ha of forests and forest land that was subject to restitution claims from churches and religious communities, 32.207¹¹⁹ ha had been returned, which represented approximately 95% of the total claims. The remaining 5% of claims are still being processed due to late registrations and tardiness on the part of the Agency for Restitution caused by the influx of new cases arising from claims by physical persons. By the end of June 2016, approximately 3.690 ha of forests and forest land had been returned to individuals, which represent 0.16% of Serbia's total forested area. The current status of the restitution process in terms of outstanding claims is unknown as no concrete data is officially available (Dobšinská et al., 2020).

2.8.3.1 Forest owner associations

The establishment of private forest owners associations (PFOAs) in the territory of Serbia began in 2006. Most of these PFOAs were established with the support from FAO projects at that time and with government subsidies for the construction of roads in private forests.

¹¹⁸The data relate to the territory of Serbia without Kosovo and Metohija and Vojvodina.

¹¹⁹ These data differ from data presented in table 61 because the restitution process is still ongoing (data in table 61 refer to 2015, and these refer to 2017).

So far, a total of about 30 local associations have been formed, of which (according to internal data of Forest Directorate) 17 are currently active (15 of them were formed after 2012). Around 20 PFOAs were formed in the period 2006-2009. Most of them ceased operations in 2010, mainly as a result of changes in the regulatory framework (the Law on Associations, which entered into force in 2009).

The model of PFOAs in Serbia has been functioning since 2006, but it has not been fully developed yet. PFOAs are NGOs and their statutes and overall goals are very similar. They aim to represent the interests of their members and not of joint forest management. Every owner manages his/her forests, while the association coordinates joint works like forest infrastructure (Nonić et al., 2015).

In Serbia, there is another form of private forest owners' organisations. The forest community, named "Beočin Forest community" was founded in 1903. It covers an area of 293 ha of forests and counts 77 members. The functioning of forest communities relies on joint management of forest land. The association aimed to help owners who were mostly poor peasants to earn additional income and meet their needs for firewood through joint forest management. The forest community performs all activities related to forest management. The basic principle of community organization is that each member, i.e. co-owner has a certain number of "ideal parts" and makes a profit based on the participation in the ideal parts. Ideal parts always remain in the property of the individuals or the community because no owner is allowed to sell his/her share in the property to a person who is not a member of the forest community. The assembly of the community members decides who can buy a patch of forest on sale (Nonić et al., 2015).

Unfortunately, there are no official statistics on PFOAs in Serbia. Thus, the number of members, the share of women, forest area, etc. remain unclear.

2.8.4 Forest administration

The top institutions of public administration at the national level are the Ministry of Agriculture, Forestry and Water Management (through the work of the Forest Directorate) and the Ministry of Environmental Protection (through the work of the Sector for Nature Conservation and Climate Change). At the provincial level¹²⁰, the Provincial Secretariat for Agriculture, Water Management and Forestry performs tasks of public forest administration. The Provincial Secretariat for Urban Planning and Environmental Protection is in charge of nature conservation.

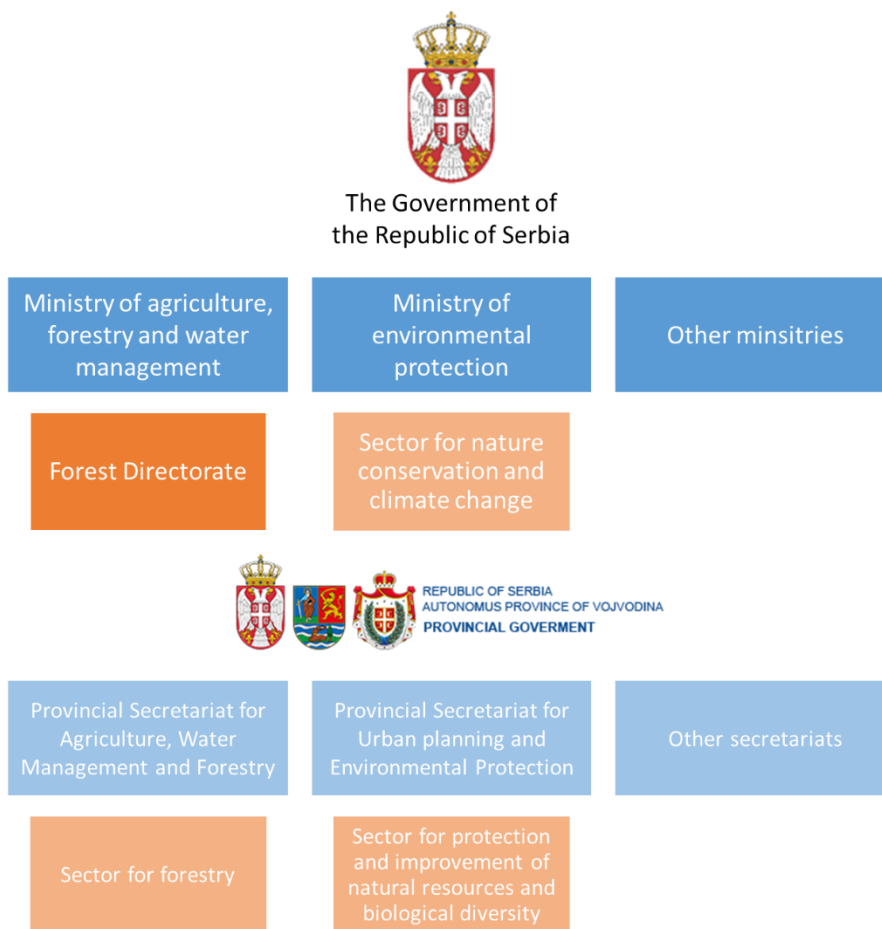


Figure 67: Public forest and nature conservation administration in Serbia

The Ministry of Agriculture, Forestry and Water Management, through the work of the Forest Directorate (see figure below), is responsible for the formulation and implementation of the state forestry policy and relevant legislation at the national level.

¹²⁰ The Autonomous Province of Vojvodina is an autonomous province of Serbia, located in the northern part of the country

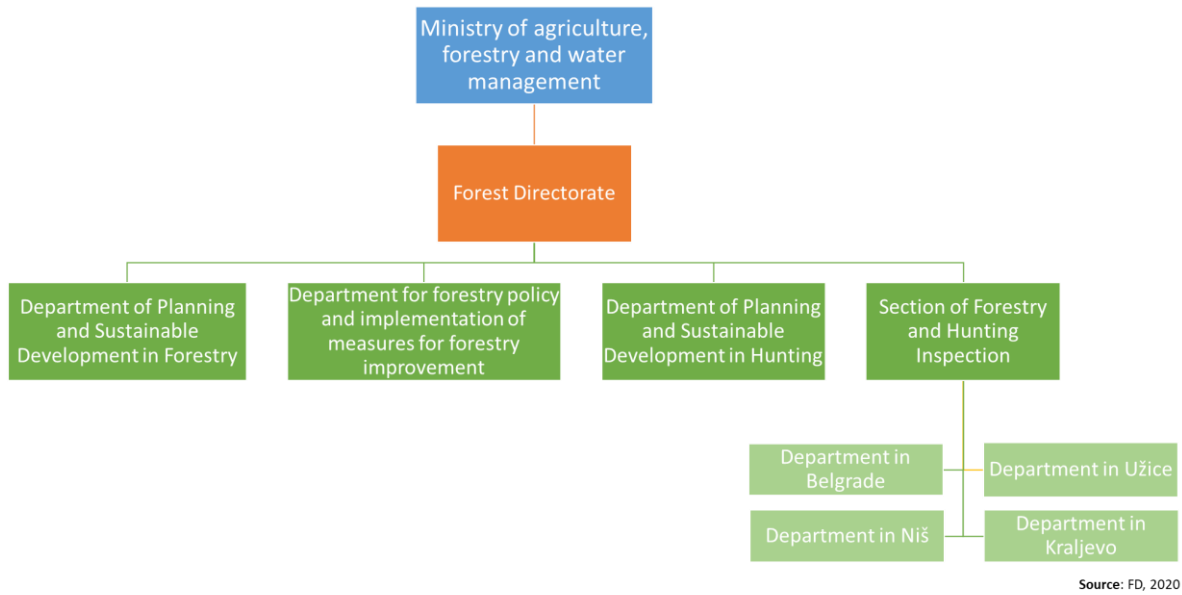


Figure 68: Organizational structure of Forest Directorate

The **Forest Directorate**, as an administrative body within the Ministry, was established in 2002. In organisational terms, the Forest Directorate is divided into 3 departments and 1 Section, which consists of 4 departments, with headquarters in Belgrade, Niš, Užice and Kraljevo (FD, 2020). Their main tasks are shown in the table below.

Table 63: Tasks of organisational units within the Forest Directorate

Organisational unit	Main tasks
The Department for forestry policy and implementation of measures for forestry improvement	<ul style="list-style-type: none"> - preparation of professional bases for determining and implementing policy in the field of forestry and for drafting laws and bylaws in the field of forestry; - development of the Forestry Development Program of the Republic of Serbia; preparation of analyses, reports, information and other professional and analytical materials in the field of forestry; - preparation of a financial plan in the part related to extension services in private forests; - preparation and implementation of a public call for the allocation of budget incentives for forestry improvement; - monitoring the implementation of contracted works from the budget for forestry improvement; - defining the areas, required types and quantities of forest reproductive material for afforestation; - monitoring the state of production of forest seeds and planting material and preservation of the genetic variability of forest species and proposing measures to improve this activity; - organizing professional seminars and conferences within the scope of the Department, etc.

<p>The Department for planning and sustainable development in forestry</p>	<ul style="list-style-type: none"> - participation in the development of strategic and planning documents in forestry; - monitoring, analysis and approval of forest management planning documents; - expert opinion on amendments, drafts and proposals of laws, other regulations and general acts; - preparation of necessary documents for the fulfilment of international obligations in the field of forestry; - preparation of opinions on regulations, planning and other acts in the field of environmental protection, spatial planning and other relevant sectors; - maintaining a forest fund database; - records on basic statistical indicators of forestry of the Republic of Serbia; - monitoring the implementation of entrusted tasks in private forests; - protection of forests from plant diseases, pests and fires, as well as monitoring and proposing measures for their control; - organization of professional seminars and conferences related to the development and implementation of planning documents in the field of forestry, etc.
<p>Department of planning and sustainable development in hunting</p>	<ul style="list-style-type: none"> - proposing measures for the improvement of hunting; preparation of professional bases for drafting regulations in the field of hunting; - approval of planning documents for hunting ground management and monitoring its implementation; - preparation of a financial plan in the part related to funds for game development and hunting; - defining measures and activities for the allocation of budget funds in the field of hunting; - organizing professional seminars and conferences within the scope of the Department, etc.
<p>The Section of forestry and hunting inspection</p>	<ul style="list-style-type: none"> - supervision over the performance of entrusted tasks and over the implementation of laws and other regulations in the field of forestry, forest seeds and planting material, forest protection and hunting; - monitoring the implementation of laws and other regulations and acts related to forests in national parks; - coordinating the work of inspectors in the field; - participation in providing expert decisions in drafting regulations and other general acts within the scope of the Forest Directorate; - participation in the preparation of reports, answers to parliamentary questions and petitions related to the scope of the Forest Directorate; - giving opinions, instructions and guidelines for the application of regulations; - providing professional assistance to inspectors in the supervision and application of laws and other regulations in the field of forestry and hunting; - drafting requests for initiating criminal proceedings, appeals and objections to decisions of judicial bodies made on the submitted requests, etc
<p>Source: FD, 2020</p>	

Main tasks of the Forest Directorate are related to (FD, 2020):

- formulation of forest and forest-conservation policy;
- promotion and use of forests and wildlife;

- implementation of measures for the protection of forests and wildlife;
- control of seeds and planting material in forestry;
- inspection in the field of forestry and hunting, etc.

The Forest Directorate has 59¹²¹ employees in total of which 21 (36%) are women.

Table 64: Employees in Forest Directorate

		Forest Directorate	- Department for forestry policy and implementation of measures for forestry improvement - Department for planning and sustainable development in forestry - Department of planning and sustainable development in hunting	Section of forestry and hunting inspection
Total		59	26	33
Female (F)		21	13	8
Professional forestry education (F)	total	16	8	8
	BSc / forest engineering graduates	14	6	8
	MSc / magistra	2	2	0
	PhD	0	0	0
	secondary school	0	0	0

Around $\frac{3}{4}$ (76%) of women employed in the Forest Directorate have professional forestry education. Almost all of them (14 out of 16) are forest engineering graduates and 2 have magister degree.

Around $\frac{1}{4}$ (24%) of employees in the Section of forestry and hunting inspection are women. All of them (8) are forest engineering graduates.

Women are heads of the Department for forestry policy and implementation of measures for forestry improvement and the Department of the Section of forestry and hunting inspection in Belgrade. Apart from these positions, there were no other management positions where women have been in the previous 10 years.

In addition to management positions, women (with professional forestry education) work on the following tasks within the Forest Directorate: forest protection, monitoring and analytical data in the field of forestry; monitoring the implementation of forestry

¹²¹ As of October 2020

policy measures; protection and improvement of forestry; planning activities in the field of forest reproductive material, republic forestry and hunting inspector.

The main forestry-related tasks of the Ministry of environmental protection, the Provincial Secretariat for agriculture, water management and forestry, and the Provincial Secretariat for urban planning and environmental protection are shown in the table below.

Table 65: Main forestry-related tasks of other public institutions

Institution	Tasks
Ministry of environmental protection, the Sector for nature conservation and climate change	<ul style="list-style-type: none"> - preparation of regulations and control of its implementation (e.g. Law on environmental protection, Law on nature conservation, Law on national parks), - approval of management plans for certain protected areas (e.g. approval of national park management plans)
Provincial Secretariat for agriculture, water management and forestry, the Forestry Sector	<ul style="list-style-type: none"> - drafting and proposing legislation, - approval of management plans and management programs for private forests, - preparation of general guidelines for the development and improvement of forests, etc. in the territory of Vojvodina
Provincial Secretariat for urban planning and environmental protection	<ul style="list-style-type: none"> - activities related to nature protection and protected natural assets, ecosystem and species diversity; - collection of data and scientific information important for the protection, development and improvement of natural values, and their sustainable use; - professional and analytical work in the field of protection of natural resources and biodiversity; - preparation of an act on placing a natural good under protection, in accordance with the law governing nature protection; - preparation of plans and programs for the management of natural resources in accordance with strategic documents; - implementation of procedures for giving consent to plans, programs and other acts regulating issues related to the protection and use of natural values, etc
Source: (2014), MEP, 2020 and PSUEP, 2020	

Within the Ministry of environmental protection, the Sector for nature conservation and climate change carries out state administration affairs, which inter alia relate to protection and improvement of the environment; inspection in the field of environmental protection; nature conservation; issuing permits for collection and export of NWFPs; approving cross-border traffic of protected plant and animal species, etc. (MEP, 2020). As shown in the previous table, the Sector for nature conservation and climate change participates directly in the forestry sector.

At the provincial level (Vojvodina), the Provincial Secretariat for Agriculture, Water Management and Forestry performs the tasks of the provincial administration in the field of forestry and hunting, which relate to "preparation of acts for the Assembly of

AP Vojvodina or the Provincial Government" (2014). Within the Provincial Secretariat, forestry is under the jurisdiction of the Forestry Sector.

The Provincial Secretariat for urban planning and environmental protection, among other issues, declares a state of environmental endangerment and controls the exploitation and protection of natural resources in the territory of Vojvodina, provides continuous control and monitoring of the state of the environment, gives conditions for securing the measures for the environment protection, etc. (Šijačić-Nikolić et al., 2020).

2.8.5 Companies and enterprises in forestry and related services

This chapter describes companies in forestry in Serbia, covering:

- public enterprises (PEs) for state forest management (PE "Srbijašume" and PE "Vojvodinašume");
- public enterprise for management of protective forests (PE "Šume Goč");
- public enterprise for management of national parks (PE NPs) (PE "NP Kopaonik", PE "NP Tara", PE "NP Đerdap", PE "NP Fruška gora");
- forest-based small and medium enterprises;
- NWFP-based enterprises.

State forests in Serbia are managed by different enterprises and organisations (PE "Srbijašume", PE "Vojvodinašume", PE "Šume Goč", PE NPs, other PEs, educational and research organisations, etc.).

Public enterprises for state forest and national parks' management and management of protective forests (PE "Srbijašume", PE "Vojvodinašume", PE NPs, PE "Šume Goč") manage around 85% of state forests in Serbia.

Public enterprise for state forest management "Srbijašume", Belgrade, was established by the Republic of Serbia to manage forests in state ownership and perform professional, technical and advisory activities in private forests, following the principles of sustainable management. PE "Srbijašume" carries out both its public and business mission through 19 parts (17 Forest Estates, Bureau for Planning and Design in Forestry, and Protection Workshop). Forest estates (17) are composed of 67 Forest management units and 15 work units. PE "Srbijašume" manages 892.073 ha of state forests and forest lands and carries out professional-advisory service activities on 1.223.627 ha of private forests. PE "Srbijašume" manages 54 protected areas on an area of 338.640 ha (more

than 50% of total protected area in Serbia). Also, PE “Srbijašume” manages 44 hunting grounds on a total of 488.020 ha (Srbijašume, 2020).

Public enterprise for state forest management “Vojvodinašume”, Petrovaradin, was established to manage forests, protected areas and hunting grounds following the principles of sustainable development (sustainable forestry) and profitability while increasing forest cover and improving the existing forest fund of Vojvodina.

PE “Vojvodinašume” carries out both its public and business mission through 6 parts (4 Forest Estates, “Vojvodinašume-Lovoturs” and „Vojvodinašume-Turist”). Forest estates (4) are composed of 19 Forest management units and 17 work units. PE “Vojvodinašume” manages 129,878 ha of state forests and forest lands and 37 protected areas (87.620 ha). Around 2/3 of the total managed area is under protection. Besides, PE “Vojvodinašume” manages 17 hunting grounds on a total of 109.824 ha (Vojvodinašume, 2020).

The share women in the total number of employees in PE “Srbijašume” and PE “Vojvodinašume” is shown in the table below (as of October 2020).

Table 66: Share of women in total employment in PE “Srbijašume” and PE “Vojvodinašume”

	PE “Srbijašume”	PE “Vojvodinašume”
Total number of employees	3,191	1,443
...of which women	699	239
Total number of women with professional forestry education	188	42
...of which PhD degree	0	0
...of which magister/MSc degree	5	10
...of which BSc/graduate forest engineer degree	127	22
...of which forest technician	56	10

In PE “Srbijašume”, 22% of the total number of employees are women, and 27% of them have a professional education in forestry (67% are graduate forest engineers). Currently, women (with professional forestry education) hold following management positions: head of gene fund and nursery production department, head of development department, head of foreign trade and marketing department, head of forest management and forest management planning section, head of forest utilisation section, head of commercial affairs section, head of forest administration. Women were in the same management position in the last 10 years, as well as assistant director for forestry and head of department for forest protection and protected areas.

In PE “Vojvodinašume”, 17% of the total number of employees are women, and 18% of them have a professional education in forestry (52% are graduate forest engineers). In this enterprise, 3 women (with professional forestry education) currently hold management positions: head of forest management and forest management planning

section, head of section for hunting and fishing, head of commercial and marketing section. As well, women were in the following management position in the last 10 years: director-general (2005-2019), assistant director for forestry (2015-2019), head of forest estates and forest administrations, head of forest management and forest management planning section, head of section for hunting and fishing, head of commercial and marketing section.

Public enterprise for management of protective forests “Šume Goč”, Vrnjačka Banja, was established to perform activities of general interest, i.e. “ensuring the permanent performance, development, improvement, protection, preservation and increase of value and generally useful functions of protective forests that are of vital interest for the life and future development of the municipality of Vrnjačka Banja”. By the decision of the Municipal Assembly of Vrnjačka Banja from 1986, the forests on the area of about 8,200 ha were declared protective. Biodiversity conservation, soil and water protection, restoration, care, afforestation and reforestation, use of forests and forest land, as well as other activities, with special emphasis on the protective function of land and water are enterprise’s priorities. At the same time, the enterprise has economic goals, which refer to the obligation to achieve a positive financial result (SG, 2020).

In PE “Šume Goč”, total number of employees is 74, of which 15 (20%) are women (as of October, 2020). Professional education in forestry has 4 (27%) of them (1 is graduate forest engineer and 3 are forest technicians). Currently, no women are in management positions, nor have they held these positions in the last 10 years.

According to the Law on national parks from 1993¹²², in Serbia, the NPs are managed by PEs. **Public enterprises for national park management** “implement a protection regime in the NP and manage natural values, construction land that is transferred to manager’s use and management, facilities that serve the management of natural values, as well as other immovable goods entrusted to management, unless otherwise specified by law” (1993). There are 5 NPs, i.e. 5 PEs, which manage them:

1. PE “NP Fruška gora”;
2. PE “NP Đerdap”;
3. PE “NP Kopaonik”;
4. PE “NP Tara”;
5. PE “NP Šar planina”.¹²³

Concerning the area, PE “NP Đerdap” manages the largest NP. In all NP, most of the area is state-owned. Also, in all of them (except in NP “Fruška gora”), most of the area

¹²²The Law on NPs from 1993 was in force until 2015, i.e. until the adoption of the new Law on NPs. However, the provisions of the Law on NPs from 1993, which refer to the establishment of public enterprises, as NP’s managers, are valid even after the adoption of the new law, in accordance with Art. 26 of the Law on NPs from 2015.

¹²³ Located in Kosovo and no data available

is in the 3rd-degree protection regime (proactive protection). A very important characteristic of all NPs in Serbia is that forests and forest land occupy $\frac{2}{3}$ or more than the total area.

Although their main function is the management of protected areas, these enterprises also perform other activities, such as the provision of services (tourism, hunting, and fishing), extension services in private forests, forest management, use of NWFPs, educational activities, etc.

The share of women in a total number of employees in PE NPs is shown in the table below (as of October 2020).

Table 67: Share of women in total employment in PE NPs

	PE "NP Fruška gora"	PE "NP Đerdap"	PE "NP Kopaonik"	PE "NP Tara"
Total number of employees	140	85	71	185
...of which women	42	24	9	37
Total number of women with professional forestry education	6	0	0	10
...of which PhD degree	0	0	0	0
...of which magister/MSc degree	0	0	0	1
...of which BSc/graduate forest engineer degree	3	0	0	7
...of which forest technician	3	0	0	2

In PE "NP Fruška gora", 30% of the total number of employees are women, and 14% of them have a professional education in forestry (50% are graduate forest engineers). Currently, 1 woman (with professional forestry education) holds a management position, working as nursery manager. In the last 10 years, 2 women were holding management positions (head of protection and improvement unit).

In PE "NP Đerdap", 28% of the total number of employees are women. However, none of them has a professional forestry education. In the last 10 years, women with professional forestry education did not hold any management position.

In PE "NP Kopaonik", 13% of the total number of employees are women. However, none of them has a professional forestry education. In the last 10 years, 1 woman (with professional forestry education) has held a management position, working as head of the section for improvement of natural values.

In PE "NP Tara", 20% of the total number of employees are women, and 27% of them have a professional education in forestry (70% are graduate forest engineers). Currently, 2 women (with professional forestry education) hold a management position, working as assistant director for planning, protection and development and

head of private forests section. In the last 10 years, 4 women (with professional forestry education) were holding management positions (assistant director for planning, protection and development, head of private forests section, a nursery manager and head of landscape planning section).

In 2019, there were 3.374 companies in the **forest-based industry**. More than 90% of enterprises are privately owned. The forest-based industry has employed 52.041 workers in 2019 (RAS, 2020). In 2018 the export of forest-based industry amounted around €1.2 billion. In the period January-June 2019 export of furniture and products of wood, cork, straw and paper amounted to around €618 million, with a share of 4.4% in the total export of Serbia (RAS, 2019). The main export destinations is the EU (67%) (RAS, 2020).

In Serbia, the development of service **SMEs in forestry** (forest contractors) was slowed down until 2000, because the PE "Srbijašume" performed all forest use activities. However, a process of restructuring of PE "Srbijašume" began in 2001, and among other, aimed to reduce labour costs (due to the high degree of over-employment) and costs associated with the procurement and maintenance of own machinery. In that period, workers were offered to take over part of the mechanization, and, eventually, become business partners of the PE in the use of forests, which led to the formation of a number of these SMEs. Over time, their number increased, and other PEs began to hire them. This indicates that, in the last 20 years, public enterprises for state forest management in Serbia rely heavily on forest contractors, when it comes to performing logging, transport, etc. (Nonić, 2015). The main characteristics of these enterprises in Serbia are:

- family businesses, with a small number of employees (usually 1-5);
- small production capacities;
- mainly performs tasks for PE (PE "Srbijašume", PE "Vojvodinašume", PE NP);
- have very few specialized forestry staff;
- business is conducted in difficult field conditions and depends on weather conditions.

One of the biggest problems that these companies face is the lack of financial resources to invest in modern machinery (they currently have outdated equipment), which harms the efficiency of their business (Nonić, 2015).

The development of the private sector in Serbia has caused the increasing engagement of SMEs in activities related to the collection, purchase, processing and selling of **NWFPs** in both state and private forests. Today, these companies have a dominant role in NWFPs sector in Serbia. According to available data, in the period 2007-2010, 215 were engaged in NWFPs-related business, of which 211 were companies from the private sector. NWFPs-based enterprises in Serbia most often belong to the group of

micro or small, family businesses, which are mainly located in rural areas. Most of them had up to 50 employees. The specificity of these companies is the dependence on weather conditions. Precisely due to unreliable and irregular procurement, many of these companies do business with 2 or more types of NWFPs (e.g. mushrooms and forest berries), thus ensuring business even in case of the poor yield of a certain type of these products during one season. NWFPs from Serbia are most often sold on the international market. NWFPs are most often exported to Germany and Italy, although important export destinations are other European countries, such as France, Austria and Switzerland. These companies face several problems: underdeveloped domestic market, uncertain international market, large price fluctuations, lack of skilled labour, difficult access to credit (when investing, they mostly rely on their funds), insufficient cooperation with other companies, etc. (Nedeljković, 2015).

