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## Committee on Forests and the Forest Industry

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**Forest ownership and employment in the forest sector****The forest sector workforce and future green jobs in the region – preliminary results of the study**

Note by the secretariat

*Summary*

This document contains selected highlights and preliminary results of a study on the forest sector workforce and future green jobs, which also includes two case studies focused on Eastern Europe and the Balkan subregions. The work for this study will continue throughout 2016 with the support of the ILO/UNECE/FAO Team of Specialists on Green Jobs in the Forest Sector. The content of this document is aimed at supporting discussion during the Committee meeting. Details of information sources will be made available in the study.

The Committee is expected to discuss the topic, and share national experiences and views on the challenges and opportunities related to the current forest sector workforce and future green jobs.

**I. Major trends and economic development**

1. The forest sector's contribution to GDP in the ECE region has fallen in absolute terms, and its share in the region's economy has declined from 1.2 per cent to 0.8 per cent over a decade. Employment in the sector has also fallen, notably because of higher labour productivity. The recession, which started in 2008, has also increased unemployment and economic hardship in forest dependent communities and regions.

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2. Looking at temperate and boreal countries globally, the FAO analysis for 1990-2011 shows that value added has not changed (although exports have increased by 10 per cent); that the share of the sector's total labour force (contribution to employment) has declined by 0.2 percentage points (from 0.7 per cent to 0.5 per cent), and the forest sector's share of GDP has declined by 0.3 percentage points (from 1.1 per cent to 0.8 per cent).
3. The three developed regions (Northern America, Western Europe and the developed Asia-Pacific region) are still important producers and consumers of forest products, accounting for 23 per cent of employment, half of the value added in the global forestry sector, and 60 per cent of forest products exports. This is largely due to the high levels of value added achieved in the forest processing sectors in these regions.
4. However, the share of these three regions in global value added, employment and trade has steadily declined over the past decade because of multiple factors, including the recent economic downturn and financial crisis, increased international competition, and competition from other sectors.
5. Developing regions and Eastern Europe have increasingly gained in importance in the global production and trade of forest products. During 2000-2011, their share in global forestry sector employment increased from 58 per cent to 68 per cent, and their share in global value added in the sector increased from 28 per cent to 47 per cent. This is largely due to an expansion of forest processing industries.
6. In general, value added in the forestry sector has not increased rapidly, except in a few countries where development of the sector has been a specific national development priority. Very few countries have focused on the development of this sector, preferring instead to promote the development of others. Thus, the forestry sector has almost always been left behind, particularly in rapidly growing economies. Furthermore, this suggests that this sector is not a major driving force for economic growth and development, except in specific circumstances.
7. The workforce is not only declining in a more efficient sector; the whole sector is slipping in terms of significance in the overall economy. These trends take place against a background of wider contextual change, including the shift, over more than two decades, from timber-focused to multi-purpose forest management; changing forest ownership; mechanization; and the incorporation of information technology. These trends are not the same everywhere; for example, mechanization varies with geography/topography and with the political economy.
8. Many studies report on the effects of mechanization. However, few discuss the effects of technology on forest planning, which is sometimes linked to geography and topography. In many parts of Europe, mountainous conditions and landowner scale mean that only low levels of mechanization are possible. Motor-manual working methods are still prevalent in the Italian Alps, despite the growing popularity of mechanical processors.
9. Based on seven case studies from areas in representative European mountain ranges, a conclusion was drawn that inappropriate technology was often used in steep terrain, and the selection of the harvesting system was not related to the slope. Non-mechanized and obsolete harvesting systems contribute to the lowest efficiency and the highest environmental footprint, while fully mechanized systems reported the highest efficiency, the lowest number of accidents and the lowest stand damage.

10. Market factors have driven the downsizing and restructuring of the US forest economy. A study of the economic impact of the forest industry in Ohio found that nearly all values in 2011 were lower than those in 2001 (inflation-adjusted to 2011 constant dollars): number of employees, value added, and value of outputs. Industry shifts have occurred in the state. All economic multipliers increased, which suggested increased integration of forestry and forest products manufacturing in the state's economy from 2001 to 2011.

11. The sawmill sector can be subject to cycles of employment and unemployment; to transition to more capitalized approaches; and to restructuring. A study in Canada found that long-term employees were exposed to sustained job insecurity, cyclical unemployment, and adverse physical and psychosocial work conditions. A study of blue-collar employees working in six factories which underwent restructuring in the Finnish forest industry during a period of extensive transition (2008-2009) found that negative change appraisal increased the risk of experiencing more stress and less job satisfaction.

