

Initial Assessment of the Impact of COVID-19 on Sustainable Forest Management Eastern European States

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In order to have a broad overview of the impacts of COVID-19 on forests, forest sector, and forest dependent people, and to assess the potential of forests to diminish the adverse impacts of the pandemic, the United Nations Forum on Forests (UNFF), at its fifteenth session, requested the UNFF Secretariat, in consultation with other members of the Collaborative Partnership on Forests (CPF) and with input from members of the Forum, to compile an initial assessment of the impact of the COVID-19 pandemic on: (i) sustainable forest management (SFM), (ii) the forest sector, forest-dependent people, indigenous peoples and local communities, (iii) forest financing and international cooperation, and to present this assessment to the Forum at its sixteenth session in April 2021. To initiate this assessment and collect information, the UNFF Secretariat commissioned five assessments to be conducted on a regional basis.

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EXECUTIVE SUMMARY

The United Nations Forum on Forests mandated a global assessment on COVID-19 and forests through an omnibus resolution during the fifteenth session on 30 June 2020. The geographical focus of this report is Eastern Europe, which is heterogeneous and includes 23 countries. They are characterized with stable forest area over the last two decades, and the forest sector has only symbolic contribution to the national GDP. However, the socio-economic importance of forest resources is clearly visible for local communities in rural areas of the region. Most of the countries included in this assessment are recipient of the ODA.

The objective of the assessment is to compile an initial assessment of the impact of the COVID-19 pandemic on (i) sustainable forest management, (ii) the forest sector, forest dependent people, indigenous peoples and local communities, and (iii) forest financing and international cooperation, in Eastern Europe. Information was collected through an exploratory literature review of existing published studies and reports, news items, policy briefs and related webinar summaries. Additionally, a short questionnaire was distributed to UNFF national focal points and other stakeholders from civil society, forest associations, private sector, academia, and other regional organizations between 16 October and 1 December 2020. By 11 December, 38 responses from 15 different countries were collected, resulting in the total response rate of 25% of the individuals contacted with coverage of 65% of the countries.

In the following section the main findings of the survey on the impact of the COVID-19 restriction measures are summarized.

- **Negative impacts on SFM:** delay and reduction of the planned SFM activities, restriction to only essential sanitary measures, and observed illegal activities with a negative influence of the forests' quality and timber market
- **Positive impacts on SFM:** Reduced human presence and activities in the forest, explicitly enhanced forest protection and conservation
- **Forest-dependent livelihoods:** decreased income and revenues, and increased costs for forest industry
- **Recreational use of forests:** Highly polarized results (37% of respondents reported increase in recreational use, and 13% of respondents reported decrease in recreational use of forests) reflect the different type of access to forests and restriction measures imposed in the individual countries
- **Impact on women and youth:** One third of respondents said this group was vulnerable, as many are confronted with reduced income and job opportunities, and women especially feel the stress of balancing work and personal life
- **Forest industry:** Countries and companies with strong international orientation seem to be the most affected in terms of supply chain and sales (up to 50% decline in some cases), and SMEs are assumed to be most vulnerable due to insufficient financial resources
- **International and regional cooperation:** Forced changes in communication was the most mentioned including postponed or canceled meetings (negative), field exposure, online meetings (mixed results), and increased dissemination of information and saved time (positive)
- **Access to forest financing and investment:** Half the respondents said there were no changes in access to forest financing other than delays, while one third of the respondents said there was a negative impact on access to financing
- **Future of public spending:** One third (26%) of respondents expect no major changes to public spending in the forestry sector and approximately the same share (29%) expect there will be a decline in public spending

- **Impact on key forest sector institutions:** delays in gathering and processing information; inability to work on-site; slower data collection and management activities; and deterioration in reliability, quality, and timeliness of data
- **Personnel to maintain operating standards:** Reduced physical presence of forest service personnel negatively impacted daily business and timeliness according to almost half the respondents, while one quarter of the respondents said there was no effect
- **Monitoring illegal activities:** several respondents mentioned concern about reduced inspection and investigation against illegal activities due to reduced on-the-ground presence of forest service personnel
- **Ability of personnel to develop expertise and experience:** Most respondents perceive integration and use of new communication tool in short time as positive, however many acknowledge those are not always suitable replacement for development of practical experience and face to face contact in sense of effectiveness and capacities in the forest sector
- **Gaps in legislation and regulations:** 26% of respondents noted that gaps in legislation and regulations were made apparent due to restrictions, while 16% did not perceive any gaps but think that the situation will have implications in the future
- **Perceptions on how COVID-19 impacted the need to revise strategic plans and risk assessment:** Responses include no need for revision (21%), need for revision but no concrete plans to do so (34%), and no plans now but it may impact future plans (21%)
- **Alleviation strategies:** Respondents said policies and strategies to alleviate economic impacts have been implemented but were described as ad hoc measures (37%), didn't exist for the forest sector (13%), didn't exist at all (11%), or were unknown (39%)
- **Opportunities:** raising public awareness of the benefits of forests, increased importance of recreational use in urban and peri-urban forests, improvements in digitalization and communication, and fewer externalities caused by human activities
- **Threats:** reduced sales on the timber market, falling prices of timber and timber products, concern for illegal activities in the forest; increased pressure on resources due to reduced income, increased unemployment, reduced funding, may harm stability and viability of the forest sector; risk that environmental and conservation projects will lose priority in national budgets

In conclusion, survey responses from stakeholders in Eastern Europe varied widely depending on their perspective, and in many cases, respondents did not have information on all elements of the assessment. In general, it appears that economies with less dependency on export and import markets experienced fewer difficulties during the pandemic time. Moreover, big businesses appear more resilient compared to small ones, which experienced major damages. Although the forest sector was assessed to be less affected than to other sectors by pandemic, some findings report a strong impact from the restriction measures. In Eastern Europe, the countries are in a situation that is difficult to assess at this moment as most struggle with the second wave of pandemic. The long-term consequences of the COVID-19 pandemic on the forest sector depend largely on the duration and severity of the pandemic itself, the process of economic recovery and the country's political course. Continuous monitoring is thus needed.

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1 Introduction

The global pandemic caused by COVID-19 has changed business as usual. The direct health implications to humans has led to disruptions in global supply chains and economic systems, forcing governments to reconsider policies and planning with pandemics in mind (Nikolopoulos et al. 2020). Businesses must also reconsider supply chain management and the effects of COVID-19 on the labor market (AL-MANSOUR and AL-AJMI 2020). Nearly 52 million cases of COVID-19 and more than 1.2 million related deaths were reported globally at the time of writing this report (November 2020) (WHO 2020). An FAO survey of 237 stakeholders showed that all areas of the wood value chain were impacted, but not equally (FAO 2020c). Forests support livelihoods of people around the world, in normal times and in times of crisis (UN DESA 2020a). This paper aims to identify changes in forest use and management in Eastern Europe in response to the COVID-19 pandemic.

