

# GREEN FOREST JOBS IN THE PAN-EUROPEAN REGION

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## Key messages

- The number of persons employed in the pan European forest sector is decreasing
- The workforce in the European forest sector is aging
- Only 21 % of the workforce in the traditional European forest sector is female
- Earnings in the European forest sector are often not competitive

## Recommendations

- Working conditions need to be improved and adapted to retain the workforce and to attract youth and female workers;
- The forest sector has the opportunity to be a frontrunner in ensuring decent work as well as competitive and equal pay for all;
- Green Jobs related to forest education and training, provision of ecosystem services, human health and recreation, urban forest, green chemistry as well as new wood based products are an opportunity to attract youth;
- Joint action between government, private sector and unions must be taken to reverse the decline of workforce by improving retention and skills upgrading of existing workers;
- An overhaul of forest education and training to meet changing skills requirements is a major drive to attract new recruits and promote Green Jobs in the forest sector;
- Numerous examples of successful and promising initiatives have been identified to ensure the forest sector will have the workforce it needs and makes full use of its potential to create Green Jobs. Without a concerted effort to make these good practices part of mainstream forest policies and strategies, they are unlikely to have the scale and pace required.



# INTRODUCTION

What are Green Forest Jobs and why is this topic relevant for the forest sector? After some terminologies and definitions explanations, basic figures and facts related to the traditional forest sector workforce are shown. The forest sector's role as a potential Green Job provider is discussed. Trends and opportunities associated with the development of Green Forest Jobs in the pan-European region and recommendations to adapt to the just transition are given. However, the current limitations to assess the number of Green Forest Jobs and indicators to characterize a job as 'green' calls for action.

## WHAT ARE GREEN FOREST JOBS?

Before the term Green Job emerged, there was already a broader debate about how economies and societies could become 'greener'. The concept of Green Economy (Pearce et al. 1989; United Nations 2012) stimulated more rigorous policies aiming at environmental protection and impacted employment levels. Increasing the number of jobs in environmental protection is an important milestone to stimulate greener economies and greener jobs.

Green Jobs are decent employment in "agriculture, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality" (UNEP et al. 2008). This definition highlights that Green Jobs are only 'green' if they are decent. Decent jobs are those that "are productive, provide adequate income and social protection, respect the rights of workers and give workers a say in decisions which will affect their lives" (ILO 2013). However, this definition does not explicitly mention what Green Jobs in the forest sector are.

Green Jobs in the forest sector were described as jobs which "comply with the principles of sustainable forest

management, contribute to the green economy, and are involved in the manufacture of forest products and/or in the performance of forest services" (ECE/FAO 2018). No definition is likely to fit all purposes of policymaking, communication or data collection (Harris 2021). For this reason, FOREST EUROPE decided to present a definition of Green Jobs specific to the forest sector. These jobs are called Green Forest Jobs for communication purposes. Furthermore, the purpose of this definition is to create a common understanding about what Green Forest Jobs are. The definition reads as following: **Green Forest Jobs provide forest-related goods and services while meeting the requirements of sustainable forest management and decent work.**



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# THE EUROPEAN FOREST SECTOR WORKFORCE AND GREEN FOREST JOBS

The forest sector includes several economic activities mentioned in the International Standard Industrial Classification (ISIC). The traditional forest sector referred to in this report encompasses forestry and logging (A02), manufacture of wood products (C16), manufacture of paper products (C17), printing (C18) and the manufacture of furniture (C31). The employment in these economic activities is considered to be the traditional forest sector workforce. Additionally, to the traditional forest sector, other economic activities related to forests are emerging. This is referred in this report as new forest based sector. There is no doubt that a significant part of the forest sector workforce holds a Green Job. However, not all jobs in the forest sector are per se 'green'.