Unfortunately, there are no data of share of female workers in SMEs in forestry and NWFPs-based enterprises in Serbia.

2.8.6 Forest-focused interest groups

Key stakeholders in forest sector in Serbia include:

- competent public authorities (ministries and provincial secretariats);¹²⁴
- public enterprises for state forest and national parks management;¹²⁵
- forest-based small and medium enterprises;¹²⁶
- professional organizations and environmental NGOs;
- educational and research organizations;¹²⁷
- private forest owners and their associations.¹²⁸

¹²⁴ Further described in chapter 2.8.4

¹²⁵ Further described in chapter 2.8.5

¹²⁶ Further described in chapter 2.8.5

¹²⁷ Further described in chapter 2.8.7

¹²⁸ Further described in chapter 2.8.3

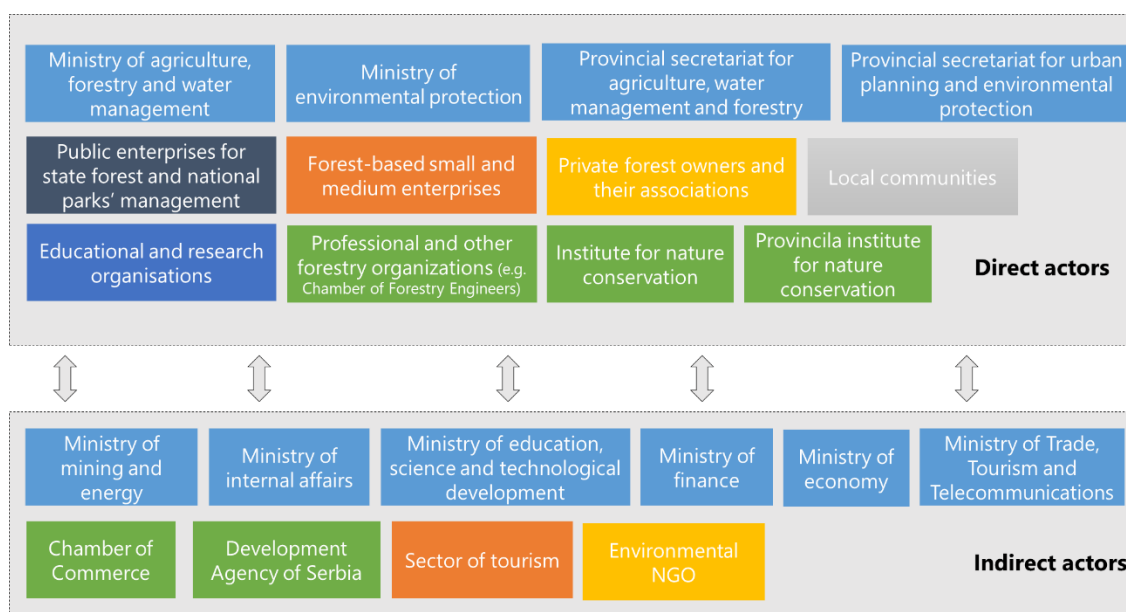





Figure 69: Direct and indirect actors in forest sector in Serbia

Their role is very different and ranges from normative and supervisory, through the provision of professional and advisory services and education, to the promotion of ideas on the development of the forestry sector. Also, their interests about private sector forestry are different and cover a wide range of interests: from the implementation of policies, which, directly or indirectly, relate to private sector forestry, through improving service delivery and mobilization of wood resources, education and employment, all the way to the sustainable management of private forests, etc. (Nonić et al., 2016).


The main characteristics of professional organizations and NGOs in forestry in Serbia are shown in the table below.

Table 68: Goals and structure of professional organizations and NGOs in forestry in Serbia

Stakeholder	Goals	Structure	Women representation
<p>Chamber of Forestry Engineers (since 2010)</p> 	<p>The Chamber of Forestry Engineers was established to improve the conditions for performing professional work in forestry, to protect the general and individual interest in performing work and organizing the provision of services in forestry, as well as to</p>	<p>Steering committee (7 members) Supervisory board (5 members) Expert Committee (12 members) Ethics Committee (9 members) Assembly (66 members)</p>	<p>Steering committee (1 female member) Supervisory board (1 female member) Expert Committee (1 female member) Ethics Committee (3 female members) Assembly (11 female members)</p>

	<p>achieve other goals. The members of the Chamber are forestry engineers. The Chamber was established as a legal entity with its headquarters in Belgrade by the Law on Forests.</p>		
<p>REFORESTA - Scientific and Professional Society (since 2014)</p>	<p>REFORESTA is a society of scientists, researchers and professionals involved in various aspects of reforestation and afforestation. Main objectives: - sharing information and knowledge among Society members - to encourage research in this area Main activities: - publishing of REFORESTA Journal, - organizing International Conferences, - running educational and research projects</p>	<p>REFORESTA is organized at four levels: 1. Assembly (52 members), 2. Supervisory board (3 members), 3. Steering committee (3 members), 4. President.</p>	<p>Assembly 27 female members Supervisory board (3 female members)</p>
<p>Rural center Sova (since 2014)</p>  <p>Udruženje Ruralni centar Sova</p>	<p>Deals with rural development in broadest sense, tourism, ecology (bird protection, waste, afforestation, greening) and education on these topics.</p>	<p>Total number of members is 56, of which around 15 are active members.</p>	<p>36 women are members</p>
<p>Pokret gorana Vojvodine (Environmental movement of Vojvodina) (since 1960)</p>  <p>POKRET GORANA VOJVODINE</p>	<p>Main goal: - development of communities in which everyone actively and responsibly participates in sustainable development Areas of work: - education for sustainable development - local sustainable development - public advocacy - reforestation</p>	<p>Secretariat: 5 full-time employees (President; Educational Programme Coordinator, Manager of Ecological Centre "Radulovacki", Youth Program Coordinator; Local Sustainable Development Program Coordinator) and 3 seasonal workers. Total number of members is around 2,000, of which around 50 are active members.</p>	<p>Educational Programme Coordinator is female Around 1,150 women are members</p>

		The management structure is: Steering committee (5 members) Supervisory board (3 members) Assembly (15 members)	
<p>National Biomass Association SERBIO (since 2012)</p> 	<ul style="list-style-type: none"> - Development of markets and a favourable business environment for the sustainable bioenergy sector - Increasing public awareness about the possibilities of using biomass - Promotion of public-private partnerships in the field of biomass use - Improving knowledge, research and development of renewable energy sources in Serbia 	<p>SERBIO has 40 members:</p> <ul style="list-style-type: none"> - Physical persons - NGOs - Companies <p>Management consists of:</p> <ol style="list-style-type: none"> 1. President 2. Steering committee (9 members) 3. Secretary. 	<p>President and Secretary are female</p>
<p>Lovačko udruženje "Damski lovački klub" (Hunting Association "Ladies' Hunting Club") (since 2012)</p> 	<ul style="list-style-type: none"> - Hunting and game breeding - Promotion and development of women's rights, - To improve nurturing and enable further development of hunting tradition and culture - Contribution to popularization and improvement of hunting, through protection and improvement of environment and animal protection, - Preservation of natural habitats - Integral development and improvement of the quality of life without or with minimal and acceptable impact on the environment and biodiversity diversity 	<p>Ladies' Hunting Club is organized at four levels:</p> <ol style="list-style-type: none"> 4. assembly (21 members), 5. Supervisory board, 6. Steering committee, 7. president. 	<p>All members of Ladies' Hunting Club, Supervisory board members, Steering committee members and the president are female</p>

	Ladies' Hunting Club is member of International Council for Game and Wildlife Conservation (CIC)		
<p>Srpski damski lovački klub "Artemida" (Serbian Lady Hunting Club "Artemida") (since 2013)</p> 	<ul style="list-style-type: none"> - Development of hunting and hunting ethics - Environmental protection - Organization of seminars and education in order to develop cooperation and inform hunters about modern trends in hunting, hunting activities in Serbia and abroad 	<p>Artemida is organized at four levels:</p> <ol style="list-style-type: none"> 1. assembly (33 members), 2. Supervisory board (7 members), 3. Steering committee, 4. president. 	<p>All members of Artemida, Supervisory board members, Steering committee members and the president are female</p>

2.8.7 Education and training in the field of forestry

There are 4 career opportunities for forestry education in Serbia: (a) vocational training as forest technician; (b) higher education for forest engineering at BSc level; (c) higher education for forest engineering at MSc level; (d) higher education for a doctor of biotechnical sciences - Ph.D. level.

As shown below, it is possible to enter a study program in higher education after vocational training. The student can start his higher education at the University of Belgrade - Faculty of Forestry with an undergraduate study program at the Department of Forestry, and to continue its education through master's degree studies and doctoral studies at the same Faculty.

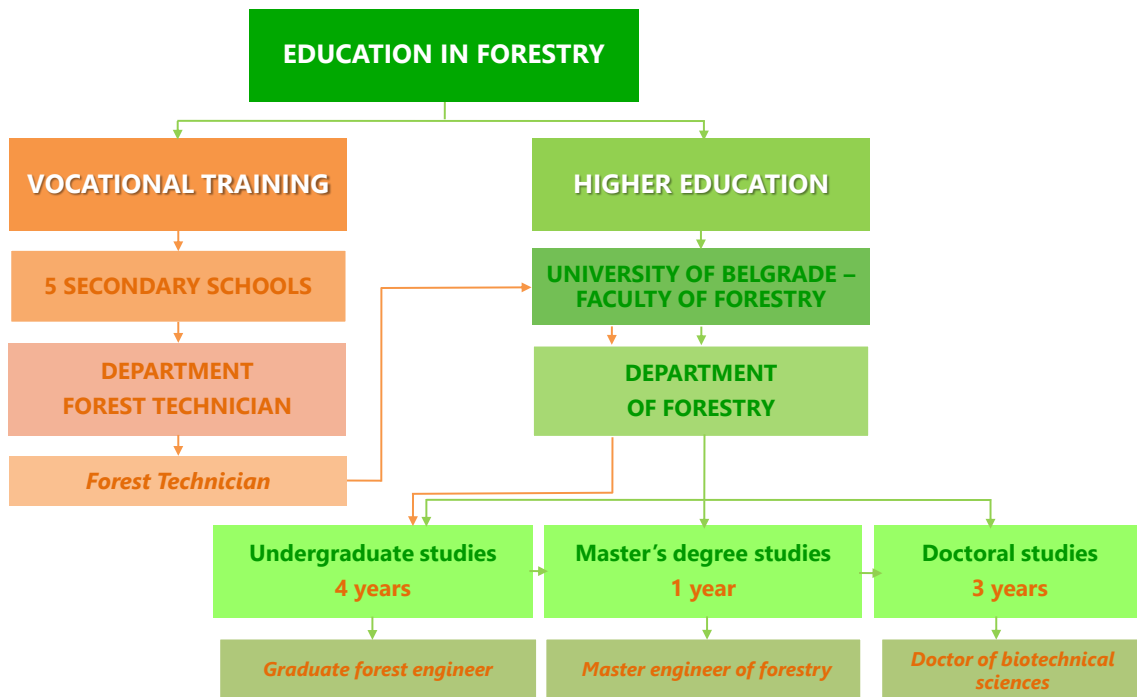


Figure 70: Education in forestry in Serbia

In Serbia, there are **5 secondary schools** in which is possible to acquire vocational training for forestry technicians and **1 Faculty of Forestry**.

Forestry School from Kraljevo, with its 130-years-long tradition, is the leader in vocational training for forestry technicians (4-year-education). Students learn how to afforest, how to use different machines and equipment, how to plant new and improve the condition of existing forests, how to use non-wood forest products in controlled quantities to remain for future generations, etc. Numerous extracurricular activities are also represented within the school.

Within **Food, Forestry and Chemical School** from Sremska Mitrovica, there is a department *forest technician* (4-year-education).

Within **Agro-forestry School "Josif Pančić"** from Surdulica, there is a department *forest technician* (4-year-education) within the field "Forestry and Wood Processing". Within **Technical School "Mileva Marić Ajnštajn"** from Novi Sad, there is a department *forestry technician* (4-year-education), within the field "Forestry and Wood Processing".

Within **Secondary Vocational School "Krug"** from Novi Sad, there are two departments within the field "Forestry and Wood Processing": *forest technician* (4-year-education) and *forester* (3-year-education).

Number of secondary-school students per school year and share of female secondary-school students in the period 2010-2020 is shown in the figure below.¹²⁹

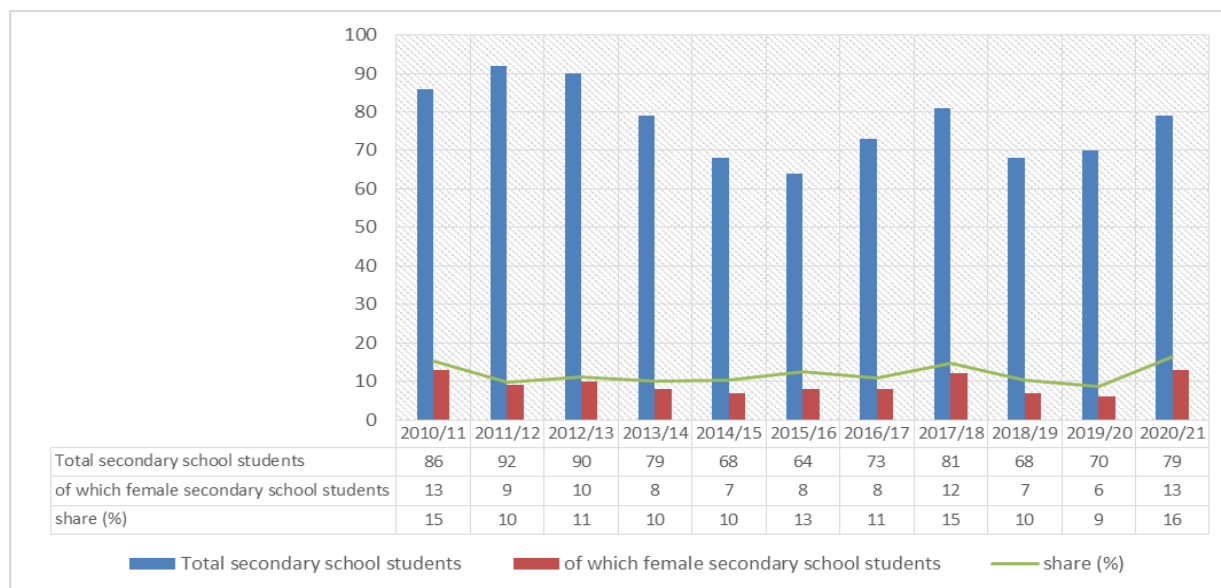


Figure 71: Number of secondary-school students and share of female

In the last 10 years, 850 students graduated from secondary schools (training for forestry technicians), 101 of whom were women. The highest number (92) of secondary school students was recorded in the school year 2011/2012 and the lowest in 2015/2016. On average, the share of female students in these schools is 12%. The highest share (16%) is recorded in the current school year (2020/21) and the lowest (9%) in the previous school year (2019/20).

University of Belgrade - Faculty of Forestry, with its 100-years-long tradition, is the highest educational and scientific institution in Serbia in the fields of forestry, wood industry, landscape architecture, and soil and water resources protection. As a part of permanent education, the Faculty organizes knowledge innovations, professional improvement: training and education of experts of various specializations. Its current organizational structure includes the existence of 4 departments: the Department of Forestry; the Department of Technology, Management and Design of Furniture and Wood Products; the Department of Landscape Architecture, and the Department of Environmental Engineering in the protection of soil and water resources. These four departments produce different engineering profiles through the process of education, covering a wide field of activities within the economic and institutional structure of the Republic of Serbia. The Faculty of Forestry has a leading role in the development and modification of the forestry sector in Serbia in the past decades, through the education

¹²⁹ Data refer to 3 secondary schools: Food, Forestry and Chemical School from Sremska Mitrovica, Agro-forestry School "Josif Pančić" from Surdulica, and Technical School "Mileva Marić Ajnštajn" from Novi Sad.

of experts in undergraduate studies (bachelor), master's degree studies, and doctoral academic studies, also through scientific research and the support of the national policy in this sector.

The first level of studies is undergraduate studies (bachelor)¹³⁰, which is relevant primarily for the labor market and lasts for 4 years (8 semesters). At this level, the students not only acquire theoretical knowledge but sufficient competencies, both general and professional, which enable them to continue studying at the next study level. Students who graduate from the study program Forestry obtain the professional title *Graduate forest engineer*. The study program of master's degree studies lasts for one year (2 semesters). It is implemented as four different study programs: Forestry, Technologies, management and design of furniture and wood products, Landscape Architecture and Ecological engineering for soil and water resources protection. Upon graduation from the master's degree study program Forestry, students obtain the academic title *Master engineer of forestry*. The study program of doctoral academic studies lasts for 3 years (6 semesters). It is organized as a single study program with 4 modules: Forestry, Technologies, management and design of furniture and wood products, Landscape architecture, and Ecological engineering for soil and water resources protection. After finishing the third cycle of studies and public defense of the doctoral dissertation at Forestry module, the student acquires the title *Doctor of biotechnical sciences*.

The Faculty of Forestry, including all 4 departments, has 198 employees (as of June 1, 2020) in research and development, of which 118 (59.6%) are women. Among 118 women, 63 (53.39%) work as researchers (including teaching staff), 17 (14.41%) as professional associates, 5 (4.24%) as technical staff, and 33 (27.97%) are engaged in other jobs. The number of women with University education is 97 (82.20%), 53 (44.92%) of them have Ph.D. degree, 17 (14.41%) magister and MSc degree, 27 (22.88%) BSc degree, while 21 (17.80%) women have secondary or other education. In total, 4 women currently hold management positions: 2 are vice deans - for science and international cooperation and for education (women hold 2 of 3 positions), 2 are heads of Department Councils (Department of Landscape Architecture and Department of Environmental Engineering in the protection of soil and water resources) (women hold 2 of 4 positions).

Women are heads of different chairs, laboratories and centers at the Faculty. In the last 10 years, women were in the following management positions at the Faculty of

¹³⁰ In addition to the undergraduate academic study programs the Faculty of Forestry, within the Department of Technology, Management and Design of Furniture and Wood Products, offers a study program of Undergraduate vocational studies "*Furniture and wood products technologies*" which lasts for 3 years, and Specialist academic studies - study program "*Wood and wood products trade*", which lasts for 1 year. Upon graduation from undergraduate vocational studies, students obtain the professional title *Vocational engineer of furniture and wood products technologies*. Upon completion of the specialist academic studies, candidates gain the professional title – *Specialist forest engineer*.

Forestry: heads of Department Councils, president of the Faculty Council, heads of chairs, laboratories and centers.

The staff structure at the Department of Forestry includes (as of June 1, 2020) a total of 58 employees, of which 22 (38%) are women and 36 (62%) men. Among the total number of employees, 36 belong to teaching staff (30 teachers and 6 associates), 4 are researchers and 18 belong to non-teaching staff (15 associates in higher education and 3 professional and technical associates). Regarding the gender structure of the teaching staff (36 employees in total) at the Department of Forestry, 30 (83%) employees are teachers (10 women and 20 men) - 13 full professors (3 women and 10 men), 8 associate professors (2 women and 6 men), and 9 assistant professors (5 women and 4 men). Other 6 (17%) employees are associates and all of them are men. There is a significantly lower representation of women among teachers ($\frac{1}{3}$), as well as an extremely uneven structure among associates, where there are no women. A higher share of women is present only among assistant professors (55%). In the category of researchers at the Department of Forestry, equal participation of men and women is represented, while among non-teaching staff the structure is more favorable in favor of women (53% among associates in higher education and 67% among professional and technical associates).

The number of graduate forest engineers¹³¹ from bachelor studies at the Department of Forestry at University of Belgrade-Faculty of forestry per year and share of female in the period 2010-2020 is shown below.

In the last 10 years, 399 students graduated from bachelor studies at the Department of Forestry at University of Belgrade-Faculty of forestry, 82 of whom were women. The highest number of female graduate forest engineers (14) was recorded in 2017 and the lowest in (8) 2018, 2019, 2020. In total, the share of female graduate forest engineers is 21%. The highest share (33%) is recorded in 2017.

¹³¹ Data refer to students which enrolled Faculty of Forestry after 2006 (after the implementation of the Bologna Process and comprehensive educational reform).

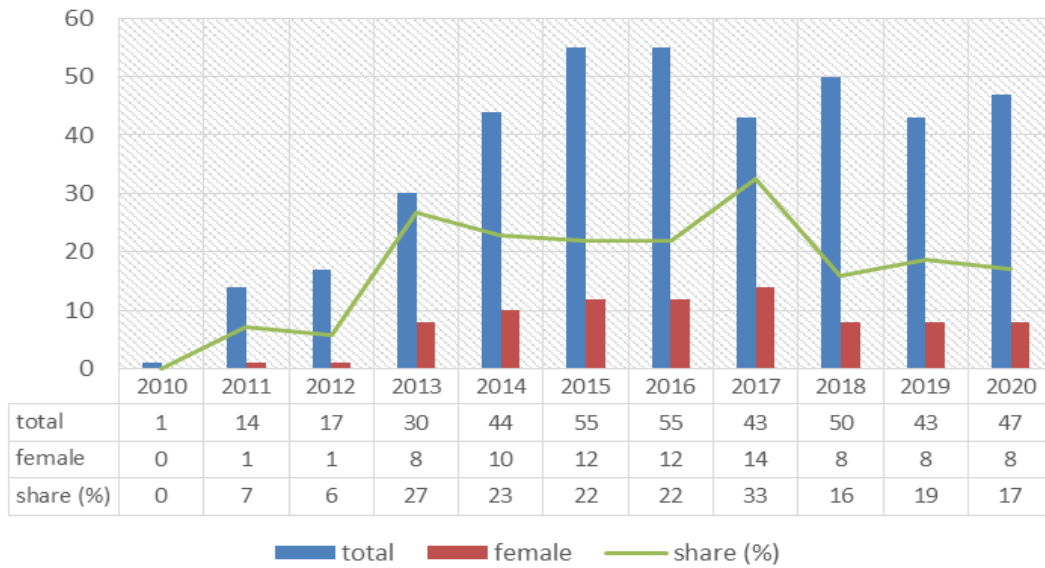


Figure 72: Number of graduate forest engineers and share of female (as of December 8, 2020)

The number of master engineers of forestry from the Department of Forestry at University of Belgrade-Faculty of forestry per year and share of female in the period 2010-2020 is shown below.

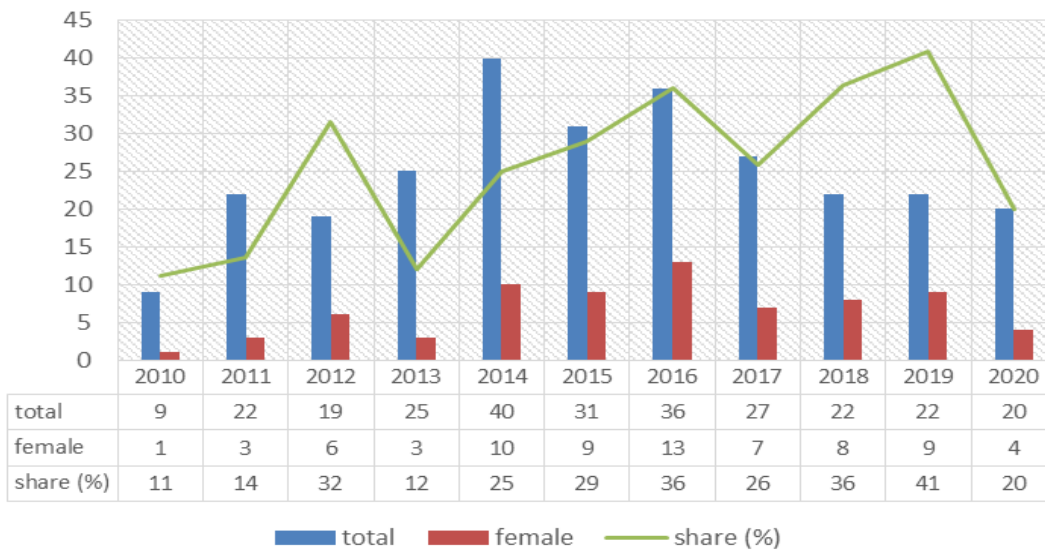


Figure 73: Number of master engineers of forestry and share of female (as of December 8, 2020)

In the last 10 years, 273 students graduated from master studies at the Department of Forestry at University of Belgrade-Faculty of forestry, 73 of whom were women. The highest number (13) of female master engineers of forestry was recorded in 2016 and the lowest in 2010. In total, the share of female master engineers of forestry is 27%. The highest share (41%) is recorded in 2019.

The number of doctors in biotechnical sciences¹³² from the Department of Forestry at University of Belgrade-Faculty of forestry per year and share of female in the period 2010-2020 is shown below.