The United Nations Forum on Forests (UNFF) mandated a global assessment on COVID-19 and forests through an omnibus resolution during the fifteenth session on 30 June 2020. The geographical focus of the present report is on Eastern Europe. It includes 23 countries, diverse in many aspects. The objective is to compile an initial assessment of the impact of the COVID-19 pandemic on (i) sustainable forest management, (ii) the forest sector, forest dependent people, indigenous peoples and local communities, and (iii) forest financing and international cooperation.

1.1 Characterization of forest cover in the Eastern Europe region

The Eastern Europe region cover a wide variety of countries, from Russian Federation with the largest absolute forest area and Slovenia and Montenegro with the highest forest cover (61%), to forest poor countries such as Armenia and Moldova with forest cover rate of only 12% (see

Figure 1).

Forest cover (%)

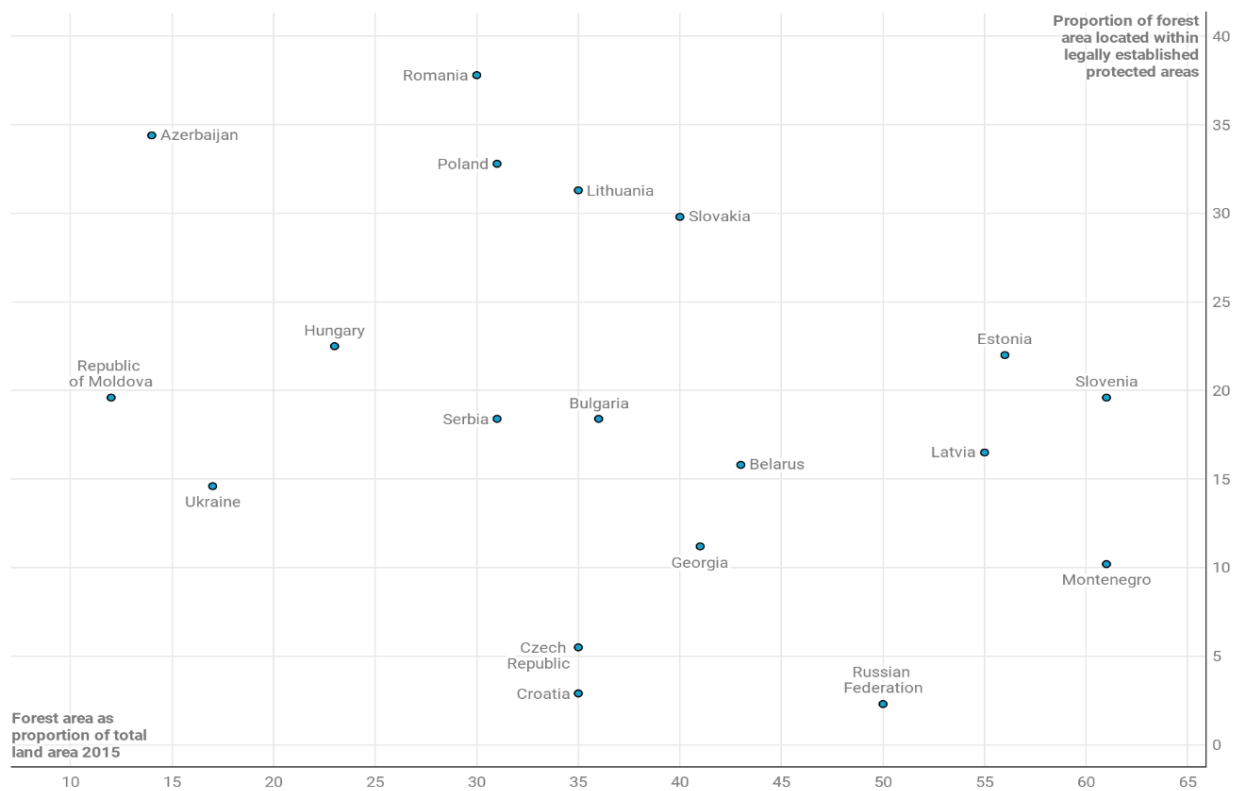


Source: FRA 2020 • Created with Datawrapper

Figure 1: Forest cover among Eastern Europe countries¹

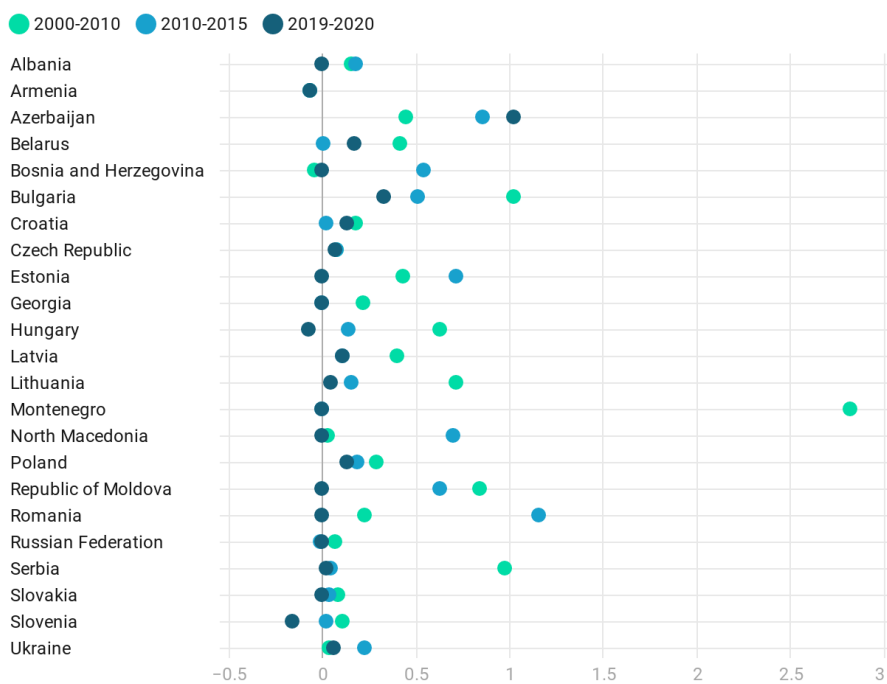
In the framework of the SDG Indicator 15.2.1, Progress towards sustainable forest management, is defined with several sub-indicators in the Forest Resources Assessment (FAO 2020b). Conservation is an integral part of sustainable forest management, therefore the share of forest area located within legally established protected areas (Figure 2) was observed, though no significant trend was noticed. Four countries did not report on share of protected forests. Generally, many countries in this group reveal discrepancies between the data presented in international reporting sources and data provided at national level. The discrepancies are often due to the application of different definitions and methodologies applied - but also, in some instances, due to the reliability of data resulting from a multiple source, the lack of national forest inventories and deficiencies of systematic data collection.

¹ Based on the Un regional grouping of countries, the Eastern Europe consist of Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Montenegro, North Macedonia, Poland, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia and Ukraine.