The number of persons employed in the pan European forest sector decreased by 7 % between 2010 and 2020 (ILO 2021). Figure 1 shows the evolution of the employment in the traditional forest sector inside the pan European region. The economic activities of forestry and logging, manufacture of wood products and manufacture of paper products provided jobs for at least 2.6 million persons in the pan European region between 2017 and 2019 (ILO 2021). In the same period, other economic activities traditionally related to the forest sector as manufacture of furniture and printing contributed to another 1.6 million jobs and 800 thousand jobs respectively (ILO 2021). Together, these economic activities provided jobs for at least 5 million persons in 36 European countries (ILO 2021).

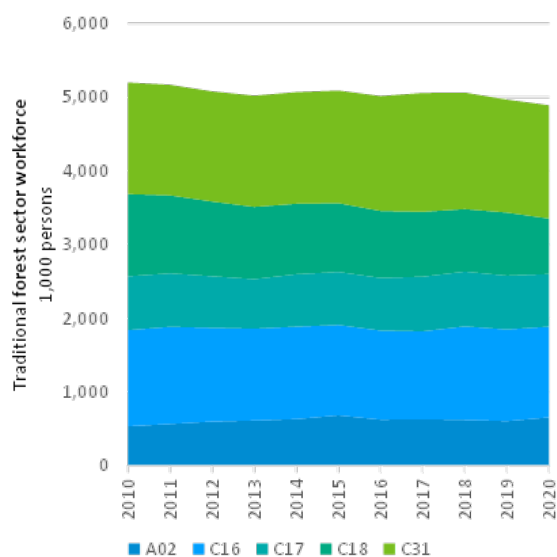


Figure 1 - Evolution of the employment in the traditional forest sector by economic activity

Note: 38 countries reported employment statistics. The values presented in this figure are an average of employment of the years 2017, 2018 and 2019 ISIC divisions A02, C16, C17, C18 and C31.

Sources: ILOSTAT by ILO <https://ilostat.ilo.org/topics/employment/>

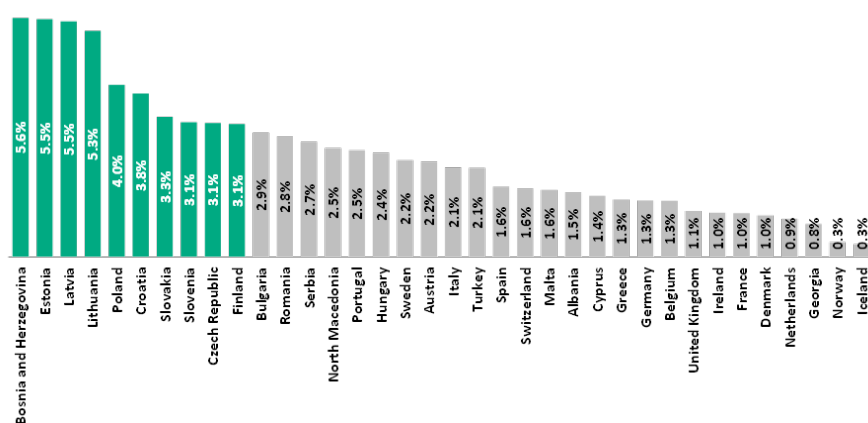


Figure 2 - Share of employment in the traditional forest sector in relation to total employment

Note: 36 countries in the pan European region reported employment statistics. The values presented in this figure are an average of employment of the years 2017, 2018 and 2019 at ISIC divisions A02, C16, C17, C18 and C31.

Sources: ILOSTAT by ILO <https://ilostat.ilo.org/topics/employment/>

The dimension of the forest sector workforce varies substantially from country to country. Figure 2 shows the share of employment in the traditional forest sector in relation to total employment in 36 European countries. The top ten countries in which the forest sector contributes more than 3 % of jobs out of total employment are highlighted in green with values in white.