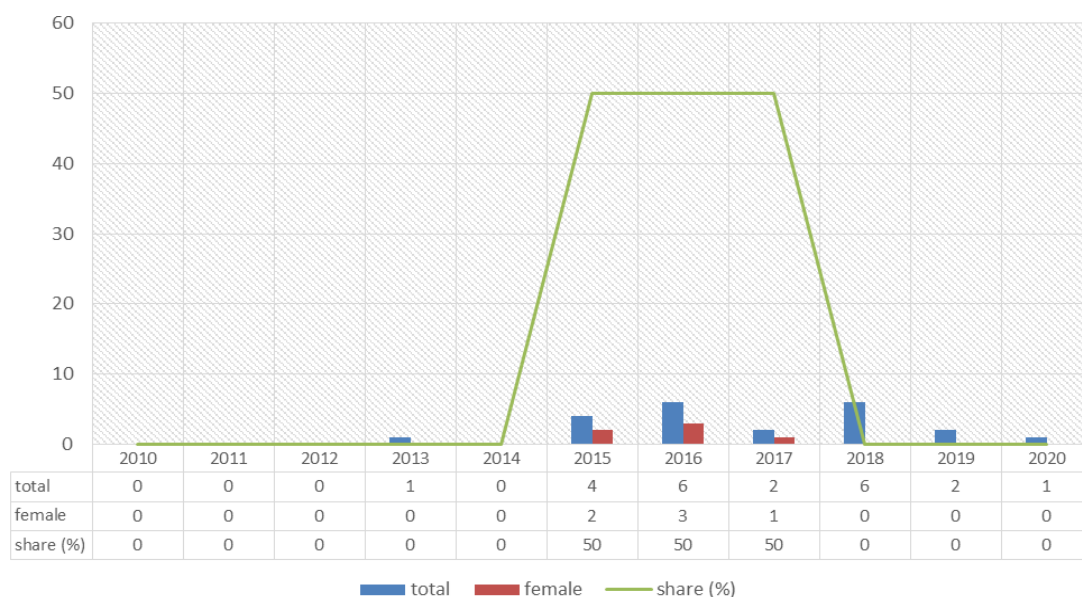


Figure 74: Number of doctors of biotechnical sciences and share of female (as of December 8, 2020)

In the last 10 years, 22 students completed doctoral studies (organised in accordance with Bologna process) at the Department of Forestry at University of Belgrade-Faculty of forestry, 6 of whom were women. All of them completed doctoral studies in the period 2015-2017. The highest number (3) of female doctors of biotechnical sciences (in accordance with Bologna process) was recorded in 2016. In total, the share of female doctors of biotechnical sciences (in accordance with Bologna process) is 27%.

The **Institute of forestry**, Belgrade, is a research organization, founded by the Government of the Republic of Serbia. Its main aim is to “make a significant contribution to the development of science and technology, implementation of scientific achievements, stimulation of social activities, and promotion of international cooperation”. The Institute’s main task is to conduct research in the field of forestry and environmental protection and improvement. Their projects have been successfully implemented through: “establishment of new and improvement of existing forests, reclamation and landscaping of the land degraded by surface mining of coal and other raw materials, afforestation of extremely unfavourable sites, soil erosion control, multifunctional valorisation of urban forests, spatial planning, forest policy, the introduction of new technologies of seedling production and breeding, forest tending and protection” (IF, 2020). Also, the Forest Directorate entrusted the Institute of forestry

¹³² Data refer only to PhD students enrolled at PhD studies Faculty of Forestry (Department of Forestry) after 2006 (after the implementation of the Bologna Process and comprehensive educational reform).

with the tasks of controlling seeds and production and the health status of nurseries in the territory of Serbia (Šijač-Nikolić et al., 2020). The institute has 49 employees, of which 29 (59%) are women. Professional education in forestry is held by 24 (83%) women, of which 12 have PhD degree, 1 magister and 1 MSc degree, 4 are graduate forest engineers and 6 are forest technicians (secondary education). In total, 4 women (with professional forestry education) currently hold management positions: 3 are heads of scientific-research departments and 1 is head of the laboratory. In the last 10 years, women were in the following management positions: Heads of Scientific-Research Departments, Heads of Laboratories, Assistant Directors, Presidents of the Scientific Council.

The **Institute of lowland forestry and environment**, Novi Sad, is a research organization whose activities are directed towards applied research that seeks to solve practical problems of research users (public forestry enterprises, private forest landowners, urban residents, etc.); and fundamental (basic) research that lay down the foundation for the applied research. The Institute has realized numerous national and international projects related to the silviculture and sustainable forest management of various forest tree species, conservation of forest genetic resources, projects on the establishment of protective greenery, rehabilitation of degraded forest lands, forest protection, forest management plans, etc. (ILFE, 2020). The institute has 39 employees, 9 of whom (23%) are women. Professional education in forestry has 3 (33%) women (2 with PhD degree and 1 is forest technician - secondary education). Currently, no women are in management positions, nor have they held these positions in the last 10 years.

2.8.8 Overview of initiatives and projects to support women in forestry

A list of R&D projects

- WISE SEE (Women in Sustainable Energy South-East Europe)¹³³
- Train, associate, employ, economically strengthen and improve the position of rural women through focused and sustainable activities¹³⁴

A list of studies

- Women in sustainable energy, climate change and the environment - leadership for change¹³⁵

¹³³ See: <https://wisesee.org/en/about-us/>

¹³⁴ See: https://www.kec-ks.rs/bigpage.php?page=index_left&id=obuciti

¹³⁵ See: <https://ravnopravnost.org.rs/wp-content/uploads/2018/11/Publikacija-%C5%BDene-u-odr%C5%BEivoj-energetici.pdf>

- Gender and climate change - training manual¹³⁶

An example initiative: social entrepreneurship in rural areas

- **Agricultural Development Fund *Fenomena* in Serbia** (source of data: Lukesch et al., 2020)

The Development Agriculture Fund *Fenomena* (DAFF) has been established by the Citizens Association “Fenomena” and operates as a business angel in support of integrated, sustainable agriculture in Serbia. The Fenomena Association works in the municipality of Kraljevo in central Serbia, where 45% of people live in rural areas. Agricultural production and processing have a high potential to support local economic development, as there are favourable environmental conditions and a significant proportion of the area comprises agricultural land (47%).

In 2006, Fenomena started by getting involved in the topics of gender equality, the issue of domestic violence, and the position of women in society. Their work is centred around three initiatives: (i) a centre for nonviolence—combating domestic violence and running an SOS phone—which has already operated for ten years; (ii) gender mainstreaming—advocacy for gender equality in public policies at the national and local level; and (iii) social entrepreneurship, which started in 2011, as a way to achieve economic independence, because until that point the association worked on a project basis. As part of its social entrepreneurship focus, in 2015 Fenomena initiated DAFF, a fund that operates as an independent business angel providing capital for the development of small rural business promoters. The fund is the first of this kind in Serbia.

Fenomena acquired an initial budget of \$30,000 (cca €27,000) from the Rockefeller Brothers Fund, which allowed the starting, piloting, and testing of the DAFF idea. The DAFF fund is strongly socially oriented and is used to invest in agricultural start-ups, benefitting young people or smallholders in the region who usually do not qualify for state subsidies, but want to stay in the village, create, and/or expand their businesses. Thus, DAFF supports local development. The principle is that Fenomena concludes loan contracts with micro and small agricultural producers or households based on a business idea. The beneficiary is obliged to return the sum to the DAFF increased by interests ranging from 2.5 or 10%, depending on the type of business and the expected benefits, from which the next business ideas will be financed. The duration of contracts depends on the business idea and the amount of money invested. The smallest contracts are for one year—amounts of about €600 to €650, for example, for an organic

¹³⁶ See: https://inovacije.klimatskepromene.rs/wp-content/uploads/2020/08/Prirucnik-za-trening_Web_SRB.pdf

certificate and the purchase of some raw materials. The largest loans have a payback time of five years with sums of about €10,000. It is foreseen that part of the DAFF earnings (3–4%) are invested in other activities of Fenomena, i.e., the SOS phone and support to the victims of domestic violence. Still, they cannot fully cross-finance these activities. At the moment, the main aim is to keep DAFF functioning and to gradually increase the volume of funding.

Since its early years, Fenomena got support from the Social Inclusion and Poverty Reduction Unit (SIPRU), which was set up by the Serbian government in 2009 and operates as part of the Office of the Prime Minister since 2018. The mandate of SIPRU is to strengthen government capacities to develop and implement social inclusion policies based on good practices in Europe. However, this body is financed by the Swiss Confederation as an international donor only for a limited time and lacks funding from Serbian government. One of the major successes of the SIPRU team was to mobilize direct financial support to social enterprises through the EU IPA (the Instrument for Pre-Accession Assistance) 2013 program. Fenomena was one of few rural social enterprises to be financed through this instrument. It created a curriculum for a training program for hard-to-employ groups of young people that aimed to start agricultural businesses. Its beneficiaries include young people without parental care, social allowance recipients, young women, and youth of Roma and other minority communities. The training curriculum was developed using existing practice examples from the DAFF fund. The IPA-funded action served to promote the DAFF and to attract more users. For the training purposes, Fenomena cooperates with the Regional Development Agency (RDA) Zlatibor, which now co-manages the training program and provides certificates for business plan writing, issued by the umbrella organization Regional Development Agency Serbia. This provides additional motivation for the beneficiaries to join the trainings.

Fenomena also conducted trainings in cooperation with other Serbian municipalities (Arijelje, Užice), supporting the most promising participants with DAFF funding. Further cooperation has included other Serbian NGOs, like the Slow Food Network or SOS Children Villages. More recently, Fenomena acquired support from the German and Swiss International Cooperation (GIZ and SDC) and UN Women.

Fenomena operates under the Law on Association, which allows economic activities to provide additional resources necessary for carrying out their basic non-profit activities. According to the representative of the Fenomena Association, no specific policies are supporting social innovations or enterprises in Serbia. DAFF was refused support from the funds of the Ministry of Agriculture. This underlines the rather weak role that public actors take in supporting social innovations for rural development. Meanwhile, the Fenomena representative stressed the need for supporting policies and financial instruments, especially for locally run social innovations, but also better cross-sectoral

policies to foster innovative and organic agricultural practices. This would reduce dependence on international programs and donors.

The concept of social entrepreneurship and innovation is very narrowly understood in Serbia, as a means to employ vulnerable groups such as people with mental or physical disorders or handicaps. There is no common understanding that activities in agriculture can be innovative and socially oriented businesses. Many of the DAFF activities are unpaid and carried out voluntarily by association members, which poses a sustainability challenge.

2.8.9 Literature

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2.9 Country report: Slovenia

Authors: Darja Stare, Polona Hafner, Janja Viher, Karmen Vaupotič

2.9.1 Forest sector

Slovenia is the third most forested country in Europe, after Finland and Sweden. 1.177.244 ha of forests cover more than a half of the country (58.1%). The area of commercial forests is 1.068.974 ha, there are 98.762 ha of protective forests and 9.508 ha of forest reserves. Protective forests and forest reserves are defined by Decree on protective forests and forests with a special purpose: (1) Protective forests are forests that protect lands from landslides, leaching and crumbling, forests on steep slopes or banks of waters, forests exposed to strong winds, forests that contain rapid runoff in torrential areas and therefore protect land from erosion and landslides, forest belts that protect forests and land from wind, water, landslides and landslides, forests in agricultural and suburban landscapes with a highly emphasized function of biodiversity conservation and forests on the upper limit of forest vegetation. (2) Special purpose forests with an exceptionally emphasized research function are forest reserves. These are forests which, due to their development phase and development so far, are extremely important for researching, studying and monitoring the natural development of forests, biodiversity and the protection of natural values and cultural heritage.

Most of the forests are located in the area of beech, fir-beech and beech-oak sites (70%), all of which have a relatively high production capacity. Growing stock and increment have been increasing for more than 50 years. In 1953, according to forest management plans, the average growing stock was 112 m³/ha, and at the end of 2018 it was 302 m³/ha. In commercial forests (multi-purpose forests and special purpose forests in which forest management measures are allowed), the average growing stock is even higher and amounts to 309 m³/ha. The annual increment is 8.800.536 m³ or 7.48 m³ per hectare. In commercial forests, the average increment per hectare is 7.75 m³. The share of coniferous trees in growing stock is 47% and 53% of deciduous trees. A comparison of the proportions of individual tree species indicates a decrease in the proportion of conifers and an increase in the proportion of deciduous trees. The decrease is the largest in the last 5 years for spruce (Poročilo Zavoda, 2019).

Table 69: Slovenia's forests in numbers referring to 2018

Surface area of forest	1.177.244 ha
Number of different native tree species	71
Growing stock	355.331.892m ³
Annual growth of growing stock	8.800.536 m ³
Annual harvest (2018)	6.060.959 m ³
Potential annual harvest (2018 forest management plans)	6.837.356 m ³

In 2018, the cut in Slovenian forests was more than 6 million m³ of trees, 72% of which have been conifers and 28% deciduous trees. The cut falls behind the possible one

according to forest management plans and it amounts to 89% of it (Poročilo Zavoda, 2019).

Moreover, the value of forestry production amounted to EUR 589 million, which was a 7% increase compared to the previous year 2017. The reason for that is a volume increase of forestry products and high value of forestry services. Values of forestry products and forestry services have been high due to the extreme weather conditions and consequently quite extensive rehabilitation of damaged forests due to the bark beetle gradation in 2018, which affected the intensive provision of forestry services. After extensive damage of forests in 2014 due to the ice storm and the bark beetle gradation in 2015, 2016 and 2017, and additional wind storms in 2017 and 2018, provision of forestry services continued in 2018 (Gale, 2019).

Factor income per employee involved in the forestry production decreased by 4% compared with the previous year and amounted to EUR 24.472 per employee. Income was influenced by higher values of forestry production (by 7%), intermediate consumption (by 13%) and employment (by 1%). The figure shows the index of forestry production (marked as output), which represents the value of forestry production in the current year compared to the production in previous year, gross value added (expressed as the difference between forestry production and intermediate consumption) and employment in forestry production (Gale, 2019).

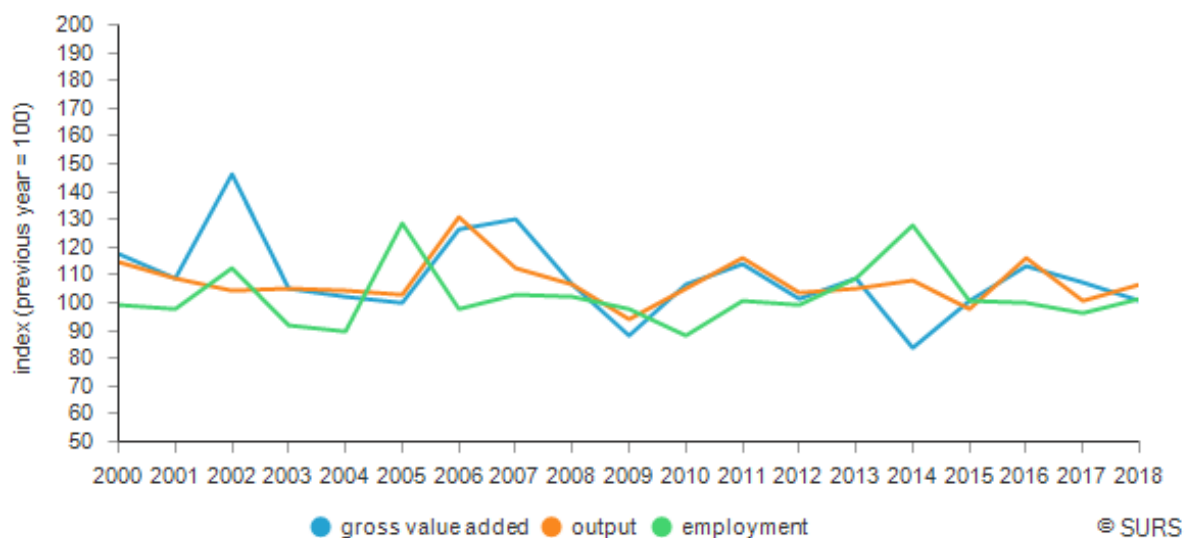


Figure 75: Forestry output, gross value added and employment in Slovenia (Gale, 2019)

One of the principles of forest management in Slovenia is promoting their multi-functionality, such as hunting, tourism, and recreation, and also crafts based on various goods from the forest. With the increased realization of possible felling and more

accurate evaluation of non-timber services and forest goods, the economic role of forests could be significantly increased. Non-timber forest services are also gaining importance and play an important role in improving attitude of the public towards the forest, forestry, and the environment. This area remains under-researched. There is a lack of non-timber forest functions inventory, complete valuation was not yet carried out and adequate compensation is not available to forest owners (Operativni, 2017). However, a pilot economic valuation of the recreation role of forests was carried out and the results can be used for categorization of areas according to recreational importance, for defining the optimal management regime (Japelj, 2015). In addition to the increasing pressure on forests and forest land, the lack of economic valuation of the non-timber forest functions is also one of the reasons for disagreements when confronting private interests and the interests of the general public (Operativni, 2017).

2.9.2 Labour market and job opportunities in the area of forestry

In 2018, 7.314 employees were involved in the forestry production, 1% more than in 2017 and 26% more than in 2013 (Figure 63). Most of them were self-employed (5,864 or slightly more than in the previous year). Besides the self-employed, 1.450 paid employees were also involved in the forestry production, which was 6% more than in the previous year. Several natural hazards have occurred in the last few years, due to which the number of employees in the forestry increased, as wood had to be harvested as soon as possible after the natural hazards (Gale, 2019).



Figure 76: Employment in Slovenian forestry (Gale, 2020)

According to the latest known data, the figures for 2019 are similar to those for 2018, namely that the forestry sector, measured in full-time equivalents, had 7.306 full-time employees, of which 5.809 were self-employed and 1.497 paid employees (SURS, 2020).

The table below shows the number of demands for new jobs in the forestry industry in Slovenia. Demand fell slightly in 2017. Later in 2018, however, it increased significantly.

Table 70: Number of registered demands for new jobs for the profession of forestry in years 2016-2018 in Slovenia

Year	2016	2017	2018
Number of registered jobs	227	191	351

Source: eSvetovanje, 2020

Slovenia Forest Service (SFS) employs 618 experts in the field of forestry, 13 % of whom are women. Only 18% of women at SFS hold leadership position and 36% are employed as local foresters. Another 46 % of female forest experts are employed as project assistants, in section of forest management planning and section for measures in forests. SFS will be an important employer in the future, as it plans to employ 250 highly educated professionals in the next five to ten years. Graduates of the master's degree in forestry can thus expect around 100 jobs in Slovenia.

At the Slovenian Forestry Institute as a leading forest research institution in Slovenia, 35% of all active researchers (51) are female. In the structure of young (less than 5 years of work experience) and senior researchers (more than 5 years of work experience) women represent 47% and 29%, respectively.

Within the Ministry of Agriculture, Forestry and Food, there is a Forestry and Hunting Directorate, which is responsible for the field of forests, forestry and hunting. The directorate employs 18 people, half of whom are women. Only five of these women (28% of all employees) are foresters and none of them are in leadership positions.

University education at all three levels takes place at the Biotechnical Faculty, Department of Forestry and Renewable Forest Resources, which is part of the University of Ljubljana. The department has 49 full-time employees, of which 14 are women (29%). Of the women, 4 are in pedagogical positions (with title and position), 3 are employed in the administration, 4 are researchers, 1 is a young researcher, and the rest are independent professionals.

Secondary education in the field of forestry takes place in Slovenia at two secondary schools. The schools have a total of 21 teachers for forestry subjects. Only one of them (5%) is a woman and she is the head of the forestry staff at one of the schools. For general subjects, the schools employ another 74 teachers, of whom 51% are women.

2.9.3 Forest ownership

Prior to World War II, Slovenian forests were predominantly peasant and landlord owned. In the 1950s, the structure changed: the large-scale forests were fully nationalized. There was private ownership for farmers and individuals. Farmers/farms were allowed to own up to 45 ha, individuals 5 ha of forest property. Nevertheless, in socialist Slovenia, unlike as in other Eastern European countries, agricultural land and forests were mostly privately owned (Kumer, 2017). In 1991, upon Slovenia's independence, legislation on denationalization was adopted. Denationalization Act (Official Gazette RS, No. 27/91 and amendments 31/1993, 65/1998, 66/2000) allowed the restitution of property that was confiscated after the war to farmers and other private forest owners, agrarian communities, landowners, and the Church. As a result, private forest ownership became more diverse, the share of private forests area increased, and co-ownership relationships due to the transfer of property rights to all heirs became more frequent.

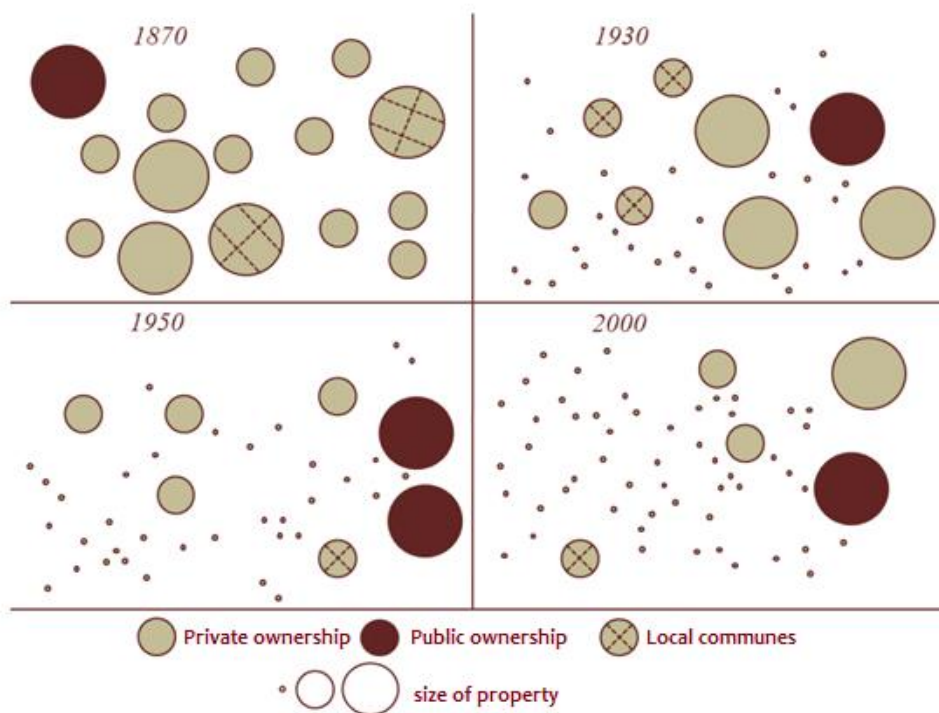


Figure 77: Graphic representation of changes in the ownership structure in Slovenia (Kumer, 2017)

Due to the process of denationalization the share of public forests has decreased from 34% in 1996 to 21% in 2018 making Slovenia one of the European countries with the lowest share of state-owned forests (Poročilo Zavoda, 2019). Today (2020), 75.3% of forests in Slovenia are privately owned, 20.5% of forests are public (owned by the state)

and 4.2% of forests are owned by local communities. The largest private forest owner is the Roman-Catholic Church (SFS, 2020).

Table 1: Slovenia's forests ownership structure referring to 2019

Slovenia	Forest cover (ha)	Share forest cover (%)
State-owned forests	240.964	20.5
Private ownership	885.569	75.3
Individuals (f)	292.012	34.9
Individuals (m)	506.496	60.5
Missing/foreigners/dead	38.656	4.6
Cooperatives	14.705	1.3
Church	33.700	2.9
Local communes	49.382	4.2
Total	1.175.915	100

Source: SFS, 2020

The average private forest estate is small and often further fragmented into several separate parcels. From the beginning to the end of the 20th century, the average size of private forest property in Slovenia decreased by 50%. In 1990, the average forest property of 2.8 ha stayed approximately the same until today, despite the return of large state estates to private owners.

Only 14% of private owners in Slovenia (without cooperatives and church) own a forest larger than 5 ha. These large forest owners manage half of privately-owned forest land (SFS, 2020) and for them forests represent a substantial source of income. The remaining 86% of private owners own forest holdings smaller than 5 ha and due to the small size, economic interest in these forests is poorly expressed.

According to the latest data there are ca. 300.000 (with co-owners even more) forest owners in Slovenia (SFS, 2020). On average, private forest ownership consists of three spatially separated estates, and one third of private forest estates are owned by two or more owners. Moreover, on average, smaller holdings have more owners than larger ones. The size of forest estates is still decreasing in the process of inheritance. For the great majority of these estates, forests are not of economic interest.

Slovenia is at the top of the EU Member States with a high proportion of female forest owners (41%). The potential of female forest owners in Slovenia is still undiscovered, as their share is surprising, considering that men traditionally play an important role in the inheritance of property in forestry. On average, women in Slovenia own smaller holdings and thus own less forest area than men. Gender differences influence attitudes towards forest ownership and forest management. Therefore, female forest

owners are treated with a view to the undiscovered potential for sustainable management of this most important natural resource (Vloga, 2020).

2.9.3.1 Forest owner associations

Act on Forests (Official Gazette RS, No. 30/93, 56/99 – ZON, 67/02, 110/02 – ZGO-1, 115/06 – ORZG40, 110/07, 106/10, 63/13, 101/13 – ZDavNepr, 17/14, 22/14 – odl. US, 24/15, 9/16 – ZGGLRS in 77/16) in article 74 a and b has set conditions for new organizational possibilities and forest owner associations (FOAs) have been recognized as an important mechanism to improve forest management in areas with fragmented ownership and to foster cooperation among small-scale forest owners. Since 2001, 29 local FOAs have been established with more than 4000 members (Figure 78). However, this number represents only around 1% of private forest owners in Slovenia. The main reason for this low number is that Slovenia is characterized by a small forest ownership and forest owners are not interested in management or in any kind of cooperation and association. The basic mission of FOAs is to socialize and exchange information related to forest management. The goal is also the implementation of training, joint purchase of equipment, and networking with related associations.