12. Much traditional forestry thinking is evolving today into more comprehensive, integrated forest ecosystem management and rural economic development concepts. For example, traditional sustained-yield models are expanding into ecosystem-based sustainability concepts; emphasis on the economic growth of forest products sectors is evolving into broader, sustainable community socioeconomic development; and the management of community socio-political conflict over forest management is beginning to be recognized as a sustainability consideration equally as important as forest biological constraints. Because of these, public forest management today: (1) is much more ecosystem-based and landscape-scale; (2) incorporates diverse social values or uses; and (3) is interrelated with many community socioeconomic and political systems from local, through regional and national, to super-regional (e.g. the European Community).

13. In the case of forestry in particular, the reported figures are obviously not indicative of the total number of people working in the sector. A huge amount of forest work is carried out by private forest owners and their family members, and by members of local communities, none of whom feature in the official employment statistics. Hence, the sector provides income and jobs for a considerably higher number of people than indicated by the statistics.

14. One aspect that indirectly influences the size of the workforce is the state of the local informal sector. Defined as those whose employment lacks basic social and legal rights, the informal sector is most prevalent in the emerging world.

15. In Canada, the development of good forest work has generally followed the classic path, entailing higher wages, shorter working hours and less strenuous work; but it has also resulted in growing unemployment, labour market segmentation, flexibilization, and environmental degradation. Full cost accounting, all-age forest management, value added production, community tenures, and eco-certification provide a basis for alternative good work and productivity measures.

## **II. Social studies of the workforce**

16. Previously, forest work was often passed on from one generation to the next. Now, it is common for workers to change from another job to forestry, or to give up forestry and look elsewhere for employment. The principal reasons for these developments are the higher flexibility of the workforce, dissatisfaction with working and living conditions, and the loss of jobs due to mechanization.

17. In wood harvesting, chainsaws can now be found everywhere in the world. Sophisticated mobile tree harvesters, operated by a worker seated in a cabin, which fell, debranch, cross-cut and pile wood, are spreading rapidly. Specialized "skidders" for dragging trees or logs and "forwarders" for carrying short wood to roadside landings are widely used. However, manual work still plays an important role in tree nurseries, tree planting and protection, and pruning. Therefore, highly specialized work, requiring considerable skills, exists side by side with simple jobs.

18. Only some forestry employees enjoy stable work, regular pay and adequate social security provided by the forest owner or forestry company. To save costs and gain flexibility, many workers have been released from direct employment and re-engaged as contractors. This frequently results in a deterioration of working conditions, such as excessive working hours, to be able to maintain costly machines, alternating with slack periods when not enough work is available. Furthermore, insufficient insurance against accidents, sickness and invalidity can be observed.

19. In the past, especially in the Nordic countries, Central Europe and North America, trade unions played an important role in raising the status of forest workers. Now, their role has weakened as the number of workers has diminished, and forest workers have become a marginal group among unionized workers. The International Labour Organization (ILO) and the International Federation of Building and Wood Workers have successfully introduced social criteria into the certification of forest management, such as the ILO Declaration on Fundamental Principles and Rights at Work. These seem to have improved working conditions for some.

### **III. Demographics**

20. Based on data from the 2012 revision of World Population Prospects, Europe is the only continent where the working age population (aged 15-64) for the period 2015-2030 is projected to decline as a whole (by 9.2 per cent); and the segment aged 45-64 to increase by 0.7 per cent. So the working population is both shrinking, and ageing, slightly.

21. If the ageing forest workforce is symptomatic of a more generally ageing workforce, the more important aspect to focus on in this report is the consequences. Older workers may be more subject to health and safety risks, but on the other hand bring more experience and skill, especially with the increased level of mechanization.

### **IV. Gender and ethnic diversity**

22. Data on the gender composition of the workforce is patchy. The number of countries reporting on gender in forestry has increased from 10 (in 1990) to 30 (in 2010), with similar increases for reporting on gender in wood and paper industries. The share of women employed in forestry has increased very slightly from 14 per cent in 1990 to 15 per cent in 2010, and in some countries they play an important role in the workforce.

23. Women are mainly employed in tree nurseries and in planting and tending trees. A few also carry out typical male work such as harvesting and firefighting. However, pay is lower than for men, even for jobs requiring dexterity where women attain a better output than their male colleagues.

24. A study from 1995 highlights the fact that summary data of the type available through UNECE and FAO exercises do not reveal the types of jobs and career paths available to women. This study focuses on racial as well as gender issues, noting that, from the mid-1970s, civil rights legislation and lawsuits impelled the forest agency to begin diversifying in the US. It finds that the number of women in the agency increased greatly, but largely in administrative support positions rather than in jobs with potential for career progression.