The age profile of the pan European forest sector workforce reveals that the number of workers aged between 15 and 39 is decreasing sharply along with that of young entrants (EUROSTAT 2020b). In contrast, the number of workers aged 60 + increased slightly between 2008 and 2020. However, the average age of the pan-European forest sector workforce is between 40 and 59 years old. The labour shortage is thus imminent, because workers aged 50 + will leave the

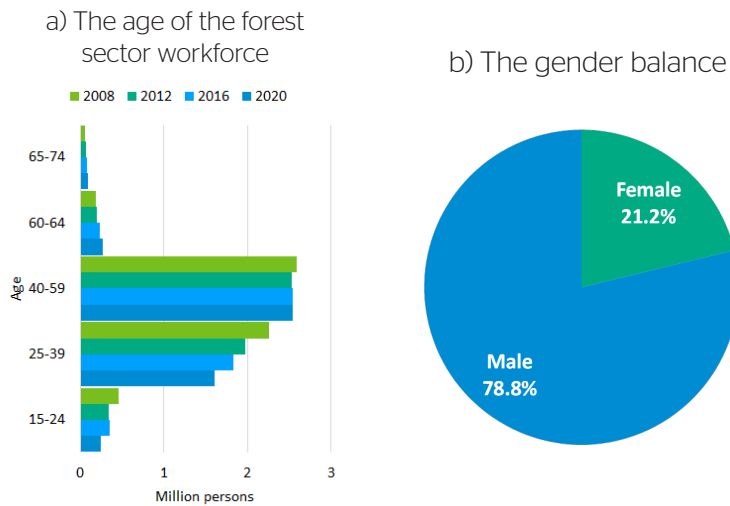


Figure 3 - The age and sex of the traditional forest sector workforce

Note: 34 countries in the pan European region reported the age of the traditional forest sector workforce. 36 countries in the pan European region reported the gender balance. The values presented in Figure 4 b is an average of employment by sex of the years 2017, 2018 and 2019 at ISIC divisions A02, C16, C17, C18 and C31. Source: The age of the forest sector workforce obtained via European statistics, LSF series - detailed annual survey results <https://ec.europa.eu/eurostat/web/lfs/data/database>; The gender balance was obtained via ILOSTAT Employment by sex and economic activity - ISIC level 2, available in ILOSTAT <https://ilostat ilo.org/data/>

sector within the next 10-20 years. If this trend is not reversed, the forest sector will suffer from a shortage of workers in the future. Figure 3 a) shows the age profile of the traditional forest sector workforce in the pan European region.

Figure 3 b) shows the gender balance of the traditional forest sector workforce in the pan European region. Although, the gender balance in the forest sector workforce varies in the different economic activities of

the traditional forest sector, overall, women occupy only 21 % of jobs (ILO 2021). Forestry and logging are the economic activities with the lowest female participation (14 %). The largest female participation in the forest sector workforce was observed in printing (32 %), followed by the manufacture of paper products (26 %) and by the manufacture of furniture (19 %).

Figure 4 presents the distribution of employment in the traditional forest sector by economic activity and sex in

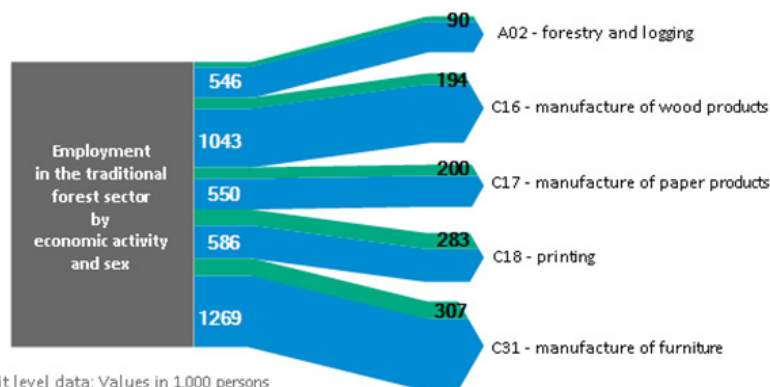


Figure 4 - Employment in the traditional forest sector by economic activity and sex

Note: 36 countries in the pan European region reported employment statistics. Values in 1,000 persons. Green arrows with black numbers indicate female workers. Blue arrows with white numbers indicate male workers. The values are an average of employment in 2017, 2018 and 2019 according to the ISIC divisions A02, C16, C17, C18 and C31. Sources: ILOSTAT by ILO <https://ilostat ilo.org/topics/employment/>