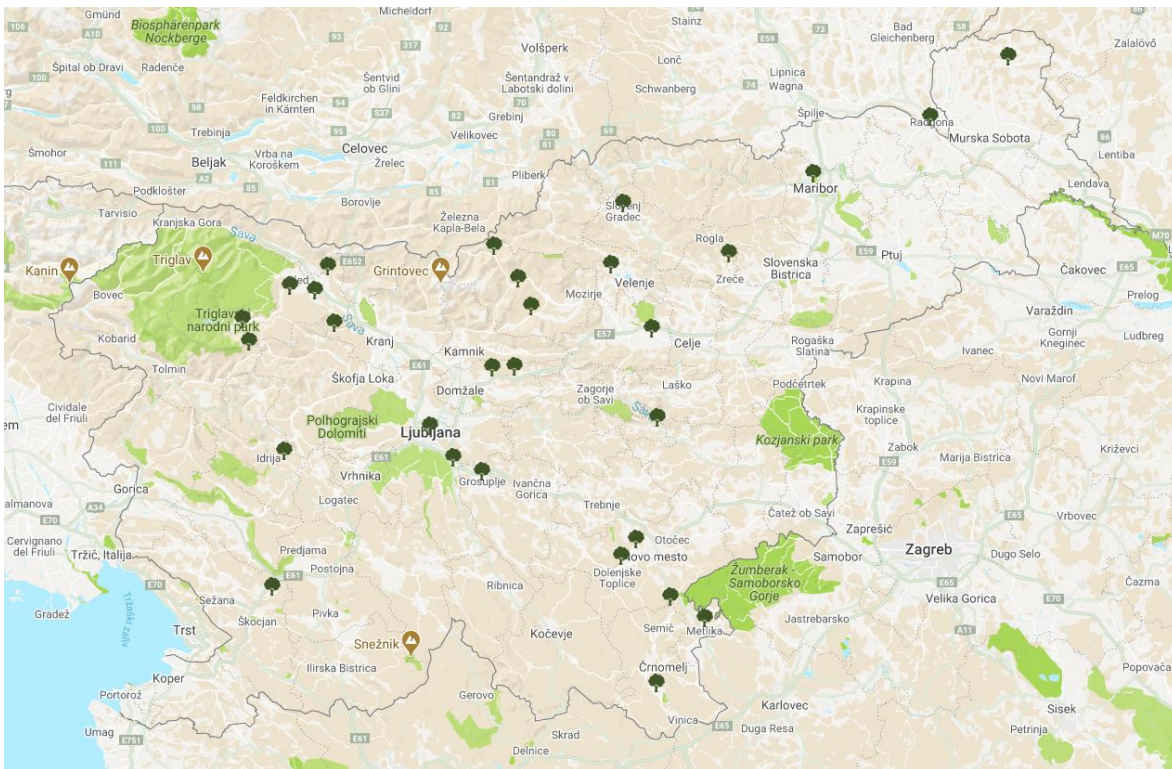


Figure 78: Map of local forest owners' associations in Slovenia

Source: <https://www.slovenski-gozdovi.org/>

The 29 forest owners' associations are affiliated to the forest owners' union, which was established in 2006 with the basic goal of connecting and representing local FOAs at the state level. It represents the interests of forest owners and promotes sustainable, multifunctional, and close-to-nature management of Slovenian forests. As written in the Statute of the Forest Owners Union of Slovenia (2006, amended in 2015)¹³⁷, the mission of the forest owners' union is to strengthen sustainable management of private forests, which, in addition to economic benefits, promotes social and cultural value and promotes environmental responsibility.

2.9.4 Forest administration

Ministry for Agriculture, Forestry and Food of Republic Slovenia is the highest body of forest authority in Slovenia. Within the Ministry, the Directorate of Forestry and Hunting is responsible for area of forests, forestry and hunting. Their main tasks are monitoring of the state-of-the-art situation and preparation of systematic solutions, supervision of the work of the public forestry service and monitoring the market for timber and non-timber forest services and goods. In the field of hunting, the main task is game management and preparation of legislation¹³⁸. Approximately half of Slovenian forests is part of Natura 2000 network, which is regulated by the **Ministry of the Environment and Spatial Planning of Republic Slovenia**¹³⁹. All regulations about management in Natura 2000 forests are adopted in forest management plans, which are finally approved by Ministry for Agriculture, Forestry and Food.

Sustainable, close-to-nature and multifunctional forest management, in accordance with the principles of environmental protection and natural values, sustainable and optimal functioning of forests as an ecosystem and the realization of their functions, is taken care of by the **public forestry service**. A public forest service was set up by the state to ensure the implementation of forestry regulations, to ensure the public interest in the management and use of all forests and forest area, regardless of ownership. The activities of the public forestry service are a) monitoring of forest's condition and development, b) forest protection, c) directing the management of forests, forest area, individual forest trees and groups of forest trees outside settlements, d) directing the construction and maintenance of forest roads, e) keeping records and databases for forestry, f) counselling and training of forest owners, g) forest seed production, the storage of forest tree and shrub species seeds, establishment and operation of a seed bank, g) providing seedlings of forest tree and shrub species, h) taking over works performed in the forest, if they were co-financed from the budget of the Republic of

¹³⁷ See: https://slovenski-gozdovi.org/images/doc/statut_15062015.pdf

¹³⁸ See: <https://www.gov.si/drzavni-organi/ministrstva/ministrstvo-za-kmetijstvo-gozdarstvo-in-prehrano/>

¹³⁹ See: <https://www.gov.si/drzavni-organi/ministrstva/ministrstvo-za-okolje-in-prostor/>

Slovenia. Public forest service is performed by Slovenia Forest Service and Slovenian Forestry Institute and supervised by Ministry for Agriculture, Forestry and Food.

Chamber of Agriculture and Forestry of Slovenia is the umbrella interest organization of natural and legal persons in the Republic of Slovenia engaged in agriculture, forestry and fishery. It aims to protect and represent their interests, to consult them and accelerate economical and environment friendly activities. Preferential tasks of Chamber are acceleration of development and improvement of economic conditions, assurance of specialist services operation, co-formation of legislation, improvement of social conditions in life, keeping settlement of Slovenian rural areas and promotion of Slovenian agriculture at home and abroad. It provides 4 specialist services, such as agricultural advisory service, selection and monitoring production in stockbreeding, forestry advisory service and centers for fruit-growing and nursery.

The Slovenia Forest Service (ZGS/SFS)¹⁴⁰, as a legal entity with the status of a public institution established by the Forest Act, performs the public forestry service in all Slovenian forests, regardless of ownership. The Slovenia Forest Service is organized at the national level with its headquarters at the Central Unit in Ljubljana, at the regional level in 14 regional units, and at the local level in local units. The public forestry service is almost entirely financed from the budget of the Republic of Slovenia, while special purpose hunting grounds are almost entirely self-financed. The founding rights and obligations are exercised by the Government of the Republic of Slovenia.

Slovenian Forestry Institute (GIS/SFI)¹⁴¹ is a public research institute of national importance in the field of basic and applied research of forests, forest landscape, forest ecosystem, game ecology, hunting, forest management, use of forest goods and services. In order to share knowledge and raise awareness of the importance of forest and its management, GIS aims to transfer and integrate scientific knowledge to all pores of the sustainable development of society. As part of its research program and complementary research, the Institute also performs public services in the interest of the state, forestry and environmental public services.

In the context of the management of state forests, company Slovenian State Forests (SiDG)¹⁴² is responsible for timber harvesting, timber sales, transporting wood assortments, maintaining forest infrastructure (except forest roads), forest protection and silvicultural work, any other work which is necessary for the provision of social and ecological functions, and other activities that are directly or indirectly related to state forest lands.

¹⁴⁰ See: <http://www.zgs.si>

¹⁴¹ See: <http://www.gozdis.si>

¹⁴² See: <https://sidg.si/>

The main policy that targets female participation and gender issues in forest sector in Slovenia, including all above mentioned organizations, is Resolution on the National Program for Equal Opportunities for Women and Men 2015-2021. This Program identifies key objectives to achieve:

- a)** the elimination of gender imbalances and gender segregation in employment and the elimination of unemployment,
- b)** improving the position of women and men in the field of social inclusion,
- c)** the removal of obstacles to the easier reconciliation of work and family and private life,
- d)** closing the gender gap and gender segregation in education,
- e)** eliminating inequalities in science and higher education,
- f)** the elimination of stereotypes in society, especially in the media, culture, and sport,
- g)** improving the health of women and men,
- h)** removing obstacles to the achievement of a balanced representation of women and men in the various fields of political and social life,
- i)** zero tolerance for violence against women and
- j)** strengthening the integration of the gender perspective into Slovenian development, peace, and other foreign policy initiatives.

Besides the above described program, also some other institutions target female participation in forest sector:

- Employment Service of Slovenia (Career Centre, employment advice and job-brokering, life-long career guidance, the labour market in Slovenia, etc.).
- Institute of the Republic of Slovenia for Vocational Education and Training (fundamental vocational qualification with the possibility of additional education for every Slovene citizen, linking education with the labour market, employability, lifelong learning, equal opportunities irrespective of gender and other characteristics).

Slovenian Institute for Adult Education (training of adult educators, information support, quality, non-formal learning, awareness raising, literacy, system support, research, guidance, validation).

2.9.5 Companies and enterprises in forestry and related services

In Slovenia, the "Act on Forests" together with the "Rules on the minimum conditions to be met by the executors of works in forests" (Official Gazette RS, No. 35/94, 50/06, 74/11 and 80/12) defines who and under what conditions may carry out work in forests (harvesting and skidding, sanitary cultivation works, etc.). Thus, the work can be performed by:

1. the forest owner, assisted by his legal heirs and their spouses and other persons in the form of neighbourhood assistance;
2. registered private individual or legal person - contractors who fulfil the minimum requirements.

While forest owners and others listed under the first point are not covered by the "Rules ...", others must meet the minimum requirements. The minimum requirements for the performance of forest work include both professional competences and the conditions laid down for safety at work by the regulations of Health and Safety at Work. Contractors who have obtained a permit to perform activities in forests must enclose to the forestry inspection (Inspectorate of the Republic of Slovenia for Agriculture, Forestry, Hunting and Fishing) evidence of compliance with the minimum conditions for the performance of works in forests. The minimum requirements for performing forests work are the conditions on the professional qualification of workers and the evidence required for the performance of work in accordance with the regulations governing safety and health at work for workers, work equipment and personal protective equipment (Triplat, 2019).

Forestry service providers in Slovenia that meet all the conditions for the implementation of works are collected on the **portal MojGozdar.si**. These contractors represent the majority of all forestry contractors in the country (Triplat in Krajnc, 2020).

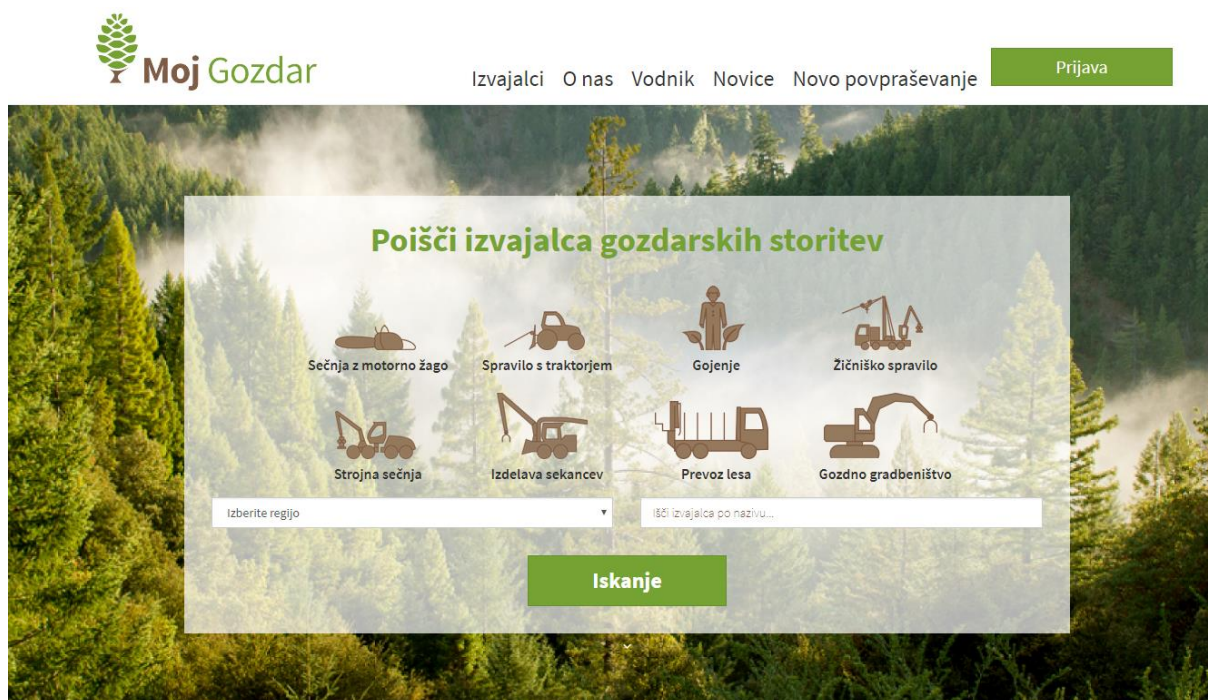


Figure 79: Entrance page of the portal MojGozdar.si

Until October 2020, 1.622 forest contractors were included, and this number increased on average by 10.2 contractors per month during the last year. This indicates an increase in the number of employees in the forestry sector, which has occurred in last few years due to the increased number of natural hazards as mentioned in chapter 2.9.2. From the organisation point of view, small type of forest contractors mainly prevail. 67% of forestry contractors included on the portal, provide the service of cutting and skidding, 8% provide wood chipping service, 7% transport of round wood, 5% cable crane yarding and 4% fully mechanised harvesting (Triplat in Krajnc, 2020).

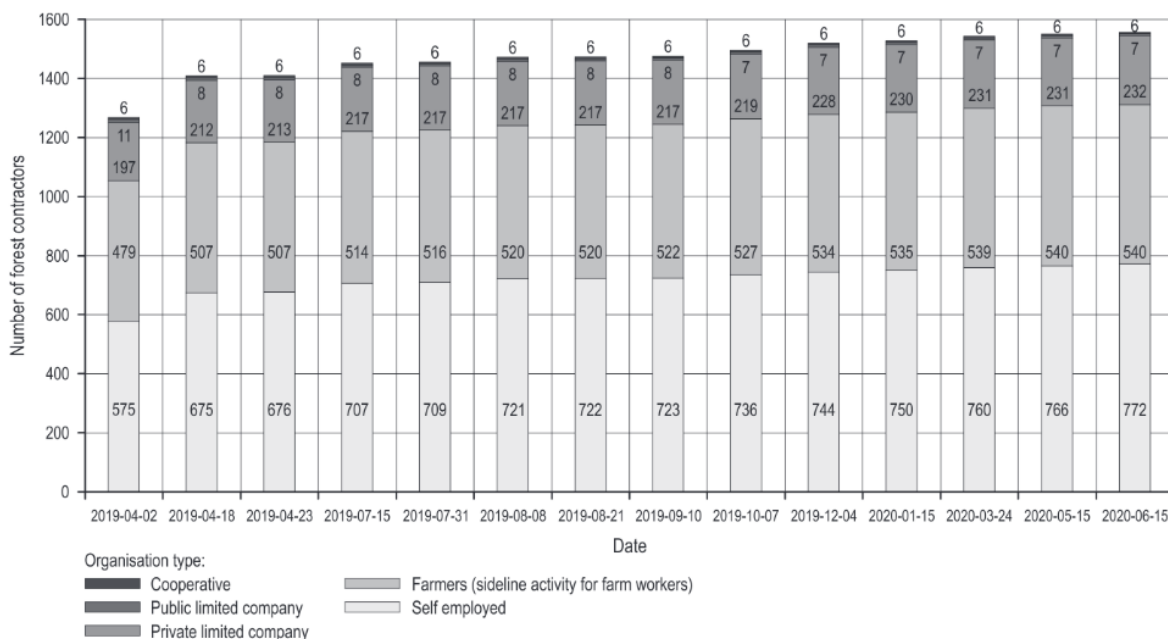


Figure 80: Organisational structure of forest contractors

Source: Triplat in Krajnc, 2020

State forests are managed by the company Slovenski državni gozdovi (SiDG; in translation Slovenian State Forests). SiDG was established in March 2016 as a 100% state-owned company. At the end of December 2020, there were a total of 301 employees in SiDG, of which 66 (22%) are women. Only 12 of these women (4% of all employees) are foresters and none of them are in leadership positions.

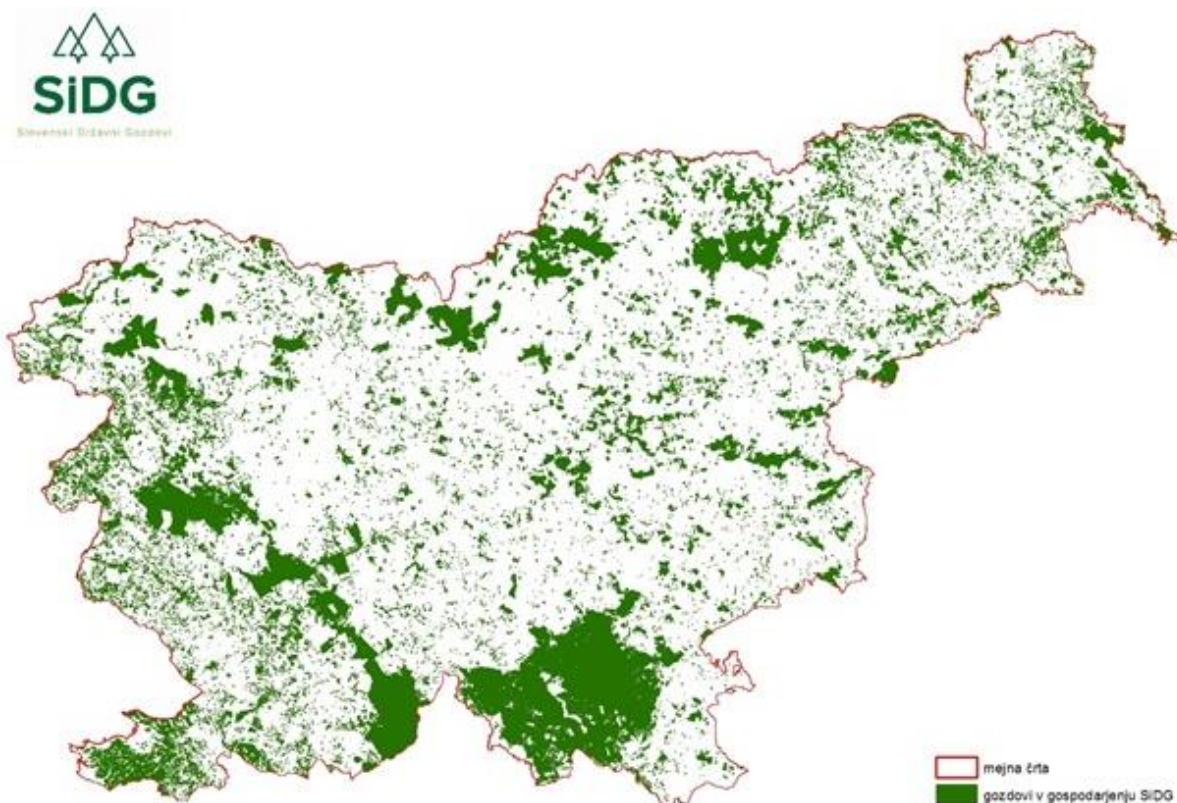






Figure 81: Forests managed by SiDG (Slovenian State Forests) - a company owned by the Republic of Slovenia

2.9.6 Forest-focused interest groups

There are four forest-focused interest groups in Slovenia.

Table 71: Forest-focused interest groups in Slovenia

Interest group	Goals	Structure
<p>Association of Slovenian large-sized forest properties</p> <p>http://www.zvgp.si</p> 	<p>Strives for a quality and productive dialogue between the owners of large forest estates and interested public.</p> <p>Aims to strengthen the positive effects of ecosystem and sustainable management of privately owned forests.</p> <p>Aims to strengthen the economic power of larger forest owners, taking into account the principles of sustainability, sustainability and multifunctionality of Slovenian forests.</p>	<p>President, secretary</p>
<p>Union of forest owners</p>	<p>Represents and coordinates the interests of its members.</p>	<p>Umbrella organisation for 26 local forest</p>

<p>https://www.slovenski-gozdovi.org/</p>  <p>ZVEZA LASTNIKOV GOZDOV SLOVENIJE</p>	<p>Takes initiatives to change and improve legislation in the fields of forestry, hunting, agriculture and the protection of the environment and nature.</p> <p>Helps to promote rural development and the private forestry sector.</p> <p>Aims to increase the economic power of forest owners.</p> <p>Takes care of informing, raising awareness and educating forest owners and promoting forests.</p>	<p>owner associations and 3 machinery rings</p>
<p>Association of machinery rings</p> <p>http://www.s-k.si/skslovenija.html</p> 	<p>Machinery ring connects the owners of agricultural and forest land. Its main purpose is the possibility of performing mutual tax-free work with invoices, organization of timber sales and joint appearance on the market. Within machinery ring they take care of coordination between suppliers and users of machines. In addition, they also organize courses, trainings and excursions, provide professional advice and take over of working sites.</p>	<p>Umbrella organisation for 45 local machinery rings</p>
<p>Union of Slovenian forestry associations</p> <p>http://zgds.si/</p>  <p>ZVEZA GOZDARSKIH DRUŠTEV SLOVENIJE</p>	<p>Aims to form and develop a balanced and professionally based opinion on all major ecological, humanistic, technical, economic and organizational issues regarding the achievement of agreed forest management goals in the profession and the Slovenian public.</p> <ul style="list-style-type: none"> - popularization of forests and forestry - efforts to form and develop professional expression and expression in forestry - efforts to know and promote the achievements of Slovenian forestry - publishing professional press - magazine and publications, cooperation in formulating policies and regulations in the field of forestry - coordinating forestry contacts with other professions, cooperation with similar associations of other countries and the promotion of ethical conduct of its members in relation to nature. 	<p>Umbrella organisation for 14 associations. In 3 forestry associations chairs are women.</p>

2.9.7 Education and training in the field of forestry

Basic vocational training

Programs in the field of Forestry are carried out at Secondary school centre for Forestry and Woodworking in Postojna and in Maribor. Students can choose between the secondary professional (4 years) and the vocational program (3 years). Candidates may enrol programs if they have completed primary school or lower vocational training. Additional to theoretical and practical trainings students must complete internship at companies in Slovenia or abroad. Internship last 4 weeks for secondary vocational program and 24 weeks for technical program. The secondary vocational program finishes with vocational graduation and title forestry engineer. Vocational graduation students can enrol higher professional and first Bologna cycle programs. Students also have an option to finish education with general graduation and therefore more options to continue studies. To complete the technician program, students have to pass final exam in Slovene, provide a product or service and defend it. Students who successfully finish technician program can enrol in secondary vocational program. With 3 years of work experience and successful pass of educational tests candidates can enrol to higher professional training programs.

There are two providers of basic vocational education in Slovenia:

- Srednja gozdarska in lesarska šola Postojna/Secondary forestry and wood school Postojna
- Srednja lesarska in gozdarska šola Maribor/Secondary school for Wood processing, Forestry and Design, Maribor

In the school year 2020/21, 72 students are enrolled in the three-year program at these two schools, none of whom are women. There are 117 students enrolled in the four-year program, 8% of whom are women.

Higher professional training

Students acquire theoretical and practical knowledge in the field of forestry and hunting. Every academic year comprises of 10 weeks of practical training in companies. Admission to the study program is allowed to candidates who have passed a final examination in any secondary school, including vocational-technical programs, vocational course or any other program to acquire secondary education. 50 enrolment places for full and part-time studies respectively, are available in academic year 2019/2020. Full-time studies are free of tuition-fee. The study lasts for 2 years and is valued at 120 ECTS. In order to complete studies, a student must fulfil all obligations of the study requirements and prepare a diploma thesis and defend it in front of a commission. After obtaining the higher professional training, students can continue their studies at the University.

The study program is implemented by Višja strokovna šola Postojna /Higher Vocational College Postojna which takes part in the Erasmus program and thus enables and promotes students to study abroad.

University

Professional study programs (first Bologna cycle)

The Professional Study Programme in Forestry (first Bologna cycle) has a long tradition and it links natural science, social and technical subjects needed for close-to-nature, sustainable and multipurpose forest management. The main aims of the programme are to qualify a student for complete forest and forest space management. Full-time and part-time studies are provided at the Department of Forestry and Renewable Forest Resources of the Biotechnical Faculty and in the field. Twenty-five percent of contact hours are devoted to fieldwork, which is carried out at different locations in Slovenia. The study programme lasts for six terms (3 years), during which a student obtains 180 ECTS points. After the completion of all the prescribed study requirements, a student obtains a professional degree in forestry.

Academic study programmes

The study programmes Forestry and Renewable Forest Resources lasts for three academic years (180 ECTS) and are provided as full-time, and occasionally as part-time, study. Students obtain a university academic degree in Forestry. The obtained knowledge provides the basis for continuation of studies in second cycle (MSc) studies of Forestry and other fields of study. In order to complete studies, a student must fulfil all the study requirements of the registered courses and obtain a total of 180 ECTS. A student must complete and defend Diploma Thesis.