25. Organizational structure affects the diversity of the scientific workforce. A recent study (2015) found that the representation of women was greater among scientists in the US Department of Agriculture's Forest Service Research and Development (FSR&D, a hierarchical organization) than among university faculty, but declined with seniority in both institutions. Demographics suggest the representation of women in senior scientist positions will increase. It is also possible that failure to fully integrate social scientists into interdisciplinary teams limits options for the diversification of roles and gender.

26. Given the gender structure in traditional forestry, it is hypothesized that women are more likely to engage in less traditional activities than men. This was studied in Sweden, where it was found that traditional forestry is the main task for both male and female family farm forestry (FFF) owners. However, women engage more often than men in service-oriented business activities.

27. A review of "men in high risk occupations" highlights that in many countries more than 90% of work-related fatalities are men. There are three causes: men tend to work in more physical, higher risk occupations; they are less likely to attend to pain and health issues; and they are less likely to have social support networks. These qualities make men more likely to take risks and to normalize injuries; and less likely to report problems or health issues.

28. UNECE and FAO statistics do not record the ethnic diversity of the workforce, but this is receiving increasing attention, particularly in North America.

29. As in other rural occupations, migrants are becoming a common feature of employment in forestry, attracted by better wages. Some eventually settle down in the host country, while others come only for seasonal work. Their contributions to the family budget at home can be important, but the money is not easily earned, and for comparative work local workers are much better remunerated.

## V. Health and safety

30. The Rovaniemi Action Plan (Objective C2: To reduce the levels of illness and injury) has the following actions related to the health and safety of the forest sector workforce:

- Action C.2.1 Raise the level of political will to improve the safety and health of the workforce, by studying national workforce situations;
- Action C.2.2 Radically improve the monitoring of occupational safety and health of the forestry workforce;
- Action C.2.3 Promote and monitor the implementation of the FAO Guide to Good Practice in Contract Labour in Forestry;
- Action C.2.4 Enforce and adjust legislation and regulations, if necessary, to take account of changing technology and work conditions;

- Action C.2.5 Fund extension work to make employers and workers sensitive to safety and health issues, and promote a culture of preventative occupational safety and health.

31. Data collected against the pan-European sustainable forest management indicator 6.6 “Occupational safety and health” shows that “forestry work remains a very dangerous and accident prone occupation”. Although health and safety are high policy priorities in many European countries, improvement has been patchy or non-existent. Countries where, over the last decades, a high degree of mechanization of harvesting operations has been achieved have significantly fewer accidents than countries where chainsaw work dominates. The evidence of high accident frequency in European forestry calls for continuous efforts at all levels to improve the health and safety of those who earn their living from forestry.

32. It is important to note that this is an indicator “for which the key parameters present a serious problem of lack of comparability of data”. Globally, there is no consensus on how to report data or time lost on accidents and injuries; and attitudes on transparency vary widely.

33. Many publications mention that forestry remains one of the most dangerous occupations, or that it is significantly more dangerous than other occupations. One problem is that solutions to safety issues are often seen as “mechanization of operations with proven improvements in both safety and cost-effectiveness” which, however, have negative impacts on employment and the local economy.

34. Fatal accident statistics are generally the most accurate of all accident statistics, in that they are not reported by the injured person and must be published in official records. The number of fatalities is an important indicator of risk prevention, and shows the effectiveness and the correctness of measures taken by individual countries in their attempts to ensure safety at work.

35. In Austria, a country that reports a high fatality rate, detailed analysis of the information content of accident reports found that the data are insufficiently detailed to allow the development of preventive measures. Only through additional injury surveys and evaluations of accidents and new machines was it possible to derive prevention measures meeting the demand regarding accident course and cause.

36. A study in south-east USA concluded that worker protection in the agriculture, forestry and fisheries (AgFF) sector is limited. Regulatory protections are generally weaker than in other industrial sectors, and enforcement of existing regulations is woefully inadequate. The vulnerability of the AgFF workforce is magnified by worker immigration status. Agricultural workers in particular are affected by a long history of “exceptionalism” under the law, as many regulatory protections specifically exclude this workforce.

## **VI. Focus on Eastern Europe**

37. Official employment statistics show a considerable decline in all subsectors of the forest sector throughout Eastern Europe<sup>1</sup> for the period 1990-2011: in forestry, such decline counts for 845,000 persons (63 per cent); in the woodworking

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<sup>1</sup> In the United Nations Statistics Division, geographical regions and groupings of countries and areas are used for the purposes of the compilation of statistics. In this study, the following ten countries were classified as Eastern Europe: Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia, and Ukraine.

industry, 457,000 persons (39 per cent); and in the pulp and paper industry, 135,000 persons (32 per cent). The overall reduction in employment in the forest sector in Eastern Europe for the period 1990-2011 was more than 1.4 million employees (49 per cent).