ISIC 2-digit level data; Values in 1,000 persons  
Green arrows with black numbers indicate female workers  
Blue arrows with white numbers indicate male workers



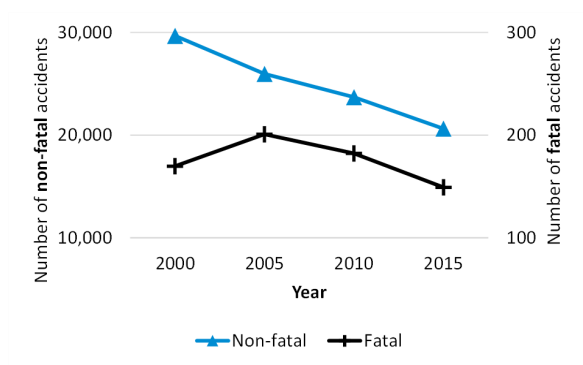
the pan European region. The number of work accidents has decreased considerably in forestry and logging (ISIC division A02) (Figure 5 a). Fatal accidents remained much more frequent in forestry and logging than in other economic activities, making it one of the most dangerous occupations in many countries.

The average number of hours worked in the forest sector varies according to the economic activity and country. Considering the entire traditional forest sector (Figure 5 b), the average of working hours per week indicates that women work to a greater extent in part time positions.

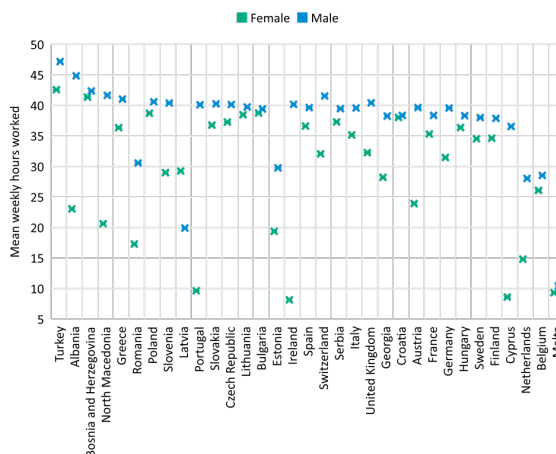
As shown in Figure 6, women in general earn less than men in almost all occupations in 2018. The largest discrepancies are observed for professionals and managers. These occupations also exist in the forest sector; however, the exact wage gap is so far not quantifiable at this aggregate level.

Figure 5 – Accidents in forestry and mean weekly hours worked in the traditional forest sector

a) Non fatal and fatal accidents in ‘forestry and logging’



b) Mean weekly hours worked



Note: 28 countries reported the number of non fatal accidents in the economic activity of ‘forestry and logging’ (ISIC division A02). 38 countries reported the mean weekly hours worked.

Source: Accidents number obtained via Joint pan European dataset by FAO, UNECE and FOREST EUROPE <https://fra-data.fao.org/FE/panEuropean/home/>;

Mean weekly hours actually worked per employed person by sex and economic activity obtained via ILOSTAT <https://ilostat ilo.org/data/>

Occupations called ‘skilled agricultural, forestry and fishery workers’, which are obviously part of the forestry workforce, received lower remuneration when compared to other occupations. However, the majority of these workers are employed in agriculture and based on the information available it is impossible to specify the average wage for skilled forestry workers in more detail.

Alike the total workforce, since 1990 the number of degrees in forestry in many pan European countries is also decreasing (FAO 2015). In contrast, the number of degrees in engineering studies related to the manufacture and processing of wood and paper increased in the same period. Some countries such as Germany and Estonia showed a significant drop in technical level graduations on forest related education (EUROSTAT 2020a; FAO 2015). The share of female students in forestry related courses remained mainly below 30 % between 2000 and 2018.