Master study programs (second Bologna cycle)

The program Forestry and Forest Ecosystem Management is a master study program (second Bologna cycle) which follows contemporary European trends and promotes integral eco-system forest management. Students deepen basic knowledge about forests and their management and obtain wider knowledge from special or fringe fields of forestry and managing forest ecosystems. The program has the following fields of study: a) Ecology and forest management; b) Nature conservation, recreation and tourism in forested areas and c) Forest economics and engineering. The master study program Forestry and Managing Forest Ecosystems lasts two years and amounts to 120 ECTS. Study programs are provided as regular and occasionally as part-time study. In the 2019/20 academic year, 40 places for Forestry and Forest Ecosystem Management program were available, of which 10% were reserved for foreign candidates. In order to complete studies, a student must fulfil all obligations in all enrolled subjects, to a total extent of 120 ECTS, and prepare a master thesis, which must defend in front of a commission.

Doctoral studies (third Bologna cycle)

The interdisciplinary doctoral study program of Biosciences is a third level program under the Bologna scheme. The study requirements of the program are in accordance with the Higher Education Act and Criteria for Accreditation of Higher Education Institutions and study programs, adopted by the Council RS for Higher Education, assessed under the European Credit Transfer System (ECTS). The direct inclusion of parts of the program in international exchange with universities in countries that use the ECTS is thus possible. Between study years 2009/2010 and 2018/2019 students could enrol into three years study program, which covers 180 points. The study program is composed of an organised educational part and individual research work for the doctoral thesis. From study year 2019/2020 onwards, students can apply only for four years study program. Within doctoral study program of Biosciences students have an option to choose between 18 scientific areas, including *Managing Forest Ecosystems*, *Wood and Bio-composites* and *Economics of Natural Resources*. A doctoral dissertation may consist of the candidate's works in the field of the theme of the dissertation that have been accepted for publication (with evidence that the contribution has been accepted for publication) or have already been published.

Academic education in the field of forestry is provided by Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za gozdarstvo in obnovljive gozdne vire/University of Ljubljana, Biotechnical Faculty, Department of Forestry.

In the period 2000-2019, 10% of all graduates in the professional (3 years long) studies in forestry were women. Women represented 26% of graduating population in academic degree (4 years long study) and 39 % of graduates, who finished master's degree (5 years study).

Since the adoption of the Bologna system in 2007, women represented 16 % of graduation population in both, first and second Bologna cycle. In recent 20 years women represented 35 % of all students awarded a PhD in the forestry.

To our knowledge, there are any special campaigns or other measures that would specifically target women to enroll in forestry education and training programs.

NON-FORMAL EDUCATION

An important role in the professional advice and training of forest owners is also played by the **Slovenian Forest Service**, which performs a public forestry service in all Slovenian forests, regardless of ownership. Slovenian Forest Service alone or in cooperation with contractors prepares non-formal educational programs for interested forest owners and others in form of courses, workshops, excursions, lectures and study

circles. At the courses, the participants are introduced to the machinery, tools and safety when working with a chainsaw, harvesting wood, working with a forest trailer and working in forests that have been damaged by storms.

Study circles are a form of education in small groups of 5 to 12 adults, under the guidance of qualified mentors. In media, educational contributions are published in printed version or on the internet, radio and television. The most common topics are in the areas of forest animals, hunting and forest protection.

National vocational qualification is a vocational or professional qualification required to perform a profession at a certain level of work complexity and is prepared based on a national vocational standard. A national vocational qualification enables the acquisition of a publicly valid vocational qualification certificate and is classified in the national qualification framework. National vocational qualifications may be obtained by examining and validating skills and knowledge acquired through non-formal learning or by completing a vocational or professional education program. In the field of forestry and wood processing 8 national vocational qualifications are available: silviculturist, woodcutter, forestry tractor operator, operator of the cable car, wood purchaser, local hunter, operator of harvesters and timber trailers and wood processing machine operator.

2.9.8 Overview of initiatives and projects to support women in forestry

1st meeting of Slovenian women's foresters: 31/03/2006 Ljubljana, Slovenia

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Peter Kumer (2017). The role of socio-geographic factors in managing private small-scale private forest estates / Vpliv družbenogeografskih dejavnikov na gospodarjenje z majhnimi zasebnimi posestmi. Doctoral thesis, 134 p., 85-88

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Council for women in rural areas (March 2019), KGZS co-founder; 16.7.2020 already 6th session, where one of the main topics was the role of owners in the management of private forests. **Noč raziskovalcev: Humanistika, to si ti!**

Council for women in rural areas is a consultative body of the Minister (Ministry of Agriculture, Forestry and Food), which forms opinions on important decisions in the field of ensuring women's rights in rural areas.

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2.10 Country report: Ukraine

Authors: Lesya Loyko, Radmila Ustych, Iryna Shchoka, Nataliya Voloshyna

2.10.1 Forest sector

Ukraine is an agricultural-industrial country with a forest cover of 16% of the country's surface (rank 34 in Europe)¹⁴³. However, the country's total forested area of 104'000 km² (10,4 million ha) is substantial when compared to other European countries (rank 9 in Europe).

Ukraine's forests contain mainly commercially important tree species, including pine (*Pinus sylvestris*) – 35%, oak (*Quercus ssp.*) – 26%, spruce (*Picea abies*) – 10%, beech (*Fagus sylvatica*) – 9%, and birch (*Betula ssp.*) – 5%. Ukraine's total stock is estimated at 2.1 billion m³ with an average annual increase of 35 million m³, which vastly exceeds the annual harvest of about 22 million m³.¹⁴⁴

The forests of Ukraine are distributed very irregularly across the country; **the largest continuous forest area is concentrated in the Ukrainian Carpathians**. Here the forest cover is 39%, and the average annual growth per hectare of forest land is 4.4 m³/ha. The Carpathian forests produce about 9 million m³ of wood annually. Current harvest in the Carpathian region forests accounts for 5 million m³ or up to 60% of annual increment. That means that about ≈25% of Ukrainian wood resources are harvested in the Carpathian region of Ukraine.

Forest cover in different natural zones varies significantly and is considered insufficient from the point of view of the optimal impact of forests on climate, soils, water resources, protection from erosion and provision of timber resources.

More than half of the forests of the country are man-made (secondary stands) and need more intense care in terms of management due to their lower stability and higher exposure to external factors, including climate change issues.

The age distribution is characterized by the dominance of the middle age forests; the share of mature and over-mature stands makes up to 19%. The average forest age is over 60 years; there is a gradual aging of forests, which leads to depreciation of their sanitary condition (decrease in forest health).¹⁴⁵

At present, the principal method of timber harvesting in the region are clear-cuts, which accounts for 72% of all removals, although the country tends to slowly turn to adhere to close-to-nature silviculture.

¹⁴³ UKRAINE Strengthening the quality and standards compliance services for wood and processed wood VALUE CHAIN STUDY. UNIDO, 2020.

¹⁴⁴ Public report of the State Agency of Forest Resources of Ukraine for 2019. State Forest Agency of Ukraine (further on in this report SFRAU)

¹⁴⁵ Public report of the State Agency of Forest Resources of Ukraine for 2019.

The forest cover is relatively stable and slightly growing due to afforestation measures. However, there are several factors that may have a large impact on wood quantity and quality in the future. Those include the Ukrainian silviculture and timber harvest practices that continue to switch from clear cutting to gradual and selective harvesting of the close-to-nature silviculture. If more widely applied in the long-run, gradual and selective harvesting methods may result in more resilient forests and better quality of timber.¹⁴⁶

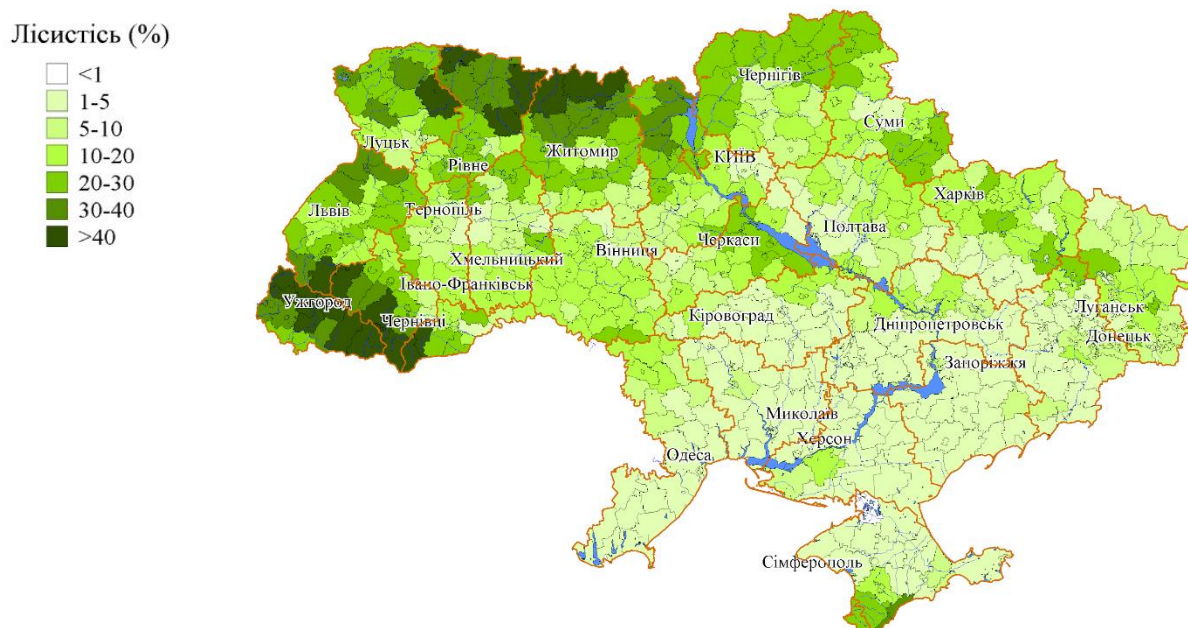


Figure 82: Forest cover rate across Ukraine. From darkest green (>40%) to the lightest (<1%)

Main challenges. One of the challenges with the growing impact on forest resources is **spruce and pine dieback** that has a negative effect for some of the Ukrainian regions where spruce/pine are prevailing. Anticipative long-term silvicultural measures are needed and will prove decisive here, too. Connected to these issues is the loss of about 190 km² per year of standing forest area (0.2% of the total forest area) due to forest pests, diseases, fires, adverse weather conditions and other reasons. Also, as of early 2019, 4.000 km² (3.8% of the total forest area) are affected by forest dieback. For the whole of Ukraine, 69% of timber comes from sanitary cuts, which impact the quality and commercial value of timber.

Another challenge in Ukrainian forestry is **illegal logging**. According to the forest protection and law enforcement agencies of Ukraine, there are about 8.000 cases

¹⁴⁶ Public report of the State Agency of Forest Resources of Ukraine for 2019. . State Forest Agency of Ukraine (SFRAU)

annually and over 20.000 cubic meters of illegal logging, causing damage to the forest sector (forestry) of about EUR 3.7 million. It is estimated that about 10% of Ukrainian timber is harvested illegally.¹⁴⁷

One of the measures linked to illegal logging was the round/unprocessed wood export ban (10-year moratorium) starting in 2015 (for pine starting in 2017). The export ban also includes the prohibition of exporting sawn wood from valuable tree species. The moratorium's main objective was to achieve a decrease of forest cuttings for the export of timber to address the environmental problems of the Ukrainian forests. Also, the economic issue of increasing added value in Ukraine was the second reason. Nonetheless, the impact of the moratorium on the development of the wood and furniture industries is estimated to be low to negligible. The expected decrease of cuttings did not take place, and, in many cases, round wood was declared firewood for export¹⁴⁸. Capital investments into wood sawing, wood processing or furniture facilities did not increase as projected, and the volumes of production of domestic products by companies did not increase substantially either. The European Commission is in dispute with the Ukrainian government about the ban as incompatible with the EU-Ukraine Association Agreement.¹⁴⁹

The Ukrainian wood sector is well-diversified and includes a plethora of products, among others various categories of furniture, construction elements such as glued laminated timber and windows, semi-finished products such as furniture parts, wood-based panels, as well as pulp and paper. This diversity is a considerable asset creating competition, but also creates synergies in the value-added network for the benefit of the wood sector as a whole.

¹⁴⁷ UKRAINE Strengthening the quality and standards compliance services for wood and processed wood VALUE CHAIN STUDY. UNIDO, 2020

¹⁴⁸ UKRAINE Strengthening the quality and standards compliance services for wood and processed wood VALUE CHAIN STUDY. UNIDO, 2020.

¹⁴⁹ https://en.wikipedia.org/wiki/Ukraine%E2%80%93European_Union_Association_Agreement

The **Ukraine–European Union Association Agreement** is a [European Union Association Agreement](#) between the [European Union](#) (EU), [Euratom](#), [Ukraine](#) and the EU's 28 [member states](#). It establishes a political and economic association between the parties. The parties committed to co-operate and converge economic policy, legislation, and regulation across a broad range of areas, including equal rights for workers, steps towards [visa](#)-free movement of people, the exchange of information and staff in the area of justice, the modernisation of Ukraine's energy infrastructure, and access to the [European Investment Bank](#).

Table 72: Forest sector of Ukraine. Snapshot 2018

Industry	Key indicators, 2018			Share from the total industrial output of Ukraine, %		
	No of companies	Sales, Mio EUR*	Employees	No of companies	Sales, Mio EUR*	Employees
Forestry	983	600.4	60.041	0.28	0.21	0.99
Wood processing	3271	1.387.6	48.246	0.92	0.48	0.79
Furniture	1331	659.6	35.849	0.37	0.23	0.59
Pulp and paper	956	1.381.6	28.895	0.27	0.47	0.47
Total forest sector of Ukraine	6.541	4.029.2	173.031	1.84	1.38	2.84

* Average exchange rate 2018: 1 EUR = 32.1429 UAH

In summary, the economic contribution of Ukraine's forests when estimated using traditional metrics seems to be low. However, it needs to be noted that in the most forested regions of Ukraine its share in the economy reaches a whopping 20-25%. At the same time, employment in forest sector jobs is an important social contribution, and, while there is no data as yet, the value of ecosystem services, the watershed protection, biodiversity and erosion prevention the forests provide cannot be overlooked.

Woodworking has a long-established tradition and is an important pillar of the economy. The number of small woodworking enterprises has grown from the beginning of the early 2000s, mostly due to small and medium-sized firms involved in timber sawing. One of the key challenges for the industry is to increase the production of high value-added wood products, incl. furniture.

Ukraine's wood processing industry comprises approximately 6,500 enterprises, including approximately 500 large and medium enterprises. About 25% of the 6,500 enterprises mentioned above correspond to the 1st transformation (e.g. sawmills), 35% are active in the 2nd transformation, i.e. production of semi-finished products (e.g. boards and furniture parts) and about 30% of the companies correspond to the 3rd transformation and focus on higher value-added products (e.g., furniture, windows). The remaining 10% are active in the pulp and paper industry.¹⁵⁰

¹⁵⁰ UKRAINE Strengthening the quality and standards compliance services for wood and processed wood VALUE CHAIN STUDY. UNIDO, 2020.

https://hub.unido.org/sites/default/files/publications/UKRAINE_VALUE%20CHAIN%20STUDY_GQSP%20Ukraine.pdf

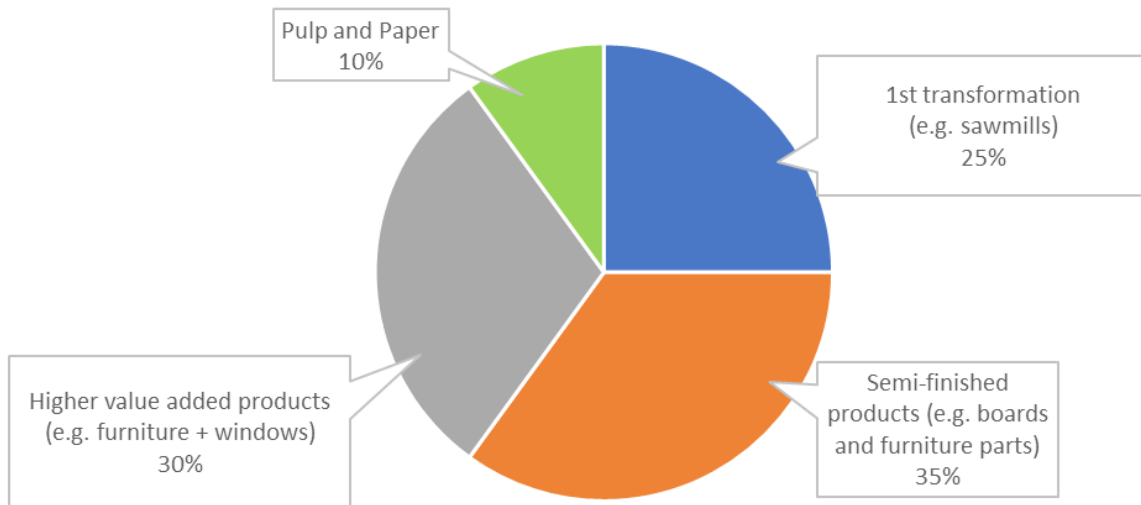


Figure 83: Distribution of the number of companies according to the level of transformation

Given Ukraine's and especially Carpathian regions' rich forest resources, the supply of wood biomass represents a strong market opportunity for the region. Wood, including raw wood, unprocessed wood, and wood pellets, is the main type of biomass currently used in the Carpathian region. The use of agricultural and forestry residues is limited. Despite its substantial potential, the Ukrainian biomass market has just started to evolve and can be characterized as a fragmented biomass market, where the harvesting, gathering, processing and transportation of woody biomass lack efficiency. Links between these different activities are lacking.

Non-timber forest products are an important traditional cultural asset for rural communities in Ukraine, providing opportunities both for subsistence and as an income generating activity. Data on how many people are involved in the collection of the non-timber forest products is lacking.

2.10.2 Labour market and job opportunities in the area of forestry

In recent years, Ukraine has made some progress in gender equality. The political will to promote gender equality in Ukraine is present, however, the pace of change of women in decision-making positions remains fairly slow. Box 1 below gives a snapshot of the current country's important information on gender situation.

Box 1. Gender equality communication concept, approved by the Cabinet of Ministers of Ukraine in Sept.2020 states:

Equality of men and women is fixed in the Constitution of Ukraine.

Legislation of Ukraine forms the basis for gender equality policy; the main Law of Ukraine in this domain “On the provision of equal rights and opportunities for women and men” is issued in 2005.

Gender component is enclosed in the Annual National program under the Ukraine-NATO commission, regulation of the CMU on the approval of the Strategy of reforming public administration in Ukraine for the period to 2021, regulation of the CMU on the approval of the Strategy of reforming public finances system for 2017-2020, order of the CMU approved state social program of the provision of equal rights and opportunities for women and men for the period to 2021, regulation of the CMU approved National action plan for the implementation of the resolution of UN Security Council “Women, peace, security” for the period to 2020, regulation of the CMU approved National action plan on the implementation of recommendations of the UN Committee on the Elimination of Discrimination Against Women (CEDAW Committee) for the period to 2021.

In 2018 access of women to more than 450 professions and positions was extended via elimination of discriminative norms, particularly in the field of security and defense.

Currently, the civil society movement related to gender equality is getting more and more active. 77% of the population of the country (81% of women and 73% of men) consider the issue of men and women equality is important. More and more information on gender equality appears in mass media.

As per Global report of the World Economic Forum, Ukraine in 2019 was at the 59th place (out of 153 countries) by its gender disparity index.

Despite the high level of education among women, they are not adequately represented in the higher positions, in society life and in politics. As of 2019, the gender pay gap was 21,2%.

Women obtain only 5-10 % of economic resources. In private business, women are owners in 30% of small, 12,7% of medium and only 13% of large companies.

Presentation of information about women in mass media is still very stereotypic and discriminative. Particularly, monitoring of news programs at eight national TV channels, ten national internet-media and seven printed media, conducted by civil society organizations “Institute of mass media” and “Detector media” in 2017 showed that mass media have three times less information about women than men (average 27%). Journalists involved women as experts only in 19% of cases. Most often women comment on social topics, are participants of criminal news or yellow news, whereas men comment on political and economic topics. The least presence of women is in the Internet media (only in 13% of news as participants and 15% as experts); the most presence is in the printed media (participants in 35% of materials and 22% as experts). Currently, there are significant difficulties in the access to statistical data and other gender-segregated data about salaries, type of employment and professions, types of social aid.

In Ukraine, the forest sector employs about 60.000 people in forestry and logging (2018). Adding the figures for wood processing (see table 67) and the furniture industry, including artisanal enterprises, direct employment could be estimated between 173.000 and 190.000 people. A higher number is obtained if employment in

nature-based tourism, hunting and the pulp and paper industry would be included. Exact numbers, however, are lacking.

At the same time, the latest Ukrainian Statistics (2019) shows that Ukrainian forestry is not a big employer of women. In Ukraine, 82% of men and 18% of women work in forestry.¹⁵¹ The recent statement during the collegium of the State Forest Resources Agency of Ukraine (Oct. 29, 2020) says that there was minor progress of 0.5%, compared to the situation as of the end of 2017.¹⁵²

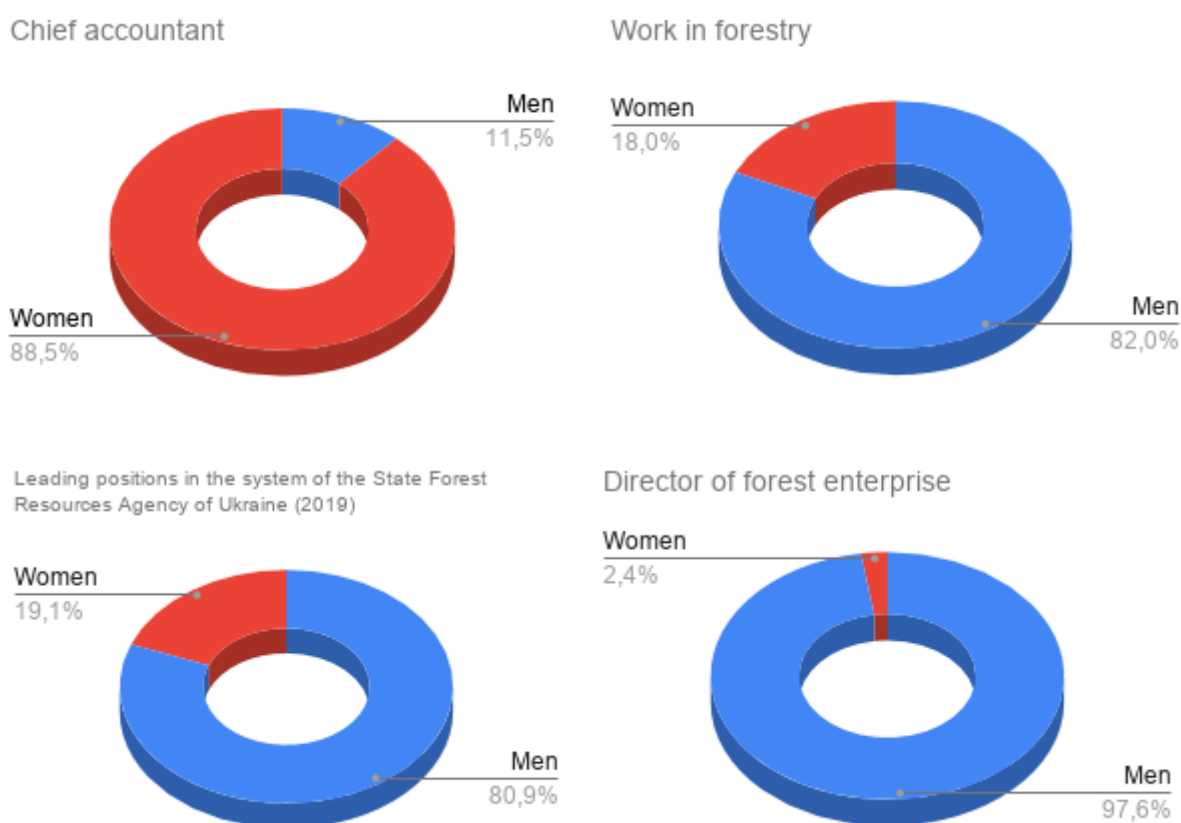


Figure 84: Share of women employed in forestry sector

The number of women in senior management positions is rather underwhelming. This is especially true for young women. 80,9% of men and only 19,1% of women work in leading positions in the system of the State Forest Resources Agency of Ukraine (2019). The ratio of men-women for the position of director of forest enterprises is 98%-2.4%, whilst for the position of chief accountant it is opposite - men 11,5% – women 88.5%.

¹⁵¹ SFRAU Report on the number, structure and change in staff members, as of 31.12.2019.

¹⁵² SFRAU Report on the number, structure and change in staff members, as of 31.12.2017.

If we look at specific management positions 5.7% (1.2% decrease here and below figures compared to end of 2017) are deputy directors, 9.0% (0.6% decrease) are chief forester and only 2.5% (1% increase) are chief engineers of the forest enterprises. No woman acts as chief hunting manager as of end of 2017, two women as the chief mechanic (out of 158 positions in the system), 2.2% (0.3% increase) of forest rangers (along with 17.6% (1.1% increase) of forest ranger assistants), 11% (5% decrease) of the forest management department chiefs.

Women are more often employed in forest inventory, reaching an above-average share of women. 18.5% (2.9% decrease) of women assume positions as leaders of forest inventory groups and 60% (10% increase) of women as chief forest pathologists. Traditionally, many women work in nurseries (31%).