Source: FRA 2020 • Created with Datawrapper

Figure 2: Share of protected forest areas and forest cover (four countries not listed, while no share of protected forest area was available)



Source: FRA 2020 • Created with Datawrapper

Figure 3: Forest area annual net change rate between 2000 and 2020 (%)

Another well-recorded sub-indicator of sustainable forest management is annual net change rate of forest area (Figure 3). The countries of the Eastern Europe region show stable and overall positive forest area net change rate over the past two decades. Only three countries showed negative values, probably to be explained by sporadic forest degradation events. Deforestation, as direct change of forest land use to another use of land, is rather punctual and not the rule in Eastern Europe.

1.2 Forest sector in the Eastern Europe region

The forest sector contributes on average 1.5% to the national GDP (lowest in Azerbaijan 0%, Armenia 0.2%, Moldova and Montenegro with 0.5% and highest in Latvia 6.5% and in Estonia 4.3%) (United Nations and FAO 2015). Employment in forestry and logging expressed in full time equivalents ranges from 1,700 (Georgia) to 76,270 (Russian Federation) (FAO 2020b).

Certainly, contribution of forestry observed only through GDP share and employment figures does not value the importance of forest resources on provision of drinking water, impact on climate, biodiversity preservation and many other ecosystem goods and services. In respect to forest goods, non-timber forest products play an important role, particularly at the level of local livelihoods, including beekeeping, mushroom and berry collection, medicinal plants, etc. The commercial contribution of these goods is poorly valued, as usually the products are locally consumed and rarely enter official markets. Moreover, the socio-economic importance of these resources is clearly visible in rural areas of the region, where in addition to many other products and services from forests, fuelwood is still a very important source for heating and cooking. It is assumed that in the Eastern Europe region about half the wood removed from forests accounts for energy provision (FAO/UNECE 2018). Especially in the times of significant socio-political changes and crisis, economic decline pushes people to use alternative and affordable energy sources and sets pressure on the forest resources significantly (FAO/UNECE 2018).

1.3 Forest financing

Data on Official Development Assistance (ODA) flows to the forestry sector is provided by OECD for most of the Eastern European donor countries. However, only five of thirteen countries that are registered as donors invested in forest activities, and only one country invested over longer period of time and contributed up to US\$ 1.6 Million/year. Other contributions range from US\$ 0.01 to 0.68 Million/year. Eleven countries belonging to recipient countries either as Lower (4) or Upper Middle-Income countries (7) have been continuously financially supported, however with no specific data on ODA disbursement to the forestry sector. Azerbaijan is the only country appearing in both donor and recipient group.

2 Applied methodology and assessment questions

In the first stage, information was collected through an exploratory literature review of existing published studies and reports, news items, policy briefs and related webinar summaries. These findings primarily focus on information related to impact on the national level, but also include publications of broader geographical scope related to impact of COVID-19 on the forest sector as well. In the second stage, the UNFF national focal points and other stakeholders from civil society, forest associations, private sector, academia, and other regional organizations in Eastern Europe were approached between 16 October and 1 December 2020 with a short questionnaire (see Annex 1), to ensure their input is incorporated into the findings of the assessment. The survey was distributed in English, Russian, Ukrainian and in the language used in Bosnia and Herzegovina. All survey responses are expert personal opinions from contacted people who were not requested to represent the official view of the institution or the country. To enhance the

response rate, selected expert interviews were foreseen, however due to delays in responses only follow-up reminders were conducted. The efficiency of the data collection was impeded due to high COVID-19 infection increase in Europe and partial lockdowns at the time of writing this report, and in-person consultations were not considered.

The assessment questions required by the Terms of Reference (ToR) of the consultancy contract aim to shed the light on the impact and implications of COVID-19 on:

- a) Sustainable forest management, and conservation activities production, forest protection, afforestation etc.
- b) Livelihoods of forest-dependent people, indigenous peoples and local communities, smallholder forest owners, workers, women and youth.
- c) Forest industries labor market and employment, as well as the domestic and international demands for forest products and services.
- d) Access to forest financing and investment, and public spending on forests.
- e) Forest sector, international institutional capacity at the regional, sub-regional, and national and subnational levels.
- f) International and regional cooperation on forests and forestry issues.

Moreover, the assessment should identify the emerging opportunities (if any) that COVID-19 has brought to the fore and potential responses and measures for the forest sector's recovery and enhanced contribution of forests to inclusive sustainable development.

3 Results

Between mid-October and the beginning of December, 150 stakeholders from 23 Eastern European countries were approached to participate in the assessment by providing their input in an online survey, returning the completed word version of questionnaire, or responding during a phone interview depending on their convenience. The official UNFF National Focal Points were kindly requested to support the study by distributing it to relevant national stakeholders from civil society, forest associations, private sector, academia, and other regional organizations in Eastern Europe. By the time of evaluation focal points of four countries (Croatian, Georgian, Slovakian and Ukrainian), and a UNFF Major Group Focal point representing non-governmental organizations had participated in the survey and supported the questionnaire distribution.

By 11 December, 38 responses from 15 different countries were collected, resulting in the total response rate of 25.3%, or when considering country coverage, it equates to participation from 65.2% of the contacted countries. Ukraine was well covered by different stakeholder groups with a total of 10 responses, seven countries (Bosnia and Herzegovina, Croatia, Georgia, North Macedonia, Romania, Serbia and Slovakia) had multiple responses per country, and seven countries had single representation. Most of the respondents (37%) were from forestry research institutes and academic institutions, 31% represented governmental institutions or public enterprises, 16% were from civil society, represented by non-governmental organizations and independent consultants, 8% from forest industry, 5% from the private sector, and 3% represented private forest owners (one correspondent). Several of our contacts were keen on contributing to the assessment and helped distributed the survey more widely.

In the following sections, we present the findings on implications structured according to the six dimensions specifically relevant to the forest sector, as given in the ToR based on the literature findings and empirical results.

3.1 General COVID-19 impact on national economies and forest sector

Literature Review

The **Polish** economy, based on the national records, has suffered less from the consequences of the pandemic than other European countries. This could be explained by lower dependency on export, lower degree of internationalization (including not very tight economic relations with China), greater diversification of production, and also a higher economic growth rate before the COVID-19 pandemic (Ministry of the Environment 2020).

In **Ukraine**, the lockdown and the imposed restrictions coupled with reduced purchasing power has affected the forestry sector significantly, according to the study with 95 forest sector companies from 15 oblasts (administrative divisions) in Ukraine, where most companies reported suspending or reducing production, and almost half the companies reported a 50% reduction in sales of goods and services (PPV Knowledge Networks 2020).