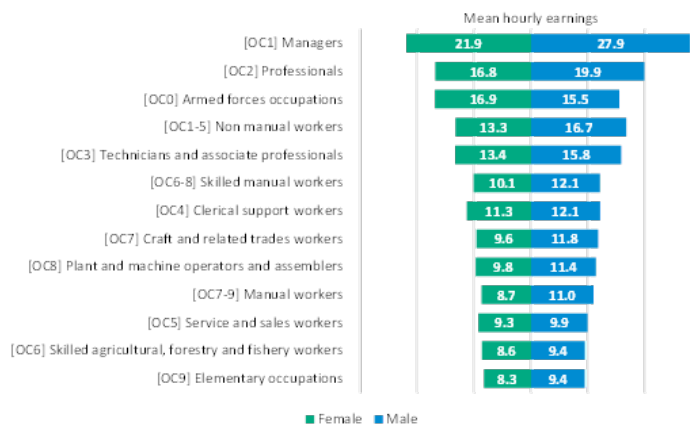


Figure 6 – Mean hourly earnings by sex and occupation (ISCO) in Euro in 2018

Note: 27 countries in the pan European region reported mean hourly earnings, according to the International Standard Classification of Occupations (ISCO)

Source: European statistics, Structure of earnings survey <https://ec.europa.eu/eurostat/web/labour-market/earnings/database>

Undoubtedly, the transition to a greener economy requires skills and abilities beyond only the requirements of the traditional forest sector. Increasing demand for degrees in technology and engineering is expected in the future. This increase will assist the forest sector with professionals as well. New established jobs related to technological development to preserve or restore forest quality or reduce energy, material and water consumption in the forestry and wood based industry are the Green Jobs to be pursued. Therefore, training and education are essential to ensure competitiveness of the new forest based sector.

While the information on the workforce size in the traditional forest sector is satisfactory in many countries, little is known about their job quality and whether they could be considered “green”. It is currently unknown how many traditional and new forest based Green Jobs exist. However, data collection and statistical analysis of job quality and job decency will precisely inform how many Green Jobs the forest sector provides.



# TRENDS, CHALLENGES AND OPPORTUNITIES OF GREEN FOREST JOBS

Many are the reasons why formal forest-based employment decreased in the past decades. In part it is due to increased mechanization in logging and harvesting (Owuor et al. 2021). Mechanization and automation also declined employment in wood and paper manufacturing (ECE/FAO 2020). Furthermore, increased labour regulation impacted formal employment in some countries and contributed to the growth of informal employment in the forest sector (Cui et al. 2022; Karabchuk and Zabirowa 2018).

There is a high probability that the forest sector will lack skilled workers in a relatively near future. The traditional forest sector will be mostly impacted by this trend. Many existing forest jobs will be redefined in terms of occupational qualifications. Only with a well-trained, highly skilled workforce the pan European forest sector will be able to manage the future challenges. In view of the aging and decreasing workforce, further automation and improved productivity is a challenge. Nevertheless, there is significant potential to grow Green Forest Jobs, especially in areas such as education, tourism, nature conservation, health, green chemistry, and new wood based materials (UNECE/FAO/Forest Europe 2020; ECE/FAO 2018).