38. In the furniture industry, there was also a significant reduction in the number of employees, of up to 416,000 (45 per cent), for the period 1990-2011. However, it is interesting to note that Poland increased the number of employees in this industry by 63,000 (82 per cent).

39. After the political reforms of 1989 in Eastern Europe and Russia, the biggest capacities for wood-based industries, panel production and furniture manufacturing moved from Western and Central Europe to the East. The large research centres and higher education institutions of Eastern Europe were reintegrated and reformed during these decades, in order to be able to survive the economic and political changes.

40. The main challenges of forestry education in Eastern Europe are as follows: a decrease in the number of students; a possible discrepancy between modern requirements and the profile of instruction; a lack of funding; strong competition with other study curricula; gained skills that have become outdated regarding sustainable development requirements; the acquisition by young persons of knowledge that is now not suited to business expectations; low attractiveness of forest education; and a disparity between the globalization phenomena and current curricula in forestry education.

## VII. Focus on the Balkans

41. Key changes that occurred in the workforce segment in the forest sector in all Balkan countries related to the reduction of the number of employees during the transition process. In 1990, 311,900 workers were employed in the sector in the Balkans, of which the largest amount, 192,900 or 61.8 per cent, was in the wood processing and furniture production subsectors.

42. During the transition process, the number of employees rapidly dropped year after year. There were two main reasons for this:

- Reforms of public forest management enterprises, in which the number of workers in the wood logging segment significantly decreased; and
- The collapse of numerous state-owned companies in the wood and pulp and paper industry subsectors.

43. As a result, the number of employees in the entire forest sector in 2013 was 141,050, which was only 45% of that in 1990.

44. The biggest changes regarding the number of employees also occurred in the wood industry subsector (including the furniture industry), when big companies entirely collapsed during the period of transition and numerous small companies employing 5-50 workers replaced them.

45. The pulp and paper industry subsector also experienced a big drop in the number of employees. In some countries, such as Serbia, pulp production disappeared completely, while in others (Croatia; and Bosnia and Herzegovina) it has been reduced to a minimum and, at present, barely survives.

46. In 1990, the number of workers in the forest sector at the regional level was higher by almost 170,000 than in 2013, in the same geographical area and with almost the same potentials. It shows that this sector has the potential to generate a

reasonably high number of jobs in the ten years following that, if the conditions are created for these workers to be more efficiently used. To that effect, some countries in the region have already undertaken measures to increase the utilization of their own workforce, through action plans for wood industry development for the purpose of generating new jobs (e.g. Croatia and Serbia).

47. The role of the forest sector, and primarily of the forestry and wood industry subsectors, is very important for employment in rural areas. Research conducted in the FAO project in Serbia “Wood Energy for Sustainable Rural Development” shows that about 4,000 workers are employed in wood fuel production in that country, more than 70 per cent of whom are in rural areas engaged in firewood and charcoal production. When indirect work is added to this, wood fuel production there generates about 6,700 jobs. The forestry and wood industry subsectors are the only generators of income for the rural population in all the countries in the Balkan region.

48. The forest sector is one of the most significant from a self-employment aspect, especially in rural areas regarding wood production and the collection of non-wood forest products and their processing. Research conducted in Serbia shows that, in the forestry subsector alone, 12,300 workers are self-employed in wood fuel production activities in private forests in rural areas. The number of these workers is not officially reported because of the shortcomings of official statistics.

49. Several factors represent drivers of changes in the forest sector workforce in the Balkan region. Some of the most significant ones are:

- Structural changes in the forest sector;
- Development of new technologies and technical innovations;
- Demands for the constant increase of work productivity;
- Market trends, especially the requirements of foreign buyers for high quality wood products;
- A policy of rural development and environment protection.

50. In recent years, a new development concept based on the Rovaniemi Action Plan for the Forest Sector in a Green Economy has been accepted as part of the structural changes in the forestry subsector in the region. The introduction of this new concept into forestry strategic documents, and its elaboration, are ongoing, which will certainly influence the need for new workforce profiles. In the organization of the forestry subsector so far, most attention has been paid to the workforce for wood production needs. Such an approach is still dominant because business activities of public enterprises for forest management, and even national parks, are dependent on wood production and sales to the greatest extent. However, new sector development requires new workforce profiles. These are needed to benefit from forest functions other than wood production, which will certainly have an impact on the educational system of the staff in the near future.

51. The Committee is expected to discuss and comment on the results, and give recommendations for the conclusion of the work on this study.