Moreover, traditionally, the highest percentage of women work as chief economists (83.3% (+0.4%)) and chief accountants (88.46% (+3.9%)), below we will see that the percentage of women as economists and accountants (not in top management) is even higher than that.

Interesting difference is in the share of women at the positions that fell under the category “professionals” - 50.08%, compared to the category “specialists” - 15.3% and “workers” - 11.8%. The high share in the “professionals” is explained with the high share of women at the positions of economists - 83.8, accountants - 94.2, forest planting engineers - 66.7% (+8.2%) and forestry engineers - 52.1% (+1.6%).

Higher than the overall average share of women at the positions is observed at: wood processing engineers - 43.7% (+5.9%), forest resources engineers - 41.7% (+4.2%), forest use engineers - 34.4% (+7.1%), forest inventory engineers - 27% (+0.8%), and engineers of forest pathology - 22.% (-3%).

Within the “specialists” category, the highest share of women is at the positions of accountants of forest ranges (a subunit of state forest enterprise) - 96% (+1.5%), human resource specialists - 90.4% (-1.6%), forest inventory technicians - 80% (+21.7%) and lab technicians - 85.7%.

In the “workers” category, the highest percentage of women is at the position of timber for sales marker - 48.7% (+5.2%).¹⁵³

¹⁵³ SFRAU Report on the number, structure and change in staff members, as of 31.12.2019.

Gender distribution at the main forestry positions, 2017, %

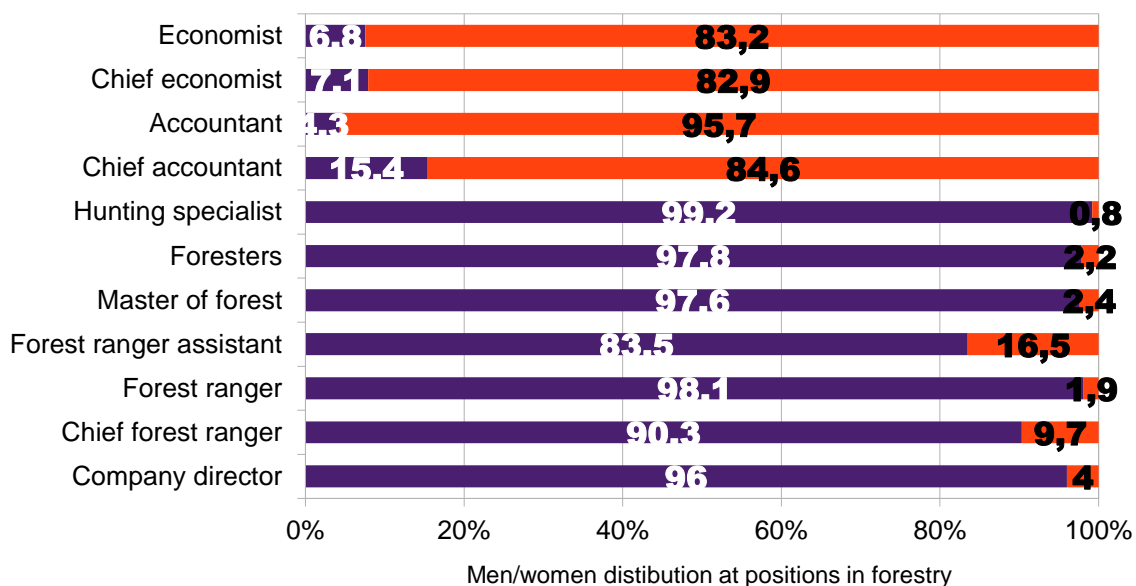


Figure 85: Gender distribution at the selected positions in the forest management system of Ukraine, %, 2019

Change in the share of women at selected positions in the forest management system, Ukraine

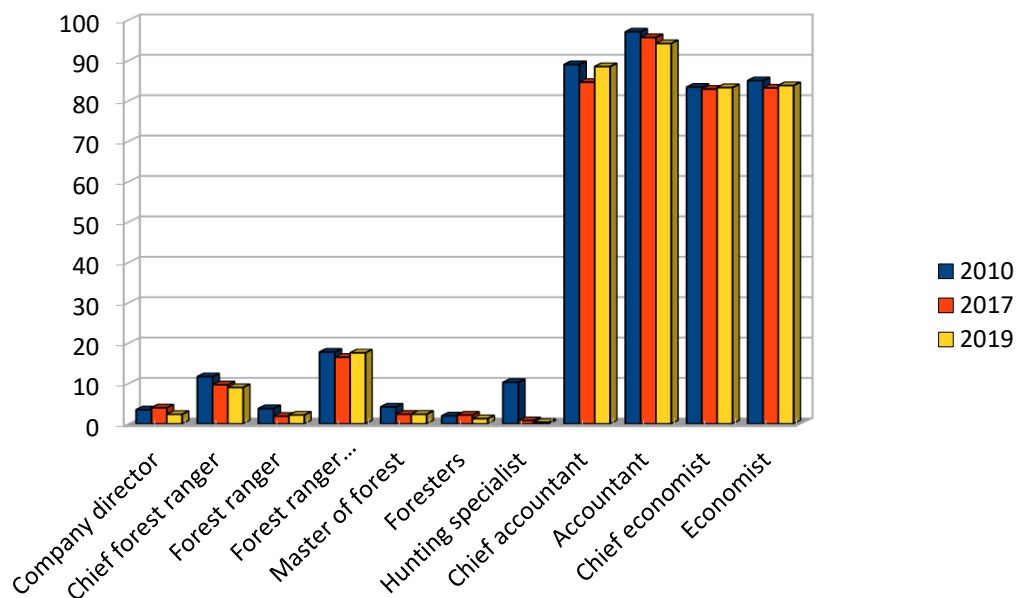


Figure 86: Change in the share of women at selected positions in the forest management system of Ukraine, %, 2010-2019

As shown here, men are more engaged in high-paid activities in forestry: leading positions, timber harvesting, transportation and processing of wood, whereas women tend to work in forestry jobs with smaller income (as planting, weeding, etc.), as well as routine office work (accounting, human resources, public relations, finances). Women's wages in forestry are 15% lower than men's.¹⁵⁴

Gender information on forest protected areas of Ukraine

To define the gender situation on forest protected areas, a communication was established with the Ministry of Environmental Protection and Natural Resources of Ukraine. According to the Ministry, there is no gender-segregated data collected and no gender studies or research known on protected areas of Ukraine. In order to obtain gender-segregated data FORZA jointly with the Ministry conducted a survey among protected areas.

Protected areas of Ukraine (state inventory of Ukraine as of 01.01.2020)¹⁵⁵ consist of: 19 nature reserves, 5 biosphere reserves, 52 national nature parks, 326 sanctuaries, 136 natural monuments, 18 botanical gardens, 7 zoological parks, 20 dendrological parks, 89 garden-park monuments, 803 protected natural landmarks. These are protected areas of the state importance.

36 national nature parks (69% from the total number), 9 nature reserves (47%), 1 biosphere reserve (20%) and 1 botanical garden (0,06%) participated in the survey. Results of the survey analysis are presented in the following table.

Table 73: Gender segregated data of Ukrainian forest protected areas as of 01.10.2020

	Number, persons		Average salary, EUR*	
	Men	Women	Men	Women
Total number of employees in forest protected areas ¹⁵⁶	2259	919	225.4	224.5
Management of forest protected areas	378	180	429.3	331.7
State guard service (Ranger service) of forest protected areas	1360	90	208.1	213.0

¹⁵⁴ Gender brochure of Swiss-Ukrainian Forest Development Project in Zakarpattya FORZA: About gender in forest sector and beyond. 2010; SFRAU Report on the number, structure and change in staff members, as of 31.12.2017; SFRAU Report on the number, structure and change in staff members, as of 31.12.2019.

¹⁵⁵ According to the informational-analytical materials, prepared by the Protected Areas Department of the Ministry of Energy and Environment Protection of Ukraine.

¹⁵⁶ Total numbers (besides of the other 4 categories in the table) include also employees and salaries of additional staff, e.g. accountants and lawyers, therefore values of total number and total average salaries deviate from the respective categories.

Scientists of forest protected areas	156	156	252.7	234.1
Environmental education specialists of forest protected areas	29	103	228.9	208.0
Recreation specialists of forest protected areas	66	70	245.1	217.8

*Exchange rate as of 01.10.2020 1 EUR = 33.35 UAH

As seen from the table, total number of men working in the forest nature protection field is 2 times higher than the number of women, whilst the average salary is almost the same. At the same time, having the same ratio of men and women in the management of protected areas, the salary deviation is quite significant in favor of men.

There are also cases of the absence of men in the management positions in the protected areas (e.g. Nature Reserve “Yelanetsky step”).

The State guard service (ranger service) of forest protected areas is a men prevailing division, in opposite to that the educational department is women prevailing. In the scientific department, the number of men and women is the same, in recreation - almost the same with the small surplus of women.

Of course, the given data do not provide the full picture of the gender situation in the protected areas, but indicate trends. Besides, it will be a good step in progressing with the collecting and operating gender-segregated data on protected areas.

2.10.3 Forest ownership

In accordance with the current Forest Code of Ukraine, there are three possible types of ownership for forests: state, communal and private. State ownership for forest and forest resources is defined as ownership that is neither in communal nor in private ownership.

Most of the forests of Ukraine are under state ownership. In the process of the land distribution and assigning to the communal ownership there are around 1.3 million ha (13%) of the “forest assigned” lands, which are under the permanent use of communal enterprises, subordinated to municipalities. Private ownership share that is limited to 5 ha per owner makes less than 0.1% of the total forest area. Around 800 thousand ha of

forest lands in state ownership are not assigned for any use and are under status of “stock” lands.¹⁵⁷

In recent years, Ukraine has made some progress in gender equality. The political will to promote gender equality in Ukraine is present, however, the pace of change of women in decision-making positions remains fairly slow. Box 1 gives a snapshot of the current country's important information on gender situation.

Historically, forests in Ukraine have been subordinated to numerous permanent users. The largest area of forests - around 73%, is under the use of state forest enterprises, coordinated by the State Forest Resources Agency of Ukraine.

Other permanent users of state forests are: Ministry of Environmental Protection and Natural Resources of Ukraine (2%), State Agency of Exclusion Zone Management (Chornobyl) (2%), Ministry of Infrastructure (1%) and Ministry of Defense (1%). Recent changes in this structure took place when there was a national decision to hand over permanent user rights from the Ministry of Agriculture, which was considered to be not an efficient forest manager (2013) to the State Forest Resources Agency of Ukraine or municipalities. Currently part of the forest lands which were under the mentioned Ministry are now assigned to the State Forest Resources Agency of Ukraine, others fall under the status of communal forests.

¹⁵⁷ Public report of the State Agency of Forest Resources of Ukraine for 2019

Forest land distribution by permanent users, %

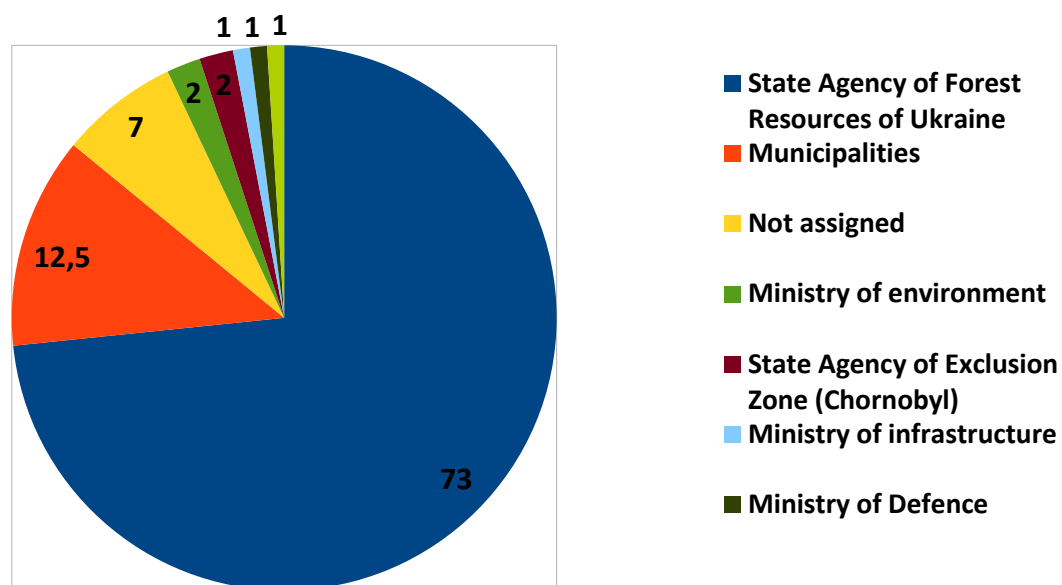


Figure 87: Forest and land distribution by permanent users, %, 2019

Table 74: Forest ownership in Ukraine, 2019

Ukraine	Forest cover (ha)	Share ownership (%)
Public ownership	8.300.000	79.8%
State	N/A	
Provincial	N/A	
Communal (Municipalities)	1.300.000	12.5%
Private ownership		0.1 %
Other (not assigned ownership)	800.000	7.6%
Total	10.400.000	

Protected forests

There are 327.000 ha of protected forests in Ukraine which are also managed by the State Forest Resources Agency, representing 16.8% of all forests under this Agency. Part of these protected forests have the status of National Nature Parks.

Even if only 2% of Ukrainian forests belong to the Ministry of Environmental Protection and Natural Resources of Ukraine, there is also a special category of forests that belong to the State Forest Resources Agency of Ukraine, but is managed jointly with protected areas, belonging to the Ministry of Environmental Protection and Natural Resources of Ukraine¹⁵⁸ Therefore the total forest area, managed by the protected areas staff, which belongs to the above mentioned Ministry is higher than 2%.

2.10.3.1 Forest owner associations

There is no forest owner association in Ukraine at this moment.

2.10.4 Forest administration

Forests in Ukraine are managed by the state forest enterprises in case of state ownership and communal companies in the case of communal ownership. The latter is formally coordinated by the municipalities based on the location of communal forests.

In the case of state forest enterprises, these are coordinated by the regional forest and hunting administrations, subordinated to the State Forest Resources Agency of Ukraine, or other respective Ministries and Agencies as described above in section 2.10.3.

The State Forest Resources Agency of Ukraine (SFRAU) is the central executive body that implements the state policy in the forest sector. The variety of roles (control, administration, legislation, management and commercial activities) carried out by SFRAU, its subordinate institutions and enterprises are noted to contain inherent conflicts of interest and are extensively prone to corruption. Calls for separating regulatory functions from the operational ones have increased within the government but also from the side of the private sector.

Box 2.

Important to mention in context of FEM4FOREST project is the phenomenon of the only woman ever leading the SFRAU. In mid-2016 Khrystyna Yushkevych became an interim head of the Agency, following 6 months at the position of the first deputy head (first woman-first deputy head in history of Ukrainian forestry as well). From April 2017 Mrs. Yushkevych continued at the position of the head of the Agency, quitted end of the same year. Almost three years of work at the highest management positions in the state forestry system were marked by the intentions to find solutions to challenging illegal logging and introducing reforms in the sector, however no significant achievements were noted.

¹⁵⁸ According to the law of Ukraine on Nature Protection Fund (<https://zakon.rada.gov.ua/laws/show/2456-12/ed20170903#Text>) there are protected areas lands exist, which are not excluded from the land owner, but managed jointly with other organizations. In case of the forest lands in Ukraine they usually belong to the State Forest Resources Agency of Ukraine, but managed jointly with the staff of protected areas, belonging to the Ministry of Environmental Protection and Natural Resources of Ukraine.

There are 24 regional forest and hunting administrations within the system of the State Forest Resources Agency of Ukraine, out of which only one as of 2019 was led by a woman. In 2020 two regional forest and hunting administrations are led by women.

At the same time there are 22% of women at the position of deputy heads of regional forest and hunting administrations (13 women out of 59 positions), of whom one person is at the position of first deputy head/chief forester. Worth to mention that in one of the regional forest and hunting administrations there is a man at the position of the head and three women at the positions of deputy heads.¹⁵⁹

Regional forest and hunting administrations coordinate 320 state forest enterprises (SFE), including 6 SFE led by women (2019).¹⁶⁰

The collegium of SAFRU, as the supervising body, consists of 10 members, out of whom one is a woman (10%).¹⁶¹

Box 3.



Lyubov Polyakova, Head of International Cooperation, Science and Public Relations Division of the State Forest Resources Agency of Ukraine.

Works in forest management since 1989 after graduation from the University. Career development from University teacher, scientist, staff member and consultant in the international project to public servant. Works in the State Forest Resources Agency of Ukraine since 2006.

From 2006 to 2016 was responsible for the international cooperation activities, from 2017 till present time – for international cooperation, science and public relations.

Was a member of the bureau of the International Negotiating Committee on the elaboration of legally binding agreement on European Forests (2011-2013), acting head of the technical committee ISO 218 (2014-2015), co-chair of the process of revising procedural rules of the Forests of Europe (2017-2018), co-chair of the FAO forestry executive committee since 2015.

Contact person of all the international forestry related organizations and processes and representative of Ukraine in the international events and activities.

¹⁵⁹ List of chiefs and deputy chiefs of territorial units of the SFRAU, as of 20.11.20.

¹⁶⁰ List of chiefs of territorial bodies, enterprises and organizations of the State Forest Resources Agency of Ukraine (SFRAU) as of 25.11.2020.

¹⁶¹ Ukraine Country Forest Note: Growing Green and Sustainable Opportunities. World Bank, 2020.

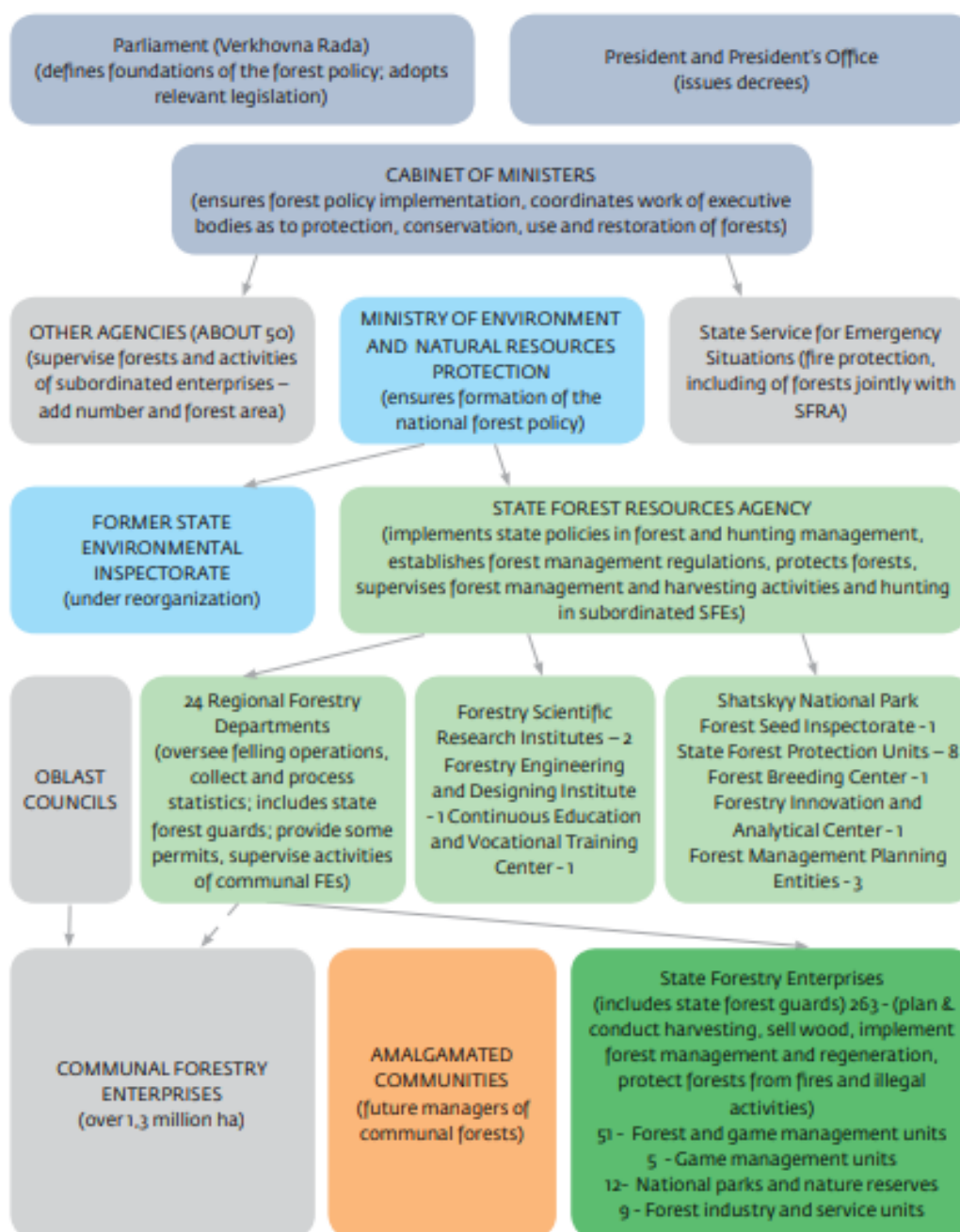


Figure 88: Institutional relation chart

SFRAU has several subordinated companies, that ensure implementation of specific tasks of the forest management system, those institutions are as follows:¹⁶²

¹⁶²SAFRU web-site: <http://dklg.kmu.gov.ua/>

Science, research and development (described below in the Education part of the report):

Ukrainian Research Institute for Mountain Forestry (UkrRIMF)

Ukrainian Research Institute of Forestry and Forest Melioration (URIF&FM)

Extension training (described below in the Education part of the report):

Ukrainian Center for training, retraining and upgrade training of forest management staff (UkrCentrkadrylis)

Inventory and planning:

Ukrainian state forest inventory and planning production union “Ukrderzhlisproject”.¹⁶³

Publicly available information says that there are 5 men at leading positions (1 general director, 3 deputies, 1 chief engineer) and 9 women to 10 men at leading positions in five affiliate inventory units. however, in all of them men act as leaders and deputies, whereas women assume positions as chief technologists and chief labor manager.

Ukrainian state planning and surveying institute of forest management “Ukrdiprolis”, no public data available.

Kharkiv state planning and surveying institute of agro melioration and forest management “Kharkivdiproagrolis”, no public data available.

Box 4.



Nataliya Revenko, head of the Kirovohrad Forest and Hunting Regional Administration.

Works in Kirovohrad Forest and Hunting Regional Administration for 22 years, **head of the organization since 2012**. People representative in Kirovohrad regional council in 2015-2020, Oct.2020 till present.

Education: woodworking technology; accounting and audit; forest and park management; forest management.

“Indeed, I agree with the common opinion that women and men have different opportunities to utilize their leadership potential: women have much less of them.

Men dominate in forest sector that is why women foresters really can be gender discriminated. As a proof of this is the underrepresentation of women at the leading positions. In order to reach equality of men and women, labor market rights and opportunities for latter should be improved. It is important to overcome gender gaps in administration field. Women should not be limited in their career growth, if their business and professional qualities are better than those of men. Good example of this is in our region, where two out of nine forest enterprises are led by women.”

¹⁶³ <https://www.lisproekt.gov.ua/>

Innovation and analytics:

State company "Forest management innovation-analytic center"¹⁶⁴. No information on the staff members, the only data available is: 2 women and 4 men at the head of division positions.

Forest breeding:

State organization "Ukrainian forest breeding center"¹⁶⁵. Open information from the website: 2 men at the position of the director and deputy director, 3 women at the positions of heads of divisions.

7 specialized forest protection enterprises. No open access data available, no webpages.

Special protected area:

Shatsk national nature park.¹⁶⁶ No data regarding staff available at the website. However some gender segregated data was collected through described above questionnaire survey in framework of this project.

The above described structure is inherited from previous decades of public administration. However this structure is subject to upcoming reforms. The demand to separate regulatory functions from the operational ones have increased within the government but also from the side of the private sector. Currently, the State Strategy for forest management up to 2035 is under preparation.

There are no specific policies that target female participation or other gender related issues in forestry and/or adjacent sectors. However at the level of the country there is the law "On the equal rights and opportunities of women and men", which seeks "to reach parity in position of women and men at all fields of life of the society through the legal provision for equal rights and opportunities of women and men, elimination of gender-based discrimination and use of special intermediate activities, aimed at elimination of disparity in opportunities for women and men to fulfill equal rights, provided by the Constitution and laws of Ukraine".

In 2017, the Cabinet of Ministers of Ukraine issued a regulation on the introduction of the position of Government Authorized Officer on issues of gender policy. Its main tasks are to assist implementation of state gender policy, participate in the work of ministries and other central executive bodies as well as local executive bodies in

¹⁶⁴ See: <https://www.ukrforest.com/>

¹⁶⁵ See: <http://ucfb.info/>

¹⁶⁶ See: <http://shpark.com.ua/>

relation to gender issues; monitoring of gender equality during introduction of new normative documents, cooperation with civil society organizations etc.

2.10.5 Companies and enterprises in forestry and related services

No compiled information regarding men and women representation in the companies and enterprises is available at the moment.

However, official statistics provide us with the following data:

Altogether (as of 2018) there were 3422 enterprises and entrepreneurs in the field of forestry and forest harvesting (of which 983 (28.7%) are legal entities, the rest - physical bodies (self-employed entrepreneurs). Out of this total number, 598 entities worked in forestry, 1983 in timber harvesting, 466 in non-timber forest products, and 375 in providing ancillary services in forestry.¹⁶⁷

A substantial number of micro-companies (1-5 employees) is a big part of the economy. In the forestry sector, many of such companies are service providers to state forest enterprises.