According to the optimistic scenario of expecting rising oil prices, **Russia's** economy will be able to recover to the 2019 pre-crisis levels by mid-2021. If the pessimistic scenario is considered, it will take at least three years to overcome the consequences of the crisis (Дробот Е.В. et al. 2020). Big businesses are assessed to have a significant safety margin, and the COVID-19 pandemic has no substantial impact on their operations. On contrary small businesses will suffer the greatest damage as they do not have a safety net and it is difficult to obtain government support for the size of their business or specific operations (Зимовец А.В. et al. 2020). The experts assume the total damage to the industries most affected by the coronavirus pandemic to 17.9 trillion rubles. Up to 15.5 million people may potentially lose their jobs. The service sector will be most affected by the crisis; and food production, agriculture, fisheries and forestry will be least affected (Российский экономический университет имени Г.В. Плеханова). For some stakeholders, the pandemic has become a convenient excuse to cut office and travel expenses and revise the office structure. The already narrow planning horizon (few forestry enterprises make plans for more than a couple of years) has now shrunk to the limit. In these conditions, environmental projects and corporate social responsibility programs are the first to be abandoned, and focus will be on helping the victims of the pandemic, medical personal, and low-income citizens. Environmental responsibility, the transition to purchasing products from responsible sources do not fall into the category of prime necessities and will continue to be perceived like that in foreseeable future (Lesprom inform).

In **Moldova** the lowest wages were recorded in the hotel and catering sector, agriculture and forestry, art and recreation (UN Moldova 2020). In the context of Covid-19, the average number of employees in these sectors in the first half 2020 decreased by 8.2%.

By September 2020, the **Armenian** government had spent almost \$335 million on 24 programs to overcome the socio-economic consequences of COVID-19. Some of them concern economic support to business (agriculture, tourism, SME, micro-business, IT and other sectors), while others are aimed at social support to different groups of the population, and one program addresses nature protection (ARKA).

Tourism in the **Western Balkans**² could benefit from nature-oriented tourism where physical distancing is per se possible in the current situation. However, the focus of tourism is not likely to quickly reorient from its traditional perception of ideal holidays on the beach (Nientied and Dritan 2020).

3.2 Sustainable forest management: forest production and protection, conservation, afforestation

Literature Review

Published articles about the impact of COVID-19 on sustainable forest management is limited, though growing. Three categories include observations in livelihoods related to SFM, needed changes in forest management and conservation practices to reduce disease risk, and the importance of incorporating forest management into pandemic recovery plans.

First, lifestyles and livelihoods were forced to adapt to the COVID-19 pandemic and responses to it. Reduced presence of forest management staff may have opened opportunities for increased illegal activities including logging, poaching, charcoal production, and land use change (FAO 2020d). The reverse migration from urban areas back to rural areas due to lack of employment related to COVID-19 is putting additional pressure on forests (FAO 2020d, 2020c). There is risk of overharvesting to meet subsistence needs in areas where smallholders who rely on the forest and forest products also experience food insecurity and decreased income (FAO 2020d). According to FAO survey, businesses have been significantly impacted including the permanent layoffs of workers in silvicultural activities, logging and trading which may have a longer-term impact on the production and quality of forests, sustainable forest management (SFM), and associated wood products enterprises. Related to this, half of the respondents think that COVID-19 will reduce the financial resources for SFM (FAO 2020a).

Second, several articles emphasize the importance of broadening the scope of natural resource management and conservation practices. Transformational policies and financial backing could reduce damage to natural resources and improve livelihoods in the post-pandemic world (Rondeau et al. 2020). Broadening conservation practices and policies to consider decisions about human-wildlife interactions could improve outcomes for disease risk management and conservation (Albers et al. 2020). Additionally, forest extension professionals could integrate management practices that reduce human-wildlife interactions and risk of zoonotic disease transfer (Raghu et al. 2020).

Third, forests can play a key role in post-pandemic recovery and should be understood as an element of disaster risk reduction solutions (ILO 2020; Rametsteiner 2020). Supporting sustainable forest ecosystems and resilient forest-dependent livelihoods could be a major pillar of COVID-19 recovery strategies (UN DESA 2020a). This support for forests and forest-dependent people can reduce impact on the environment and contribute to reducing risk of future zoonotic pandemics (ILO 2020). Natural capital spending, like investing in afforestation, as part of the COVID-19 economic recovery packages, could provide many jobs that comply with social distancing norms, require little up-front capital investment, and involve low worker training requirements (Hepburn et al. 2020). Analysis of online search behavior of people in the twenty most populated countries of the European Union suggests that increasing experiences with local natural resources may lead to increased public support for green and environmental recovery plans (Rousseau and Deschacht 2020).

² Western Balkan countries are Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia

Another document described that the **Belarusian** forest sector reported increased performance rather than reduced turnover during the pandemic. In 2020, reforestation and afforestation were carried out on an area of more than 40 thousand hectares. The forest industry enterprises harvested 14 million m³ of commercial timber and exceeded the target by 12%. Revenues from forestry and hunting enterprises for the period reached 315 million (planned figure was 264 million), which is 108% compared to the same period of 2019 (1PROF.BY).

Survey Responses

The summary of the effects of the COVID-19 restrictions on the scope and timing of SFM activities in support of different forest functions (i.e. thinning and felling, natural and artificial regeneration, conservation, protection) are presented in the Figure 4³.



Created with Datawrapper

Figure 4: Respondent perception on effect of the COVID-19 restrictions on the scope and timing of SFM activities

The respondents were asked to discuss both positive and negative effects of COVID-19 restrictions on SFM activities. Sometimes the effect of restrictions without assigning a positive or negative valuation was provided. Thus, three categories with relevant statements are provided in Table 1.

The perception among and within the countries differs very much depending on the stakeholder perspective. For example, in **Ukraine**, responses fit in all categories: general negative effects on SFM activities (observed reduction in forest tending, timber harvesting and reforestation, protection and conservation measures), no significant effect or only indirect effect (due to postponement of certain trainings and capacity building) and positive effect (forest protection and preservation). Moreover, COVID-19 related restrictions in Ukraine were perceived as a shock in the first week after the quarantine was announced, when almost all work was stopped. Afterwards, restrictions had impact on employees working in the forest company offices.

Restrictions due to the COVID-19 pandemic generally had a negative impact on SFM activities in **North Macedonia**, as they were delayed, postponed or often cancelled, which had implications on the execution of plans. This was due to COVID-19 related restrictions and to an increased number of infected persons responsible for certain tasks. The COVID-19 restrictions ordered in **Romania** during the state of emergency or the states of alert did not explicitly prohibit the activities in the forestry field; however, one respondent noted reduced logging activities. The first wave of COVID-19 in **Slovakia** was in spring 2020 with a lockdown in April, thus a majority of forest operations were stopped, causing some delays in reforestation as well as felling and wood trade. Despite the relatively short/mid time frame of the COVID-19 pandemic so far (8

³ Please note that one response often had different categories of answers integrated, therefore total % higher than 100%.

month since its first occurrence in **Slovakia**, its effects on forests and sustainable forest management may be long-term in nature, provided that they are not mitigated in coming years.