Data clearly indicate that the forest sector must act

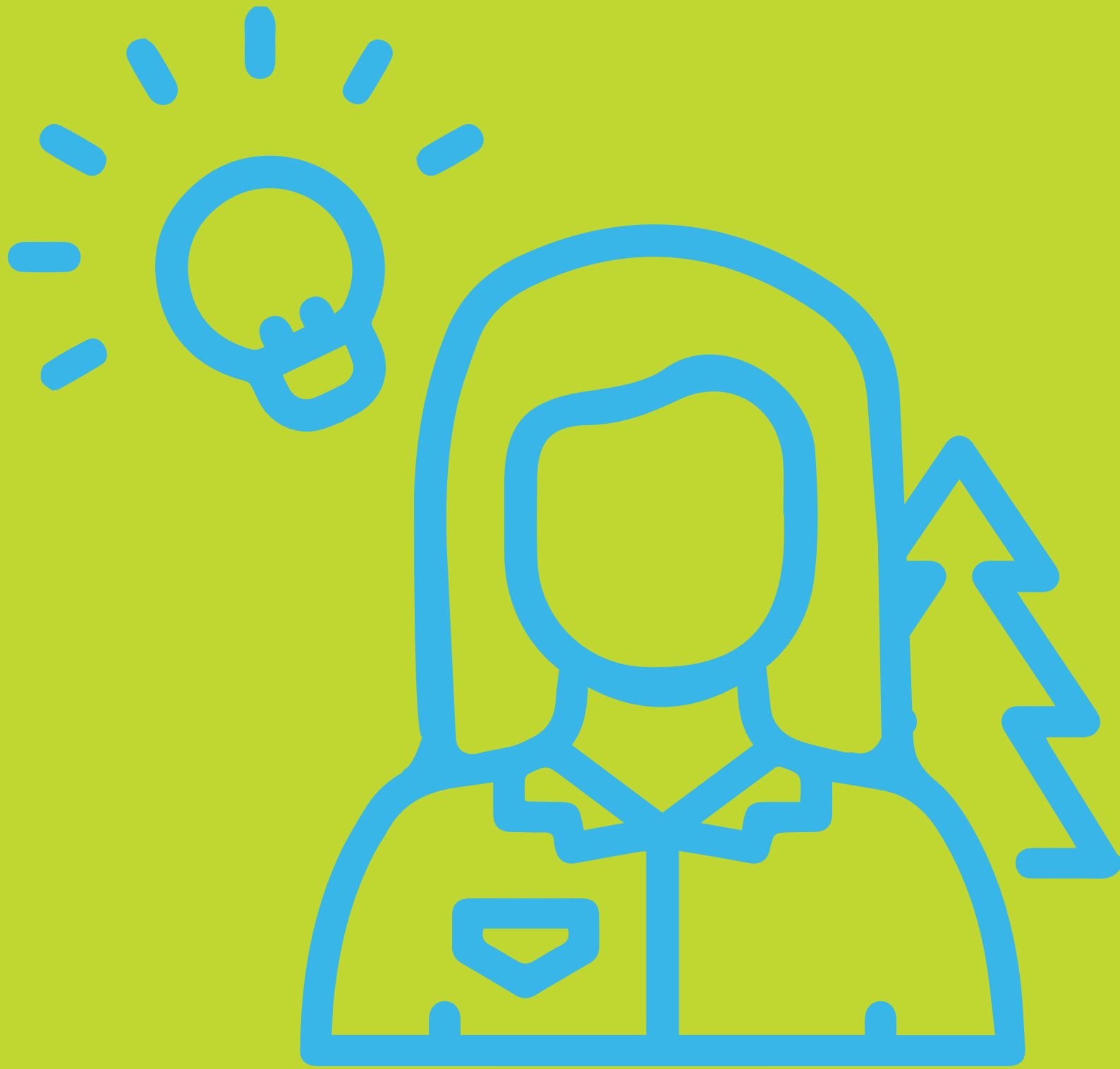
now to attract young professionals and prepare the current workforce for the future. A common understanding of what are Green Forest Jobs is required. In addition, countries must join forces and set up a monitoring of Green Jobs based on comparable data at a disaggregated level. Information about job quality must be recorded with qualitative information about status of employment by economic activity, sex, age, level of educational attainment, etc. (ECE 2010; ILO 2017). The awareness of the many societal benefits provided by the forest sector must be raised. This is also to address the interest of young professionals to choose occupations with positive social and environmental impact. Action to increase female employment and improve diversity in the forest sector must be taken. These actions must provide productive jobs with equal pay and social protection. The gender wage gap needs to be closed. Since this is a challenge for all economic sectors, the forest sector has the opportunity to be a frontrunner in this regard. Improvement of working conditions, requalification of the aging workforce, equal opportunity and flexible working hours are key for a successful adaptation (Eurofound 2017; Eurofound and ILO 2019). More Green Forest Jobs are a good opportunity for the forest sector to improve its reputation and be attractive to young job seekers.



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# GREEN FOREST



# JOB