Most State forest management enterprises also operate their own sawmills or outsource their work to contractors.

Most of the value-added is created in wood processing and furniture industries. The furniture sector has about 7,606 private enterprises.

Unfortunately, no data available on the number of companies working with the non-timber forest products, which have a great market potential in Ukraine.

Box 5.

¹⁶⁷ State Statistics Service of Ukraine. 2019. Number of economic entities by type of economic activity in 2010-2018. http://www.ukrstat.gov.ua/operativ/menu/menu_u/cg.htm



Stryamets Halyna, Deputy Director on Science of Nature Reserve “Roztochcha”. Miss Stryamets is one of the main scientists preparing nomination papers of UNESCO World Natural Heritage Site "Ancient and Primeval Beech forests of Carpathians and other Regions of Europe".

Based on my experience and the experience of my female colleagues, on my opinion gender has a negative impact on women's career opportunities in forestry and nature conservation sectors in Ukraine. Besides there is only one woman, who was or still is the head of state forest enterprise in Khmelnytsky region, but many men.

Personally, I can't complain about "gender discomfort" because I work in reserve, it's a scientific institution. I am the deputy director for scientific work. Ministry of Environmental Protection and Natural Resources of Ukraine, to

whom our reserve is subordinated, is tolerant towards me. I think if I had worked in a forest enterprise, the situation would be different.

Changes on the way to gender equality in the industry depend on women. We have to set goals and achieve them and do it better than men. Work in the forest, in forestry at the lower levels (foresters) is physical, so it is difficult for women to work there, but starting as a master of the forest is not a problem.

Working in the field of nature protection is a mission. If it is not there, neither women nor men will stay, because salaries are low. The first step is to regulate wages, because now the PhD in the reserve receives less, than primary school teachers. If it continues to be the case, even men will not work in the reserve. There are no young people at all. The second step is that all positions that require high qualifications should be filled based on competition; perhaps then there will be more women. The third step is a change in the consciousness of both men and women; the process is long but achievable through education.

I don't think that there is a problem with women's motivation to study. It is not difficult to get a forestry education; it is difficult to find a job (...) Unfortunately, based on my experience and my female colleagues' experience, women working in the forestry and nature conservation sector of Ukraine are less likely than men to grow professionally and occupy leadership positions (...) I rarely felt prejudiced by male colleagues and male leaders in my work. Still some directors deliberately paid a lower salary for my degree and academic title, so that I would not have a higher salary than they (...) My biggest professional success is the creation of the Biosphere Reserve “Roztochcha”. I worked hard on the submission of nomination documents to UNESCO. The inclusion of the ancient beech forests of the Roztochcha Reserve into the UNESCO World Natural Heritage Site "Ancient and Primeval Beech forests of Carpathians and other Regions of Europe" is of course, not a personal achievement, it was the hard work of many scientists and conservationists, but I am proud to be part of it. My perseverance and responsibility helped me to succeed.

Related services

Forest Stewardship Council (FSC)¹⁶⁸

FSC is an international non-profit, multi-stakeholder organization established in 1993 to promote responsible and sustainable management of the world's forests. The FSC does this by setting standards on forest management and tracks forest products made from material harvested from such forests with Chain of Custody (COC) certification.

Program for the Endorsement of Forest Certification (PEFC)¹⁶⁹

PEFC is an international, non-profit, non-governmental organization that promotes sustainable forest management through independent third-party certification. In Ukraine PEFC started in 2019 with the development of the national forest management standard "Association National System of Voluntary Forest Certification".

Export Promotion Office EPO

Until recently, the export promotion office (EPO) was an NGO and today is an advisory and consultative body to the Ministry of Development of Economy, Trade and Agriculture of Ukraine. The EPO has been founded as a one-stop-shop to help Ukrainian exporters in opening new markets. The objective is to help Ukrainian businesses to be successful on the international markets by developing their export competencies, ensuring partnership and cooperation between Ukrainian and foreign businesses, promoting Ukrainian products and services abroad. EPO works in cooperation with the Ukrainian and foreign businesses and associations, trade support organization (e.g., German Import Promotion Desk (IPD)) and foreign consultants.

There are various international donors and technical assistance programs and projects that provide forest-related services in Ukraine. Currently, there are different initiatives and projects, funded by EU ENI CBC Programs, EU Regional cooperation programs, USAID, FAO etc. dedicated to improving the situation in forest sector. The Swiss-Ukrainian Forest Development Project in Zakarpattya FORZA (SDC, 2004-2010), EU FLEG and FLEG II Programs, Forest Watch (USFS, Finland Embassy), Lifelong Learning for better forest management, Roads to Healthy Forests: resilient, adaptive, diverse and sustainable forests in cross-border region of Ukraine and Slovakia (both EU ENI CBC HUSKROUA in different programming periods), Fem4Forest (EU Danube Program), Primeval and old-growth forests conservation in Carpathians (Frankfurt Zoological Society) are just a few titles in the pool of international cooperation and technical assistance projects contributing to improvement of forestry and forest management issues.

¹⁶⁸ See: <https://ua.fsc.org/ua-ua/nasha-diyalnist/-07>



¹⁶⁹ See: <https://tlu.kyiv.ua/pro-nas/novini-zakhodi/novina/article/asociacija-nacionalna-sistema-lisovoji-dobrovilnoji-sertifikaciji-publichno-ogoloshuje-pro-pochatok-roz.html>



In-country Initiatives “Future of the forests in your hands”, “One million trees in one day” aimed at involvement of society to the forest regeneration activities, promotion of forest sector as such.



2.10.6 Forest-focused interest groups


The roles of forest-focused interest groups in Ukraine vary from support to the forest management system to those who fight for the preservation of the natural resources, with many organizations and institutions somewhere in the middle. Often forest-focused civil society organizations conduct awareness-raising activities, capacity building of both forest management organizations and the general public, as well as deliver advocacy services for society.

Table 75: Overview forest-focused interest groups in Ukraine

Interest group	Goals	Structure	Representation Women
<p>All-Ukrainian Public organization Ukrainian Foresters Society https://tlu.kiev.ua/</p> 	<p>Main goal of the Society is mobilization of civil society forces for the protection of forests from extensive cuts, fires and industrial pollutants, support to the forest management based on principles of sustainability and effective management, preservation of the biodiversity in forests.</p>	<p>Top-management Executive group Presidium All-Ukrainian Council 24 regional societies</p>	<p>10% of women in the Presidium (20 members) 10% of women in the All-Ukrainian Council (50 members) 1 woman head of regional society, out of 24; 1 woman out of 4 top-management staff</p>
<p>Forest workers trade union http://ukrproflis.org.ua/pro-nas/statut.html</p> 	<p>Main goal of the trade union is representation and protection of labour, social-economic rights and interests of its members, particularly in relations with public bodies and self-governments, employers and other legal entities.</p>	<p>Top-management Central committee Presidium Executive group</p>	<p>1 woman, 1 man - ; top management 10w/21m Central committee 2w/9m Presidium 3 women in the executive group</p>

<p>Civil society council at the State Forest Resources Agency of Ukraine</p>	<p>Systemic dialogue of the civil society and central government body in field of forestry and forest management;</p> <p>Participation of civil society in elaboration of strategic documents, participation in decision making.</p> <p>Transparency and accountability in field of forestry and forest management.</p>	<p>Currently under formation of the new composition - applications to be submitted by the end of 2020</p>	<p>No data until the formation</p>
<p>Hunters and Fishermen Society https://www.uoor.com.ua/</p> 	<p>Main goal of the society is protection, rehabilitation, preservation and sustainable use of state hunting resources at the territories managed by the society's units, protection of members' rights, organization and conduction of hunting acts, amateur and professional fishing, skeet shooting.</p>	<p>Regional, local grass-root hunting and fishermen organizations.</p> <p>All-Ukrainian council</p>	<p>2 men</p>
<p>Civil Society "All-Ukrainian Association of hunters and users of hunting lands" https://www.uahhg.org.ua/</p> 	<p>Strategic goal is reaching of profitable hunting sector the level of best European practices.</p>	<p>Regional organizations 24</p> <p>Executive</p>	<p>1 w/23 m (4.2%)</p> <p>1 w/5 m (20%)</p>

<p>Forestry Scientific Academy (FSA), NGO http://nltu.edu.ua/la nu/</p>	<p>Main goal of the FSA is combining of creative efforts of scientists and practitioners of forest sector for improvement of the forestry and forest engineer work image, establishing close collaboration among forestry practice and scientists, support to the best research and development findings, protection of the environment, preservation and increase of forest values in the country.</p>	<p>Executive Members (65) Associate members (95) Honorable members (10) Affiliates</p>	<p>2 w/15 m executive (leadership) - 11.8% 5 w/57 m members (7.9%) 17 w/76 m associate members (18.3%)</p>
<p>National ecological educational center https://nenc.gov.ua/</p> 	<p>To raise ecologically conscious youth, providing knowledge and skills in the field of environment and natural resources management. Co-manages the system of school forestries</p>	<p>Executive Divisions</p>	<p>1 w/ 1 m (50%) 9 w/5 m (64.3%)</p>
<p>Agency for Sustainable Development of the Carpathian Region FORZA, http://www.forza.org.ua/en</p> 	<p>To promote the sustainable development of the Carpathian region of Ukraine in the economic, environmental and social aspects of natural resource management and community development.</p>	<p>Head Accountant Office manager Topic Managers</p>	<p>Woman head 2 m / 6 w</p>
<p>Open Forest https://www.openforest.org.ua/about/</p>	<p>Open Forest (Ukraine) is a news and discussion place of all actualities happening to forestry, forest management and wood processing Open Forest.</p>	<p>No data</p>	<p>No data</p>

<p>WWF Ukraine https://wwf.ua/our-work/forests</p> 	<p>Forests are one of the work directions of WWF Ukraine. Work is divided into the topics:</p> <p>Primeval forests and old growth forests</p> <p>Sustainable forest management</p> <p>Illegal logging</p>	<p>General Director 2 directors</p> <p>Sectors:</p> <p>Forestry</p> <p>Wetlands</p> <p>Rare species</p> <p>Environmental education and volunteers</p> <p>Climate and energy</p>	<p>Woman director general</p> <p>1 w/1 m directors</p> <p>2 m forest direction</p> <p>7 w/3 m other sectors</p>
<p>Ukrainian Nature conservation group http://uncg.org.ua/en/</p>	<p>Aimed to consolidate efforts of experts and scientists to protect Biodiversity and establish efficient functioning of Nature Reserve Fund</p>	<p>Head-male, 8 Co-founders 1 Communication manager, female 11 Experts</p>	<p>3 Co-funders 1 Comm. manager 3 Experts</p>
<p>NGO “Forest Initiatives and Communities” https://forestinitiative.wixsite.com/forestcom https://www.facebook.com/Forest.Initiatives/</p>	<p>Founded in 2020. Team established from the Forest Watch project staff run in Ukraine 2016-2019 to intensify development of civil society movement and forestry transparency in Ukraine including illegal logging mitigation and zero corruption tolerance.</p> <p>Team develops and introduces ideas for transparent society, sustainable and wise use of forest resources, better protection of unique natural spots, climate change mitigation efforts, combating illegal logging, solidifying sustainable green practices and national policies, and many more for better nature and life.</p>	<p>1 Head 2 Co-funders 4 Members</p>	<p>7 men</p>

Other civil society organizations:

- Ukrainian Bioenergy Association, <https://uabio.org>
- Environment. People. Law. <http://epl.org.ua/en>
- Ecoaction. <https://ecoaction.org.ua>
- Ecoclub Rivne. <https://ecoclubrivne.org>
- Civil society organization “Independent Expert Partnership”.
<https://nenc.gov.ua>

- NGO “Council of environmental safety” <http://ecorada.com.ua/>
- Association of protected areas of Ukraine <http://www.zapovidnyk.org/p/blog-page.html>

Conclusions: there are a number of interest groups related to forestry and forest management topics. NGOs play advocacy role to ensure sustainable forest management and are more actively engaged in monitoring issues related to transparency and traceability of timber. Information about current or past activities/projects/initiatives dedicated or related to gender equality is lacking.

2.10.7 Education and training in the field of forestry

Ukraine has a quite developed system of specialized vocational education and training (VET) and higher education (HE) institutions in forestry education. However, during the last decades we have seen that the quality of education is decreasing, because of shortage of financing of staff and resources, lack of professional development of teachers, and a gap between universities and industry.

The earliest forestry professional orientation starts at the secondary school level within the informal system of education of so-called “school forestries”, where high school students participate in various forestry works, like collection of seeds, planting and growing seedlings, planting seedlings in forest, simple inventory tasks, basics of the forest ranger profession. There are over 500 school forestries operating in schools and at the forest enterprises all over Ukraine.

Higher educational institutions for forestry are spread all over the country, in most cases, covering activities in the territory around the institution's location.

Forest technician professions as lumberjack, forester, and hunting ranger can be obtained in nineteen forestry colleges (schools) in the Carpathians, Polissya and Lisostep geographical regions of the country. Professional trainings for these professions last within the range of 1-3 years.

High education in the forestry field is provided by 27 high educational institutions of I-II accreditation level (professional education level). Those institutions train professionals in the following fields: Forest Management, Hunting Management, Forestry machinery, Forest Harvesting and Primary Woodworking, Woodworking and other.

Bachelor and Master degrees are obtained in the higher educational institutions of III-IV accreditation levels. The thematically focused institutions that provide higher education in the field of forestry and forest management are listed below.

The most profound higher institution, providing education and research in the field of forestry and forest management are as follows:

Ukrainian National Forestry University (UNFU)¹⁷⁰

The National Forestry University of Ukraine, founded in 1874 (UNFU), sometimes incorrectly referred to as “NLTUU” which is the transliteration of the abbreviation in Ukrainian (НЛТУУ) is situated in Lviv and considered the leading higher education institution in Ukraine with the specialization in forestry. During its history, the University has become a prominent center of both forest and wood engineering education and science in Ukraine, which actively integrates into the European education system Ukrainian National Forestry University.

The University comprises four educational-scientific institutes: ESI of forest and park management; ESI of wood processing, computer technologies and design, ESI of engineer mechanics, automatization and computer integrated technologies, ESI of economics and management.

Leadership: 1 rector and 4 vice-rectors (all men). Rector office: 2 women, 14 men. Scientific council contains information which doesn't allow to analyze gender, the same situation is with the scientific methodological council.

There are a number of challenging issues occurring in the field of education, namely:

- disparities in preparation of forestry staff (lacking worker professions and professionals, too much specialists with higher education);
- not enough elaborated state standards for all levels of preparation, which would define structure and content of educational programs in line with European standards;
- disparities and duplication of training materials in process of professional education at different levels of educational system;
- programs are overloaded with social-humanitarian and general disciplines;
- irrelevant share of theoretical and practical components of educational programs – not enough of practical component and often practical training is done formally, without real work in forest.¹⁷¹

Ukrainian Research Institute of Forestry and Forest Melioration (URIF&FM)¹⁷²

URIF&FM is the leading forestry research center in Ukraine. URIF&FM has a Steppe division in Kherson and a Polissya division in Zhytomyr. It also has 7 forest research stations: in Vinnytsa, Kyiv, Krasnotrostatets, Crimea, Luhansk, Mariupol and Novgorod-Siverskiy Ukrainian Research Institute of Forestry and Forest Melioration (URIF&FM).

¹⁷⁰ See: <http://ntu.edu.ua/index.php/en/>

¹⁷¹ See: <https://www.openforest.org.ua/129048/>

¹⁷² See: <https://forestry-forestmelioration.org.ua/>

Brief analysis of the gender segregated data on staff found: 1 w/ 4 men in the administration, specialized scientific council 5 women/ 10 men, forest ecology lab - 1w/4m, economics lab - 1w/3m, forest protection lab - 6 w/1m, forest cultures and agroforest melioration lab - 3 w, pedology lab - 1 w/1m, forest monitoring and certification - 2 w/5m, information technologies - 3w/3m, increase of forest stability - 1w/2m, selection lab - 3w/2m; trade union - 3w/2m; not clear information regarding gender of the scientific council members, 10 research and development divisions and executive departments (accounting, HR, economics).

Box 6.



Nataliya Vysotska, deputy director of the Ukrainian Research Institute of Forestry and Forest Melioration (URIF&FM)

16 years at the position.

"On my opinion and based on experience of my women colleagues in the situation when there are people with equal professional level, preference is given to men. The reason is that there are common stereotypes that women are less stress resistant and more emotional during decision making etc. Also employers mention that young women are exposed to maternity leaves and mothers of kids, particularly two and more, often go to sick leaves. If the team is men-dominating, the preference is also given to man before woman even if the qualification is the same. During career growth from the middle level to higher level women are undergoing more checks and tests than men."

"I think the following steps would make the difference: 1. gender quota during events, like number of speakers; 2. control over law enforcement at the level of organizations and companies; 3) systemic trainings and workshops for women regarding legal and psychological aspects of gender equality".

Ukrainian Research Institute for Mountain Forestry (UkrRIMF)¹⁷³

UkrRIMF is a research center that carries out research related to forest management in mountainous areas. UkrRIMF conducts research in the mountainous Carpathian region (in Ivano-Frankivsk, Zakarpattia, Lviv and Chernivtsi Oblasts). The institute has one research and experimental base, one control station and also one hydrological research stations. Official website provides limited information about staff members, including gender distinguished one. We see that at the level of the Institute leadership, there are two men (director and deputy director) and one woman – scientific secretary. Scientific Council of the institution comprises of two women (15.4%) and eleven men. There are four laboratories at the Institute: (1) forest science and forestry, (2) forest

¹⁷³ See: <http://ukrrimf.org.ua/uk>

environmentally friendly technologies and transportation, (3) forest regeneration and breeding, (4) ecology and forest protection, however no data on the staff of the above divisions available at the web-site.

National University of Life and Environmental Sciences of Ukraine (NUBIP)¹⁷⁴

NUBIP is a leading public university in the field of agriculture in Ukraine and located in Kyiv. NUBIP also includes the Education and Research Institute of Forestry and Park Gardening, incl. five chairs and field experimental station in Boyarka. Lack of open access information about staff members does not allow conducting analysis of gender segregated data.

State Ecological Academy of Postgraduate Education and Management (DEA)¹⁷⁵

DEA is the leading organization of the Ministry of Environmental Protection and Natural resources of Ukraine, scientific, practical and methodological work on environmental protection, rational use of natural resources, environmental safety, environmental impact assessment, implementation of environmental management mechanisms, in particular, environmental audit, standardization, certification and metrology in the field of environmental protection with food, preparation of scientific ecological expert assessment of the status of objects of high environmental hazard.

There are no on-line courses on forestry and forest management found at the moment, which is also considered to be a restrictive factor for professional development, particularly of women, who have temporarily limited opportunities for professional growth.

Extension training: In the system of forest management, there is a requirement that each and every forestry staff member (professionals, specialists etc.) conducts professional skill improvement training. This task is delivered by the Ukrainian Center for training, retraining and upgrade training of forest management staff (UkrCentrkadrylis)¹⁷⁶, being subordinated to the State Forest Resources Agency of Ukraine.

Main tasks of the Center are: postgraduate studies of the leading staff and specialists of the enterprises and institutions of the SAFRU and other legal and physical bodies; conduction of work safety training for leadership and specialists; publishing of manuals and other training materials; research; consultations.

There is a Carpathian Regional Training Center as a branch of the UkrCentrkadrylis, located in Ivano-Frankivsk city, focused on training of forestry and forest management

¹⁷⁴ See: <https://nubip.edu.ua/node/9087/9>

¹⁷⁵ See: <http://en.dea.edu.ua/>

¹⁷⁶ See: <http://kadrlis.com.ua/>

specialists from four Carpathian regions of Ukraine (Zakarpattya, Chernivtsi, Ivano-Frankivsk and Lviv).

Staff of the UkrCentrkadrylis comprises the executive leaders (2 men), economics chair (3 women), technological chair (5 men), library (1 woman).

Overall, the education and training system regarding forestry and forest-related issues is a traditional one, with rather outdated capacities for providing flexible opportunities for education of temporarily disadvantaged persons, including women on maternity leave, women in office positions or women with lower educational level.

2.10.8 Overview of initiatives and projects to support women in forestry

No specific projects or initiatives, which would specifically target gender equality in forest management, are found at the moment.

From the known examples, the following can be listed:

Box 7. Gender profile of Ukraine

Indicator	Statistic	Source, year
Human Development Index	88th of 189 countries	HDR, 2019
Gender Inequality Index	60th of 160 countries	HDR, 2019
Women's Share of Seats in Parliament	20.8% (88 MPs of 423)	Parliament of Ukraine, 2019
Gender Pay Gap in Monthly Earnings	21.2%	UNECE, 2017
Labour Force Participation Rate	Women: 46.7% Men: 62.8%	HDR, 2019
Hours Spent on Household Activities	W: 29 hrs/week M: 15 hrs/week	UNFPA Ukraine, 2018
Parent's Time Spent with Children	W: 49 hrs/week M: 22 hrs/week	UNFPA Ukraine, 2018

Source: <https://www.ua.undp.org/content/ukraine/en/home/gender-equality/comparative-gender-profile-of-ukraine-.html>

FORZA gender transversal issue within the Swiss-Ukrainian Forestry Development Project in Zakarpattya FORZA (2004-2010)

Swiss-Ukrainian forest development project in Zakarpattya, FORZA, has finished its activities 10 years ago (2010). Being a complex integrated project dedicated to introduction of reforms in the forest management system, it also had resources, human and financial, designated to gender issues in forest management. Within this activity gender analysis was carried out and a series of

training sessions held in the period of 2008-2010.

A recent Collegium of SAFRU, held on October 29, 2020 (same day of the Fem4Forest kick-off conference "Forests in Women's Hands - Yes, we can!") also brought up the gender issue in forest management. The SAFRU head of human resources department, who delivered a presentation of the gender status within the system of SAFRU mentioned the Fem4Forest project. More information is desirable on the forestry gender profile similar to the data in the Gender profile of Ukraine in box 7.

Box 8. Rapid look at the State Forest Resources Agency official Facebook page

Forest management is traditionally men dominated and, at the same time, for decades was rather informationally closed field of nature management and economic activity. Processes of public relations as well as improving the gender equality situation have developed in recent years, bringing positive dynamics to this field of activity.

There is a newly appointed head of SAFRU (July 2020), (man) as well as new public relations officer (woman).

A brief analysis of the official Facebook page of SAFRU (for the period from July till December 2020) shows gradual improvement of the situation with adequate women representation in the news feed. Initially one can notice that there are less news with women than with men. Moreover, news on women are more often related to planting and nursing, while men are participating in official meetings or do "real" forestry work. Recently there was more news on women in leading positions (2), news with women interviewed on the issues of forest management, women participating in the meetings etc.. Nonetheless, usually men dominate meetings.

Anyhow, the dynamics is positive and in future we plan to involve SAFRU leadership to the promotion of gender equality in forest management.

This photo from SFRAU official FB highlighting work of woman-forester: field visit of the head of Kherson regional forest administration (third from the left), Mrs. Kasich.



2.10.9 Literature

Publications:

FAO (2006) Time for action. Changing the gender situation in forestry. United Nations. URL: https://www.unece.org/fileadmin/DAM/timber/docs/publications-other/Time%20for%20Action_Gender%20and%20Forestry.pdf

FAO/UNECE (2020) Forest sector workforce in the UNECE region. Overview of the social and economic trends with impact on the forest sector. United Nations. URL: <https://www.unece.org/fileadmin/DAM/timber/publications/2020/DP-76.pdf>

Ukraine specific resources:

Analysis of gender-segregated data in the forest cluster of the Carpathian Region of Ukraine, Swiss-Ukrainian Forest Development Project in Zakarpattya FORZA. 2010

Answer-letter of the Ministry of Environmental Protection and Natural Resources of Ukraine №25/7-11/8230-20 dated 26.10.2020

Beijing +25. Concurrent report Ukraine 2014-2019. <http://library.fes.de/pdf-files/bueros/ukraine/15878.pdf>

Gender brochure of Swiss-Ukrainian Forest Development Project in Zakarpattya FORZA: About gender in forest sector and beyond. 2010

Gender equality and development: view in context of European strategy of Ukraine. Razumkov Center. <https://razumkov.org.ua/upload/Gender-FINAL-S.pdf>

Gender equality communication concept, approved by the Cabinet of Ministers of Ukraine <https://zakon.rada.gov.ua/laws/show/1128-2020-%D1%80#Text>

List of chiefs of territorial bodies, enterprises and organizations of the State Forest Resources Agency of Ukraine (SAFRU) as of 25.11.2020.

List of chiefs and deputy chiefs of territorial units of the SAFRU, as of 20.11.20.

Public report of the State Agency of Forest Resources of Ukraine for 2019.

SAFRU Report on the number, structure and change in staff members, as of 31.12.2019.

SAFRU Report on the number, structure and change in staff members, as of 31.12.2017.

Ukraine Country Forest Note: Growing Green and Sustainable Opportunities. World Bank, 2020. <https://openknowledge.worldbank.org/handle/10986/34097>.

UKRAINE Strengthening the quality and standards compliance services for wood and processed wood VALUE CHAIN STUDY. UNIDO, 2020. https://hub.unido.org/sites/default/files/publications/UKRAINE_VALUE%20CHAIN%20STUDY_GQSP%20Ukraine.pdf

3. Conclusion

This report covers various topics to assess the position and situation of women in the forest sector of the Danube Region. The 10 country reports are structured along the same lines, providing insights into their forests, the ways in which they are managed and governed, job opportunities and the status of women therein – either as owners, employees and/or decision-makers. The reporting is based on comprehensive desk research and pulls existing data together. As stated in the Time for Action FAO study, the availability of valid and comparable data is a major challenge. This relates in particular to comparable data on women participation in the workforce of the forest sector, among trained forest professionals and in leadership positions.