Seven respondents indicated there was no significant effect on SFM activities. In **Poland**, despite the lockdown in March 2020, most of the planned protection and maintenance work in forests, as well as afforestation and renewal treatments were (and still are) systematically continued. **Bosnia and Herzegovina** reported no current impact on thinning and logging, forest conservation and protection, and natural and artificial regeneration, but one respondent noted slow down or interruption of artificial regeneration activities due to lack of manpower.

Table 1: Overview of positive and negative effects as well as non-valued of the COVID-19 restrictions on the scope and timing of SFM activities in support of different forest functions; i.e. thinning and felling, natural and artificial regeneration, conservation, protection (as listed by the respondents)

Positive effects	Negative effects	Impact on concrete SFM activities
Reduction of visits to forests by the local population due to quarantine , reduction of anthropogenic fires and illegal logging by the local population.	Affected employees' health , quarantines and suspension of work in enterprises, delays in carrying out activities in the forest	Less harvesting and more thinning operations
Pandemic did not prevent continuation of activities related to certain previously initiated procedures related to SFM such as preparation of the national standard for SFM according to PEFC (adoption is in progress) and proclamation of protected areas.	Mainly reflected as not on time and with low quality implementation of measures for tending, restoration and protection of forests. In practice, they were implemented with less intensity and lower quality. Reduced activities in forest protection have contributed to an increase in illegal activities in the forests which can lead to also to biodiversity losses and landscape degradation.	Felling reduction
Generally positive, especially on the natural regeneration, conservation and protection of forest. Those positive effects are connected to the non-presence and reducing of human activities in the forest areas.	Regarding to the other activities, like thinning, felling, etc. , the effects have been particularly negative, mainly related to the extension of the term of active contracts.	Forest improvement works, timber harvesting, incl. final felling, natural and artificial reforestation, and forest protection and protection were performed in full scope.
Protection of bird nests, wildlife new-borns during spring – because of restricted activities	The timber market has fallen , exacerbated by coronavirus restrictions	Delay in afforestation activities from early to late spring. The effects only to be observed by the end of the year.
A positive effect reported has been the easier availability of labor for artificial regeneration/ tending operations in Romania	Generally speaking, in North Macedonia all activities in the forests are behind the original plan for implementation due to restrictions. Respectively, only some activities/projects for nature conservation were active but with some delay e.g. process for proclamation of Osogovo as protected area in category protective landscape, implementation of activities from the Region Forest Development Plan for Maleshevo (signing Memorandum of Understanding, marking mountain trails for Maleshevo, starting process for building forest fire	Forestry operations have been carried out as appropriate in Romania.

	watchtowers), activities for nursing seedlings for reforestation of riparian vegetation in the lower part of Bregalnica River, etc.	
As for the protection and preservation of forests, I can say one thing, during the time when people did not visit the forests and were quarantined, nature rested and cleared of debris.	Forest tending, timber harvesting and reforestation, protection and conservation measures have decreased significantly. The condition and quality of forests is deteriorating.	On conservation
	Mostly negative effect of restrictions observed. First is delay and postpone silviculture operations as thinning especially non-profit one. Reduction market demand lead to decrease felling and revenue for other activities regarding conservation and protection.	Since the COVID-19 started within the first spring days, the main restrictions were caused by lockdown, and they had an impact to all SFM activities, at the first afforestation and thinning.
	The first wave of COVID-19 in Slovakia was in spring 2020 and the lockdown was in April, thus majority of forest operations was stopped, causing some delays in reforestation as well as felling and wood trade.	Until now the COVID-19 restrictions did not affect the yearly schedule of tasks execution of different forest functions in state forests (state forests cover about half of Lithuania's forests). The activities in private forests decreased, but generally impact of COVID-19 could be estimated as neutral.
	Activities where delayed, postponed and often cancelled, since depending of the nature of the SFM activities (works on field, meetings, planning, budgeting etc.), all were influenced by CoVid lockdowns and different other measures the government undertook since early spring 2020, exactly when most of them should have been started and executed. Based on my (unofficial) information, this has caused the public enterprise National Forests not to execute its plans on utilization, silviculture, protection, planning etc.	Until now the COVID-19 restrictions did not affect the yearly schedule of tasks execution of different forest functions in state forests (state forests cover about half of Lithuania's forests). The activities in private forests decreased, but generally impact of COVID-19 could be estimated as neutral.
	In time of prevention work against bark beetle, impossibility to hire forest workers from abroad, high public focus on forest activities	If this pace of the pandemic continues, it will be very difficult to meet logging and artificial regeneration plans.
	In the first phase forestry contractors and partners affected by decision of Board of Croatian Forests Ltd. On March 16 to	

	<p>temporarily stop forestry activities, except necessary for biological reasons Most affected – logging contractors and transport sector</p> <p>In the second phase of lockdown, Illegal harvesting activities recorded, agricultural activities without surveillance resulted in forest fires. Only allowed were silvicultural activities and sanitary logging under respect of protective measures</p>
	<p>Several logging companies – partners – have closed their business or reduced it to the limit. The consequences were immediate, I mean the decrease in the price of wood by 42%. This has led to the decapitalization of forest districts. Due to the lack of liquidity, the contributions to the state budget and a series of forest activities were postponed. At the same time, there was a crisis of the labour force in the sector (both in forestry and in logging).</p>
	<p>The costs of forest management activities are increased by the necessity of elimination of the effects of the 2017 hurricane and the unfavorable effects of the COVID-19 pandemic.</p>
	<p>Lower income of the public forest enterprise as well as a problem with working hours has jeopardized the process of artificial regeneration. Manpower has been significantly decreased and many activities have been slow down or even stopped.</p>
	<p>The National Forestry Agency of Georgia had to revise the initial plan of 2020 and suspended some of the forest management activities (reforestation, felling forest management planning), that had social and economic implication at the national level.</p>
	<p>The first and second wave of the pandemic occurred in spring and autumn 2020 i. e. during the periods when certain silvicultural activities, mainly reforestation, in forests are scheduled for. Therefore, it was challenging and problematic for forest owners and managers to ensure proper carrying out of those activities. The main limitations resulted from</p>

nationwide governmental anti-pandemic regulations that were aimed to protect lives and health of people. A part of the measures taken restricted free movement of persons and thus also affected largely all economic activities as a whole – lockdown (that applied also to forest areas and forestry operations).....

Forest owners have had limited revenues from timber sales and thus limited own financial resources to fund planned forest management activities necessary to implement sustainable forest management principles (reforestation, tending of young forest stands, forest protection and adaptation). It has to be said here that the causes of this “unpleasant” situation go back to forest disturbances that occurred in **Slovak** forests over last two decades and those causes lie with the way how those calamities were treated with (conflicts between forest management and nature conservation, insufficient forest adaptation to climate change). The current COVID-19 pandemic just worsened this situation of forest owners.

From the Table 1, the number of negative effects of COVID-19 restrictions dominate over the positive ones. However, an impact on SFM activities was often observed but not rated as positive or negative, and sometimes impacts were explicitly estimated as neutral. The most common responses relate to delay and general reduced execution of the planned SFM activities; restriction to only essential sanitary measures; and observed illegal activities with a negative influence of the forests' quality and timber market. Four of the six responses mentioning a positive effect were related to decreased human activity and presence in the forest.

3.3 Livelihoods of forest-dependent people, women and youth

Literature Review

Forests are the basis for employment, public health, and disaster risk reduction, which contributes to livelihoods and economic safety net (UN DESA 2020a). Globally, the COVID-19 pandemic is aggravating hardship among forest-dependent people from several perspectives including reduced income from local restrictions, decreased remittances sent from migrant family members, reduced access to markets and information, increased physical isolation, lack of health assistance, and disruption to government assistance programs (Linhares-Juvenal). According to FAO, "Countries with weaker forest governance are seeing increases in forest fires, illegal logging, illegal land grabbing of community lands, and conflicts over land and forest use. Communities lacking secure rights and access to forests faced (and continue to face) serious livelihood-related distress and were less able to prevent the spread of COVID-19" (FAO 2020a). Responses to the FAO global survey of wood value chain stakeholders indicate that disruptions to employment and a migration to rural areas are expected to increase pressure on forest resources and rural livelihoods (FAO 2020c). Reduced demand, restrictions on transportation, and border closures have led to decreased income for forest industry workers (UN DESA 2020a). In some areas there might be cases of pursuing quick illegal income at the cost of continuing legal livelihoods (FAO 2020d).

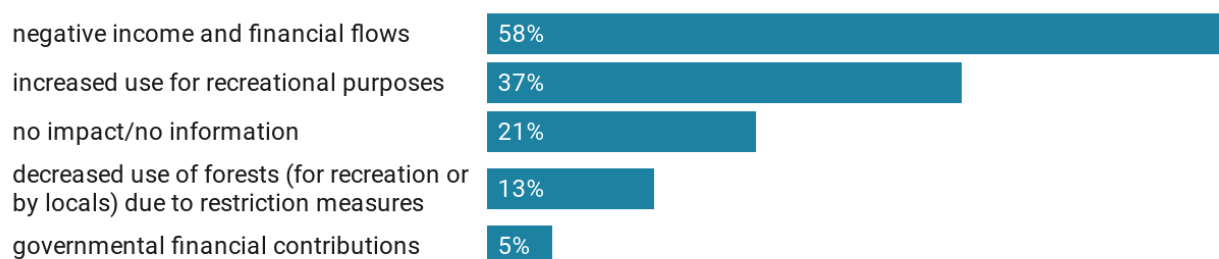
Slovenia calculated loss of income in the forestry sector of 14% in the second half of March and up to 35% in August. However, loss of income in July and August can be attributed to an observed decrease in sanitation felling of coniferous trees and not exclusively to be the consequences of the market conditions affected by COVID-19 (Ščap et al. 2020).

Educational institutions in **Russia** are facing a number of difficulties due to imperfect distance education, the rapid increase in workload, and low satisfaction of recipients (Lesprom inform). Moreover, it is assessed that online events lack competitive spirit, clarity, and focus (on business and achieving goals). The efficiency of such work is lower, and the technical support of online modes is poor due to very conservative industry. One representative of the wood industry in **Russia** notes that the effect of the pandemic will significantly increase the interest of citizens in suburban real estate, and hence the demand in the construction market (Lesprom inform).

The company "Darman" from **Armenia** has been producing organic teas as a non-wood forest product for export for five years. With the coronavirus epidemic, export to Europe stopped. "The first consignment of our production was already in France, the export of new consignments was planned. We were planning to grow, but suddenly everything stopped," - one of the founders of the company is Ruzanna Kartashyan, project and sales manager (JAM news).

Survey Responses

In the questionnaire the respondents were asked to assess how the COVID-19 restrictions have changed the lifestyle and livelihood pattern of those people who are dependent, directly or indirectly, on forests in terms of income flows, financial compensation payments by governments, forest resource use not only by locals, and use for recreational purposes. The main findings are presented on Figure 5.

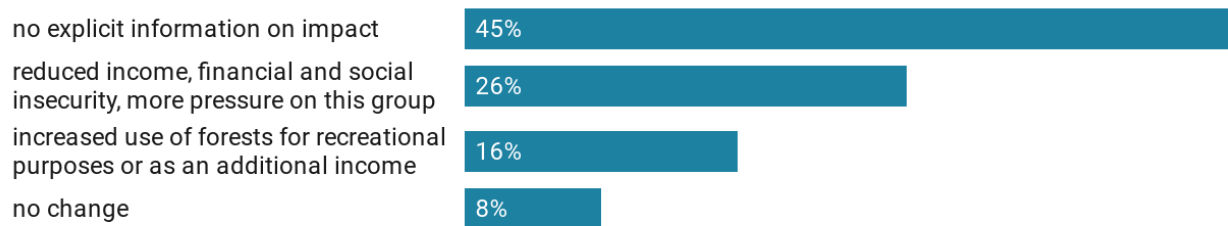


Created with Datawrapper

Figure 5: Categories of impact of the COVID-19 restrictions on the lifestyle and livelihood pattern of those people dependent on forests

The majority of the countries (58%) experienced a decrease in generated revenues, decrease in all forest related incomes, and lower investments in equipment while forestry companies saw an increase in costs (e.g. transportation and costs for protective measures). At the same time most respondents were not aware of any governmental financial compensation payments, but rather noted that the support was insufficient. Only two respondents, from **Bosnia and Herzegovina** and **Croatia**, mentioned financial support for job retention as governmental mitigation measure. The use of forest resources is highly polarized, with strong increase in recreational use in many countries (37%) and strong reduction in both recreational use and use by local population (13%). This is especially noted as a direct consequence of quarantine measures in **Ukraine** and **Russia**. In Slovakia in spring 2020 the strong increase in recreational forest use disturbed wildlife. Few respondents expressed concern about increased pressure on the forest resources due to more intensive use of urban green spaces and forests.

Regarding the question about how the COVID-19 restrictions changed the lifestyles and livelihoods specifically for women and youth, almost half of respondents (45%) did not have explicit information on this forest dependent group or did not consider it different than other groups (see Figure 6). 26% of respondents consider this category significantly confronted with reduced income and job opportunities - women had to take additional unpaid leave due to closure of childcares and distance education, and youth mainly suffered from lack of financing and restrictions in social life. Although admitting that there is no systematic observation on this topic, the respondent from **Poland** assumes that the burden of coping with the challenges related to COVID-19 falls to a very large extent on women, as they try to keep balance between professional and family/ personal life. "Social distance, temporary isolation and at the same time - family obligations (childcare, including supervision/assistance in remote learning, caring for the health of family members, logistics for providing households with basic livelihoods, as well as caring for seniors) are just the most important components of this difficult situation." Some respondents (16%) observed increased use of forest for recreation and income, specific examples were enhanced sport activities by youth in forests and collection of non-timber forest products to improve income. Non-timber forest product harvest is often not legally regulated, and in **Georgia** and **North Macedonia** increased harvest during pandemic crisis was assumed. Only 8% did not observe any impact of the COVID-19 restrictions on the lifestyle and livelihood of women and youth.