To arrive at some general insights about the status of women in the forest sector(s) of the Danube Region, the concluding chapter proceeds step by step, looks at each of the covered topics from a comparative perspective, and reveals the main findings. The identification of research gaps seals the Conclusions.

3.1 Key findings of the Status Report

The **forest sector** is generally defined as covering forestry, sawmilling, wood processing and furniture manufacture as well as pulp and paper. Apparently, Bavaria is the only country in the Danube Region which includes printing and publishing into its definition of the forest-based industries. The present report emphasizes forests and forestry, how they are managed and governed; it looks into related services in business and administration, and the educational system for jobs in forest management.

Forest coverage ranges largely, between 30 and 70%, in the countries of the Danube Region, with the Ukraine reporting a “low” 16% coverage yet the highest number of hectares (>10 million ha). Most of its forests are located in the western, mountainous part of the country, neighboring Romania. A large share of Romania’s forests is located in the Carpathians as well. Mountainous landscapes tend to be more densely forested than plain areas, which is also evident in Austria, Bavaria, Bosnia and Herzegovina, and Slovenia. The table below gives an overview of forest size and share in the different countries of the region. It is based on the data provided in the country reports.

Table 76: Forest cover in Danube Region

Forests in:	ha	Share land cover
Austria (2016)	4.020.000	48%
Bosnia and Herzegovina (2015)	3.231.500	63%
Bulgaria (2018)	4.257.200	38%
Croatia (2016)	2.759.039	46%
Czech Republic (2020)	2.675.670	34%
Germany / Bavaria (2019)	2.450.000	35%
Romania (2019)	6.592.000	28%
Serbia (2020)	2.720.000	30%
Slovenia (2020)	1.177.244	58%
Ukraine (2019)	10.400.000	16%

Source: Country reports in Fem4Forest Status report (2021)

Depending on geological, climatic and human-induced factors, forests tend to be either more coniferous or more deciduous. The major tree species of the Danube Region include: European beech, oak species, hornbeam, silver birch, pine species, Norway spruce and silver fir. Forest cover is generally increasing, differing however significantly in terms of standing volume per hectare from 160 m³/ha in Serbia to almost 400 m³/ha in Bavaria.

Irrespective of the state of forests, timber harvesting and wood processing are considered crucial industries for rural development. For instance, 10 out of 100 Austrians work with wood. After tourism, it is the second most important good in foreign trade. In Bosnia and Herzegovina, which is the 6th most-forested country in Europe, domestic wood processing is considered one of the most important sectors of the economy. Czech Republic and Romania are major exporters of round woods to European markets and home to significant wood processing industries. Slovenia steps up its already strong position in forestry and will employ 250 forestry professionals additionally in the next 5-10 years.

Recent Eurostat data (Dec 2020) indicate that GDP from forestry and logging account for 0.2% in 2018 at EU level. This share differs significantly within the Danube Region, ranging between 0.1% in Germany and 0.9% in Romania.

Table 77: Economic indicators for forestry and logging, 2000 and 2018

	Gross value added		Gross value added/forest area		Gross value added as a % of GDP	
	(million EUR)		(EUR / hectare)		(%)	
	2000	2018	2000	2018	2000	2018
EU-27	16.669	26 674	110	168	0,2	0,2
Belgium	100	84	149	121	0,0	0,0
Bulgaria	52	263	15	68	0,4	0,5
Czechia	388	1 182	147	442	0,6	0,6
Denmark	129	349	226	557	0,1	0,1
Germany	1 601	3 143	141	275	0,1	0,1
Estonia	69	238	31	98	1,1	0,9
Ireland	53	19	84	24	0,0	0,0
Greece	64	56	18	14	0,0	0,0
Spain	1.448	1 010	85	54	0,2	0,1
France	2 674	3 523	175	206	0,2	0,1
Croatia	106	216	56	112	0,5	0,4
Italy	1.083	1 971	129	208	0,1	0,1
Cyprus	:	2	:	:		0,0
Latvia	123	555	38	163	1,4	1,9
Lithuania	65	268	32	122	0,5	0,6
Luxembourg	12	35	140	400	0,1	0,1
Hungary	143	264	74	129	0,3	0,2
Malta	0	0	:	:	0,0	0,0
Netherlands	76	158	211	430	0,0	0,0
Austria	861	1 066	224	274	0,4	0,3
Poland	705	1 561	78	165	0,4	0,3
Portugal	1.253	952	382	288	1,0	0,5
Romania	193	1.780	30	257	0,5	0,9
Slovenia	93	283	75	228	0,4	0,6
Slovakia	129	494	68	256	0,6	0,6
Finland	2 239	4 111	100	183	1,6	1,8
Sweden	3.013	3.089	107	110	1,1	0,7
United Kingdom	:	612	:	193		0,0
Norway	:	690	:	57		0,2
Switzerland	195	358	163	284	0,1	0,1

(:) not available

Source: Eurostat (2020)¹⁷⁷; in **yellow**: countries of the Danube Region covered in Fem4Forest

Non-wood forest products (NWFP) are considered as potential fields for development in rural areas (e.g. Croatia, Serbia, Slovenia). Some countries started to monetarize the value added from berry and mushroom picking, honey, game hunting, Christmas tree plantations or other activities in forests (e.g. Czech Republic, Romania). Mushroom and berry picking or hunting are traditional activities in many rural societies, contributing to household incomes and diets. Monetarizing these may be at odds with established

¹⁷⁷ See: [https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests, forestry and logging#Forests in the the EU](https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests,_forestry_and_logging#Forests_in_the_the_EU) (accessed 25.01.2021)

norms and identities. However, growing demands for “the outdoors” and nature in society may facilitate the development of markets for NWFP.

The **labour market** in the forest sector covers a broad range of jobs. A recent FAO/UNECE report defines the notion of workforce as “people engaged in or available for work, either in a country or area or in a particular firm or industry” to include both employees and self-employed people who are active in forests and forest-based industries.¹⁷⁸ The report lists a broad range of jobs and job opportunities:

- Forest workers (legal and illegal, formal and informal, long term and seasonal)
- Foresters, forest managers, forestry professionals
- State forest organizations
- Other public organizations, including municipal forest structures
- Private forest management organizations
- Forest contractors, including machinery operators
- Sawmill employees
- Other manufacturing sector employees
- Forestry consultants, advisers and extension worker

The evidence provided in the country reports covers most of these categories, yet not in a consistent way. A distinction can be made between employment opportunities between the public and the private sector. First of all, more data are available on positions and gender distributions in forest administrations and state-owned forest companies. Secondly, jobs in the public forest sector seem to be more attractive for women.

The data presented below give an indication of the number of jobs in the public forest sector and the shares of women and men. It does not provide insights into the type of jobs and the qualifications needed. For example, the Bavarian data covers foresters, forest managers and forestry professionals only whereas the data from Romania reflects the gender distribution at National Forest Authority Romsilva. Moreover, whereas some countries have created state forest companies, the majority of countries in the Danube Region organize executive government and forest management within one institution.

¹⁷⁸ See: <https://unece.org/fileadmin/DAM/timber/publications/2020/DP-76.pdf> (pp. XII-XIII)

Table 78: Employment in public forest sector

Employment in forestry	Forest administrations				State forest companies			
	female	male	total	share f	female	male	total	share f
Austria	34	683	717	5%	n.a.	n.a.	n.a.	n.a.
Bosnia and Herzegovina	17	172	189	9%	536	3590	4126	13%
Bulgaria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Croatia	740	6840	7580	10%	1465	6547	8011	18%
Czech Republic	310	604	914	34%	n.a.	n.a.	5865	n.a.
Germany / Bavaria	123	708	831	15%	91	646	737	12%
Romania	1213	9397	10610	11%	n.a.	n.a.	n.a.	n.a.
Serbia	21	38	59	36%	938	3696	4634	20%
Slovenia	106	581	687	15%	66	235	301	22%
Ukraine¹⁷⁹	1172	4951	6123	19%	6	246	252	2,4%

n.a. = not available / not announced

Source: Country reports in Fem4Forest Status report (2021)

The available data on employment in the public forest sector shows a certain tendency, several forest administrations of former socialist countries employ a greater share of women than the given administrations in Austria and Bavaria. As mentioned above, some caution applies: the female shares in forest administration employment are not fully comparable. For example in Serbia, 3 out of 4 female employees in the forest administration are trained foresters whereas in Slovenia's state forest company the ratio is far less: 12 of 66 female employees are trained foresters. Hence, what looks like a positive heritage of the socialist past, does not necessarily materialize as greater parity of female and male foresters in forest administrations of eastern countries in the Danube Region.

The data for female employment in the private forest sector is rather limited and patchy. Except for Austria (10%) and Romania (11%), there is no data for women in forestry jobs of private **companies** available while the provided data is not comparable. The 10% share of women in private forest companies of Austria manage forests > 500 ha whereas the 11% share of women in Romania's private forest sector covers all forest

¹⁷⁹ The overall forest sector workforce in Ukraine (covering forestry, sawmilling, wood processing, furniture) is reported as 173.031 FTE (2018)

companies including contractors. The share of 20% in Serbia’s state forest enterprises are trained foresters.

There is limited data available for female employees in national parks and forest pedagogy. Apparently, working for nature conservation is more attractive for female foresters than in timber production. Moreover, the share of women in forest pedagogy is relatively high in Austria (49%) and in Bavaria (approx. one third). The same seems to be true for positions in research and knowledge transfer of forestry research institutes.

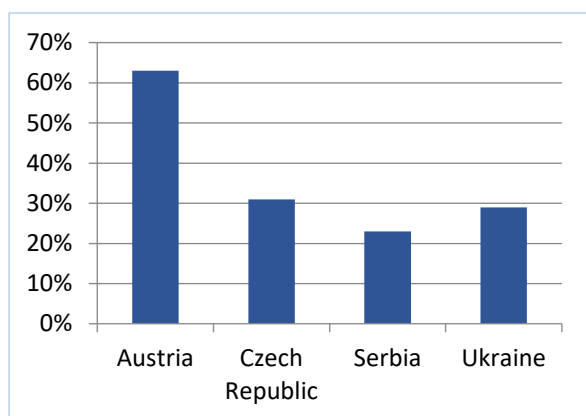


Figure 90: Share of women in management of Protected Areas

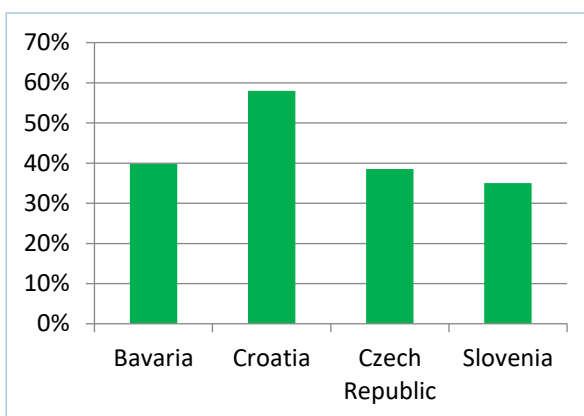


Figure 89: Share of women in forestry research institutes

Source: Country reports in Fem4Forest Status report (2021) Note: Values for Bavaria in figure 89 cover researchers and administrative staff

Recent Eurostat data informs that the number of jobs in forestry and logging decreased between 2000 and 2018 at EU level while productivity increased.¹⁸⁰ This relation is strong for several countries of the Danube Region, thus reflecting dramatic job cuts in forestry and logging. On the basis of the country reports, it is difficult to assess how the lower number of persons employed in forestry and logging affected women. The fact that trained female forestry professionals are more prevalent in research, knowledge transfer, pedagogy and nature conservation might imply that women coped with increasing job pressure in traditional forestry by shifting to other subfields.

¹⁸⁰ According to Eurostat data, about 519.400 persons worked in the forestry and logging sector in 2018 in the EU-27, which represented a decrease of 2 % compared to year 2000. The largest workforce was recorded in Poland (73.300 persons), Romania (51.800), Sweden (40.000) and Germany (39.000). See: [https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests, forestry and logging#Forests in the the EU](https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests,_forestry_and_logging#Forests_in_the_the_EU) (accessed 25.01.2021)

Table 79: Employment and apparent labour productivity in forestry and logging, 2000 and 2018

	Persons employed		Persons employed / forest		Apparent labour productivity			
	2000	2018	2000	2018	2000	2018 (*)	2000	2018
	(1 000 annual working units)		(persons employed / 1 000 ha)		(1 000 m ³ removals / person employed)		(EUR 1 000 gross value added / person employed)	
EU-27	531,4	519,4	3,5	3,3	0,8	1,0	31,4	51,4
Belgium	2,7	2,3	4,0	3,3	1,7	2,3	36,9	36,4
Bulgaria	22,7	22,2	6,7	5,8	0,2	0,3	2,3	11,8
Czechia	37,7	21,8	14,3	8,2	0,4	1,2	10,3	54,2
Denmark	5,0	6,0	8,7	9,6	0,6	0,6	25,8	58,1
Germany	59,0	39,0	5,2	3,4	0,9	1,9	27,1	80,6
Estonia	9,1	5,8	4,1	2,4	1,0	2,1	7,6	40,8
Ireland	2,6	2,4	4,2	3,2	1,0	1,5	20,0	7,7
Greece	7,8	9,0	2,2	2,3	0,3	:	8,2	6,1
Spain	38,6	18,8	2,3	1,0	0,4	1,0	37,5	53,7
France	40,0	30,0	2,6	1,8	1,6	1,7	66,9	117,4
Croatia	32,3	14,4	17,1	7,4	0,1	0,4	3,3	15,1
Italy	27,4	38,8	3,3	4,1	0,3	0,2	39,5	50,8
Cyprus	0,5	0,4	:	:	0,0	0,0	:	5,0
Latvia	12,5	17,9	3,9	5,3	1,1	0,7	9,8	30,9
Lithuania	12,6	11,9	6,2	5,4	0,4	0,6	5,2	22,6
Luxembourg	0,5	0,3	5,8	3,8	0,5	1,3	24,4	104,3
Hungary	18,6	20,7	9,7	10,1	0,3	0,3	7,7	12,8
Malta	0,0	0,0	0,0	0,0	:	:	:	:
Netherlands	2,0	2,0	5,6	5,4	0,5	1,6	38,0	79,0
Austria	27,3	21,7	7,1	5,6	0,5	0,9	31,5	49,2
Poland	64,3	73,3	7,1	7,7	0,4	0,6	11,0	21,3
Portugal	12,1	15,3	3,7	4,6	0,9	0,9	103,5	62,3
Romania	45,0	51,8	7,1	7,5	0,3	0,3	4,3	34,4
Slovenia	5,7	7,1	4,6	5,7	0,4	0,7	16,3	40,0
Slovakia	32,4	25,5	17,0	13,2	0,2	0,4	4,0	19,4
Finland	19,7	20,8	0,9	0,9	2,8	3,3	113,7	197,6
Sweden	27,0	40,0	1,0	1,4	2,3	1,8	111,6	77,2
United Kingdom	14,9	20,0	5,1	6,3	0,5	0,6	:	30,5
Norway	5,0	:	0,4	:	1,6	:	:	:
Switzerland	:	:	:	:	:	:	:	:

(:) not available

(*) 2017 data used for Belgium, 2016 data used for Denmark and Latvia, for removals

Source: Eurostat (2020)¹⁸¹; in **yellow**: countries of the Danube Region covered in Fem4Forest

The political and economic transformations of the early 1990s in Central and Eastern Europe created significant impacts for the forest sectors in the Danube Region. Privatization and restitution of national forests to private owners, separation of regulatory from operational functions in forest management, increases in foreign investment and the establishment of large protected areas affected the nature of work in the forest sector. Public management reforms, a greater role for private actors, and the evolving priorities in forest management towards ecosystem-based management have changed how people are engaged in and work with forests and forestry.

The next sections provide some insights into forest ownership and the organization of forest administrations. Female forest ownership shares do not correspond with equivalent shares of women in the forest workforce. To seal this overview of country reportings, emphasis will be placed on women in leadership positions of

¹⁸¹ See: [https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests, forestry and logging#Forests in the the EU](https://ec.europa.eu/eurostat/statistics-explained/index.php/Forests,_forestry_and_logging#Forests_in_the_the_EU) (accessed 25.01.2021)

administrations, companies and interest groups, and their representation in educational paths.

Looking at **forest ownership**, a rough distinction can be made between public and privately owned forest. Public includes state and municipal forests. Private forests are owned by individuals (f/m) and legal persons (churches, NGOs, cooperatives/communities). High shares of public, and particularly state-owned forests are prevalent in many former socialist countries, yet distinctions apply, as shown in the figure below.

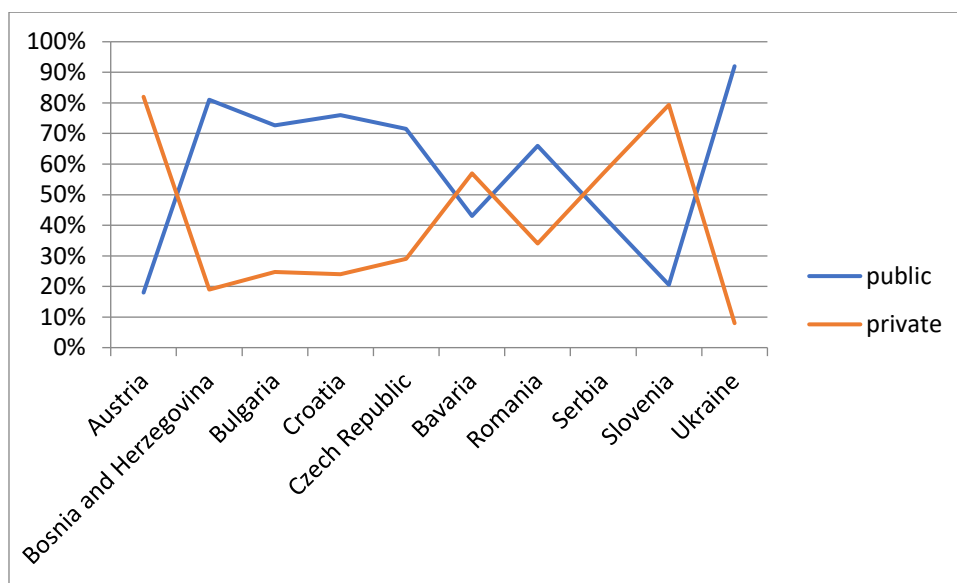


Figure 91: Share of public and private forests in DR

Source: Country reports in Fem4Forest Status report (2021)

Like in Austria, the bulk of forests in Slovenia is privately owned. Slovenia started the restitution of property that had been confiscated after the war to farmers and other private forest owners, agrarian communities, landowners, and the Church in 1991. The share of public forests has decreased from 34% in 1996 to 21% in 2018. In Romania and Serbia, the process of restituting public forests to private entities was less transformational while logging and wood processing evolved into key economic activities in rural areas. In Czech Republic, the church has become a major beneficiary of forest restitution. It owns >5% of overall forests. Private individuals own 17.5%. The share of female owners within the group of private individuals is almost the same in

Czech Republic and Bavaria, yet the proportion of forest land owned by women in Bavaria is far larger than in Czech Republic.

The table below indicates the share of women of the forest area owned by private individuals and size of forests in female hands in those countries for which data is available. There is no data on female ownership in Bosnia and Herzegovina, Bulgaria, Romania, Serbia and Ukraine. In Bosnia and Herzegovina, their share is estimated low because inheriting forest property goes along the male line and women rarely share formal ownership rights with their husbands. In Ukraine, there is almost no private forest ownership. In Czech Republic, most female owners own less than 1 ha on average, in Bavaria female ownership ranges between 1 and 2 ha. It is slightly higher in Slovenia (2.5 ha) and Austria (<5 ha). Female forest owners tend to own smaller parcels than their male peers.

Table 80: Forests in women's hands in DR

	Share of female forest owners	ha	No. of female forest owners
Austria (2016)	23%	440.685	39.643
Croatia (2016)	7%	n.a.	n.a.
Czech Republic (2020)	30%	139.441	143.339
Bavaria (2019)	31%	442.645	245.091
Slovenia (2020)	35%	292.012	123.000

Source: Country reports in Fem4Forest Status report (2021)

In some countries of the Danube Region, forest owner associations were created to overcome the structural deficits of small-scale forest ownership. They are well established in Bavaria: approx. 30% of private owners, holding 70% of forest land are organized in the country's 137 FOAs. Given the fact that FOAs started to emerge much later in Central and Eastern European countries, it is not surprising that they do not play a meaningful role in forest management and extension. Croatia, for instance, started supporting FOAs in 2004/5 to improve the management of private forests. There are 29 local FOAs in Slovenia, yet representing merely 1% of all private owners. In Bulgaria and Romania, FOAs do not exist. In Serbia, there are no official statistics on FOAs. Hence, FOAs are insignificant for most of the countries covered in this report. As

it stands, private initiatives by means of FOAs develop rather slowly in the Danube Region.

There are striking similarities in the organizational set-up of the **forest administrations** in the Danube Region. With the exception of the Ukraine, forest directorates within the countries' ministries of agriculture are responsible for the formulation and implementation of state forest policy, government oversight and monitoring, and game management. Moreover, most countries separate control functions from operational forest management and have created state forest enterprises or companies. With the exception of Romania and Ukraine, ministries for environment hold primary responsibilities for environmental affairs in forest management.

Moreover, in Romania and Ukraine, regulatory and operational functions are not separated. In Romania, the national forest administration Romsilva is mandated to ensure forest regime implementation and to manage state forests for environmental and economic purposes. In Ukraine, the State Forest Resources Agency (SFRAU) is the central executive body. There are 24 regional forest and hunting administrations and 320 state forest enterprises that manage the state forests together with the communal enterprises. The regional administrations and the state forest enterprises are subordinated to SFRAU. This set-up is described as conflict- and corruption-prone.

In countries with significant shares of private forests (Austria, Bavaria, Slovenia), there are locally-based forest services to ensure sustainable management and reach out to owners with support and extension. If forest services do not exist at local level, policies and management plans may not be implemented (Bosnia and Herzegovina), private forest management be on a weak footing (Croatia), and forests be degraded (Serbia).

Women tend to play marginal roles in **leadership** positions of forest administrations in the Danube Region (Bavaria, Bulgaria, Czech Republic, Romania). Nonetheless, in some cases it seems common that women hold leadership positions in forest directorates at ministerial level (Austria, Czech Republic, Croatia, Serbia, Slovenia, Ukraine), manage educational centers and research institutions (Austria, Bavaria, Croatia, Slovenia), hold management positions in municipal forests (Czech Republic), and are key in managing protected areas (Austria, Ukraine). In four out of the ten countries covered in this report, women act as forest ministers (Austria, Bavaria, Bulgaria, Croatia). In the forest companies – both public and private – of the region, however, women are virtually absent from assuming leadership roles.

Moreover, **interest representation** of forest-related matters is a male domain in several (Austria, Bavaria, Bosnia and Herzegovina, Czech Republic) but not in all countries (Bulgaria, Serbia). Typical forest-focused interest groups include forest owner associations, forest professional associations, hunting associations, forestry societies, and conservationist groups some of which are based in forestry. Several reports have also listed associations that represent entrepreneurs in forestry and wood working industries as well as civil society groups for the advancement of sustainable development in rural societies. The available data indicates that women tend to be more present in forestry societies, play greater roles in ENGOs and civil society groups and may lead entrepreneurial associations.

The future of forest management and governance may become more female. There are significant shares of women in forestry **education** – both as students and partly as teaching and research staff. The provided data in the country reports allows for the following findings on women representation in educational programs:

- Forestry engineering (B.Sc. level): from 26% at the Forestry Faculty of Univ. Belgrade (Serbia) and two other universities to 47% at Mendel University Brno (Czech Republic)
- Forestry Master (M.Sc. level): from 30% at CZU in Prague (Czech Republic) to 39% at University of Ljubljana (Slovenia) and >40% at University of Life Sciences in Vienna (Austria)
- Doctorate: for those countries for which data is available (Austria, Czech Republic, Serbia, Slovenia), the share of women with doctorates in forest sciences is considerable, ranging between 27% and 44%
- Note also that the share of women doing lumber jack work or being engaged as technician in forestry operations is rather low in many but not in all DR countries .

The evidence presented in the country reports seems to reflect a growing interest in forests and forestry among women. In Bavaria, the share of women in forestry programs at B.Sc. and M.Sc level was on average between 25% and 33% over the last 10 to 12 years but peaking more recently whereas Austria reported growing shares of women in all training paths. Strongly in Czech Republic and Romania but also in Slovenia, girls participate to a considerable extent in vocational training programs for forestry.

3.2 Outlook

Women are present in the forest sectors of the Danube Region. They own significant shares of private forest land but represent a smaller share in the forest work force. Forest management and interest representation is clearly male-dominated.

Nonetheless, women assume leadership roles in other fields including teaching, research and nature conservation. Given the high shares of female graduates in forestry programs, the future of the sector may become more female. To facilitate this development, the following questions will be addressed in the upcoming Fem4Forest research and action:

- How does gender influence attitudes towards forest ownership and management?
- What are the needs for training, mentoring and support of female forest owners and foresters?
- Which opportunities and constraints exist for women in the Danube Region to assume leadership roles in administrations, enterprises and interest groups and how can they be addressed?
- Are there role models for female careers in the forest sector and what lessons can be learned?
- Which business models exist for forests and forestry that are they attractive for female owners?
- How to develop innovative development paths in rural areas that meet the needs and interests of female forest owners and their stakeholders?