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Figure 6: Categories of impact of the COVID-19 restrictions on the lifestyle and livelihood pattern specifically for women and youth dependent on forests

3.4 Forest industries labor market and employment, domestic and international demands for forest products and services.

This subchapter is structured around literature findings in different online sources, news, and the country market statements submitted to the UNECE/FAO Forestry and Timber Section; and it is supplemented with the survey results. As the UNECE/FAO Forestry and Timber Section will conduct own research on the COVID-19 impact on timber products as support of development of the national market statements it was agreed that our focus will not be on different wood products.

Literature Review

Forest-based products trade and supply chains have been impacted differently depending on the sector during the COVID-19 pandemic. Demand for wood and wood products decreased globally, while at the same time demand for packaging material, pallets, and tissue for masks and toilet paper remained stable or increased (ILO 2020). Decreasing demand for construction in many European countries was countered by an increasing demand for do-it-yourself construction materials (FAO 2020d). Notable impacts of the crisis on wood markets include a decline in round timber exports to China, along with limited demand and interrupted export markets in Western Europe (FAO 2020d). Low oil and gas prices during the crisis may have decreased competitiveness of forest resources as inputs for the bioeconomy, and there is concern that advances in these bioeconomy and renewable markets lost during the crisis will be difficult to recover (FAO 2020d). In some countries, migrant workers make up a significant share of the forestry sector workforce. Travel restrictions and border closures had substantial impacts for the industry, in the form of temporary workforce deficits, and for the migrant workers, in the form of lost wages, lack of social safety net, and uncertain status within the country (ILO 2020). Forest subsectors have responded to the COVID-19 pandemic by working remotely; providing information about adaptive measures for employees, customers, and suppliers; and improving health and safety guidelines (FAO 2020c). The same survey found that laying off workers was one of the last measures that business adopted globally (FAO 2020c).

Specific information of COVID-19 restrictions on the forest sector is available for Czechia, Poland, Slovakia and Slovenia within the country market statements submitted to the UNECE/FAO Forestry and Timber Section.

Poland: The COVID-19 pandemic had implications on the policy level and investment strategies. Support for innovation and digitalization was assessed to be of great importance for the enhancement of the competitiveness of Polish companies.

- The wood companies relying on domestic raw material assured maintenance of their production capacities.
- In general, entrepreneurs are redefining their business models and development strategies by trying to restore broken supply chains and accelerate digitalization and automation, but the awareness of the need to operate in the conditions of limited demand and supply in the next period is growing.
- The wood industry expects to be supported by European Union funds dedicated to finance the “green” and digital transformation. Due to economic slowdown, reduction in roundwood harvesting was observed in 2020. It is anticipated that the production and trade of all wood products will slightly decline in 2020, but then in 2021 trade is projected to return to levels comparable to 2019.
- In the first half of 2020, an economic slowdown was observed in housing and construction, but then improved again in the second half mainly due to better development of the economy in general. and also due to domestic and foreign orders, as well as the financial situation of construction companies (Ministry of the Environment 2020).

Slovenia: The most important changes observed by wood processing companies during the epidemic were 1) the interrupted or hampered raw material supply chains and consequently the decreased product manufacture, 2) fewer customer orders, and 3) problems with the sale of finished and intermediate products.

- In the second half of March, the sale of forest wood assortments also stopped for a while, and in the months that followed sale was down by up to 50%.
- The acquisitions of wood from private forests started to decrease at the beginning of the lockdown, and the trend continued in July and August.
- The sawn softwood production decreased on average by 13% and the sawn hardwood production decreased on average by 23%. Sales revenues decreased by 4.3% in the first seven months compared to the same period in the previous year: 5.4% on the domestic market and 3.6% in export.
- Sale of forest wood assortments has stopped almost completely after 23 March 2020, because three groups stopped buying wood assortments: wood-based composite panel producers, low quality wood buyers, and wood-based composite panel producers.
- For a certain period, a wood processing company (engaged in production of various extracts from wood) also stopped buying lower quality wood.
- However, two Slovenian mechanical pulp companies continued acquiring wood and producing for the entire duration of the epidemic. One had no disruptions, and the other had slightly decreased operation given the available capacity.
- During the duration of the epidemic, two thirds of the sawmill and furniture industry also continued acquisitions of roundwood and production (Ščap et al. 2020).

Slovakia: Development of the national market is strongly dependent on situation in the international market, especially EU market. It is anticipated that this development will be dependent on the post-COVID-19 situation and market demand of major trading partners in the next period. The same factors will affect the area of wood production and processing in Slovakia. It is assumed that the development of the bark beetle calamity in the surrounding countries plus the effects of the COVID-19 pandemic, a more significant decrease in the average prices of raw wood can be expected in the future (Ministry of Agriculture and Rural Development of the Slovak Republic, National Forest Centre – Forest Research Institute Zvolen 2020).

The Czech Republic makes no reference on the impact of the COVID-19 pandemic on the timber market in 2020 or what could be expected in 2021 (The Czech Republic 2020).

Ukraine: PPV Knowledge Networks investigated the COVID-19 impact on Ukraine's forestry sector companies and concluded that over 80% of questioned companies had to suspend or reduce their production (PPV Knowledge Networks 2020).

- Almost half of the companies experienced reduced sales up to 50%, and the other half is expecting the same drop until the end of 2020.
- Companies of the sector are engulfed in a deep liquidity crisis. While 48% are short of funds for tax payments, 56% have issues with paying their employees, and 62% keep increasing their accounts payable. Almost all the companies that responded had reduced the working hours, and 20% of the companies downsized the personnel.
- Due to strong dependence on manual labor in production, 71% of respondents could not consider conducting their work through digital channels.
- On average, the companies would be able to operate under the COVID-19 crisis for not more than three months. Half the companies believe that they would be able to restore their sales to a pre-pandemic level within six months (51%), while some would need even longer period.
- The COVID-19 pandemic resulted in a slump in demand for forestry sector goods, a shortage of working capital, and an increase in accounts receivable. Respondent companies believe that the negative impact of the quarantine on the sector can be mitigated by measures aimed at postponing the settlement of liabilities, including short-term tax breaks, grace periods, wage subsidies for employees.

According to a senior staff of a wood industry plant from **Russian Federation**, the furniture and construction industries are not entitled to subsidies and some furniture plants report low production (halved export figures and reduced prices by 10-15%) (Lesprom inform). Although she argues that the construction sector will slowly recover, the furniture industry, due to lack of demand in crisis time will still need some time to recuperate (Lesprom inform). In **Russia**, the effect of coronavirus was observed even before restrictive measures were imposed. Namely, the export of domestic raw materials from wood to China as the main buyer, when they closed the borders. It is estimated that every day, due to the pandemic, **Russia** loses up to 1 billion rubles (ABF). The pandemic has created serious problems for the forest industry: the demand and prices for unprocessed timber are falling the most, which may push the industry to process raw materials within the country. According to a director of Timber Industrialists and Timber Exporters in **Russia**, the demand for timber in China has dropped by about 20-50%, and prices have dropped by about the same amount. Against the background of difficulties with the supply of unprocessed timber, plywood exports grew by 9.5%; and one of the industry leaders, Onezhsky LDK, part of the Segezha Group, increased its export of sawn timber by almost 30%. Experts attribute such a rise to the desire of manufacturers to work for export due to the sagging demand in the domestic market (Sberpro_media).

According to the CEO of a furniture industry in **Armenia**, reports that mid-March orders for furniture, doors and windows were reduced by 50-70%. As of now, the company has completely stopped its activity for 7 days, according to the decision of the Armenian government on banning economic activity of trade centers. Construction companies were unhappy with the results of lockdown because their costs increased and income stopped (ARKA).

Wood processing industry in **Croatia** experienced a 30-35% drop in revenue in April 2020 compared to the same period last year due to decline and restrictions on the European and global wood market (EU Forest Directors General 2020). The Government supported the wood processing enterprises, which generate at least 20% of their income from export, with subventions. Moreover for purchased wood assortments companies received delays in contractual obligations to public suppliers (Ministry of Agriculture).

Survey Responses

In the survey, participants were asked to assess what changes occurred as a result of the COVID-19 restrictions that affected the forest industry (e.g. related to employment, skills, product supply chains, sales, exports / imports). In addition, participants were asked to differentiate between larger industries and SMEs where possible and relevant. 71% of respondents reported on different changes, 21% did not contribute to this question and the rest did not observe any changes (8%). The observed changes are presented in the Table 2.

Table 2: List of changes occurred as a result of the COVID-19 restrictions that affected the forest industry

Changes occurred as a result of the COVID-19 restrictions that affected the forest industry

- During the strict quarantine measures in the first half of the 2020 a lot of **SME related to wood processing lost their income**. Besides there is indirect negative effect related to **slowing down European market (demand and prices)**;
- **Decrease in processing volume and sales reduction**;
- At the beginning: market disturbance, both in prices and quantity. **Significant decrease in production** due to warm winter and slowing down in important markets (Italy and China but also Egypt). **Biggest impact on sawmill industry & pellet producers; restrictions for transport services**. In lockdown: extended payment deadlines for wood processing industry, additional time given to use low-value grants, **minimal sales of wood products combined with transportation problem; usual supply chains to Italy and China stopped**, problems with north Africa, emerging problem – **Russian market 30-35% drop** in revenue in April compared to the same period 2019;
- **Forest owners suffered financial losses** – reduced income due to **reduced wood market** in conditions of **reduced wood processing**;
- **Salaries, employment rate in forest sector and budget contributions reduced**;
- **Employment, production and sales volumes, including export and import, have decreased**;
- Forest industry was affected from two sides. On one side it was affected **by decreased supply of raw material**, and from another side from selling the final products;
- Obviously, the number of workers working on timber harvesting has not changed. However, **restrictions on the operation of woodworking enterprises and the lack of sales of wood, including its export, affect the financial conditions of forestry enterprises**;
- The Ministry of Forestry of the Republic of Belarus, within its competence, informs that there were no significant changes that affected the work of the forestry industry related to the coronavirus infection COVID-19 in 2020. At the same time, in April-July of this year, there were **difficulties in the shipment of timber for export and the domestic market**. So, in connection with the spread of coronavirus infection, the **closure of borders by individual states, and the introduction of quarantine measures by partner countries that limit the operation of enterprises, the shipment of timber under foreign trade contracts** (“KLAIPEDOS MEDIENA”, “Lesy Alfa”, “Bio-Flamma”, “Agis”, “ECCO WOOD”, “Vizherana”, “Internation Paper-Kwidzyn”, etc.) was limited. Also in the **domestic market, due to the restriction of imports of products by enterprises of European countries** caused by the spread of coronavirus infection, in the spring and summer period there was a **decrease in the consumption of wood raw materials** by woodworking organizations of Belarus. A decrease in the consumption of wood raw materials occurred **both in large woodworking organizations** (organizations of the Bellesbumprom concern) and **in small / medium-sized enterprises of the republic**. **Due to the lack of export** of timber products of woodworking organizations of the republic in April-July 2020, there was a **limitation in the consumption of wood raw materials** by such large woodworking organizations as OJSC Mostovdrev, OJSC Borisovdrev, OJSC Gomeldrev, JSC Rechitsadrev, RUE Newsprint Plant, JSC Borisovsky DOK, as well as a number of small and medium-sized enterprises. **Currently, the situation in manufacturing of products and the use of wood raw materials has stabilized**;
- One of the industries in Georgia that has been highly developed is tourism. **The construction of hotels (windows, doors, etc.) stopped, the woodworking and furniture manufacturing industries associated with it also stopped**.

- **Initially, all branches of the forest sector fell. Then began the growth of the furniture industry in the housing sector, which gave growth to the entire forest sector.**
- The COVID-19 restrictions affected on larger industries as well as on **SMEs** which are **more vulnerable due to insufficient financing of social programs** in such type of enterprises.
- Of course, that **along two months' restriction period (middle of March until May)**, the COVID-19 affected the forest industry, **mainly in the direction of the employment**, because larger industries and SMEs too, are forced to stop the work and production. **Negative impact also, are recorded in the trade of wood products, especially in the goods movements, imports/exports.**
- The forest industry has additional problems due to COVID-19 resulting from **non-equal supply of raw materials, a large number of infected workers with COVID-19, disruption of product markets and reduced productivity at work**. The problems are **especially visible in the companies that are export-import oriented** due to the large number of trade restrictions and the uncertainty of the spread and the consequences of the COVID-19. Trade and supply chains are threatened due to **non-equal supply of raw material, missing or delay of imported raw material decreasing or losing specific export markets due to low interest from the wood products by the buyers**, etc.
- **SME: less processing, shortage of round wood, no specific impact for large industries.**
- **Significant reduction of activity, of financial income, layoffs, due to the effects generated in the economy by the reduction of demand for wood and wood products; Reduction of exports due to transport restrictions** between different countries, especially in spring 2020.
- According my knowledge, product supply chains were jeopardized due to the COVID-19. **Export – import links become weaker. Most of the round wood processing companies has been worked with some 30% of their capacities.** Request for export of final wood products was also decreased. Generally, due to the support of the COVID-19 measures from the Government to private companies there was no huge impact of losing jobs in forest industry. But if this situation continues there will be direct effect on increase in layoffs in forest industries.
- **The worst situation in forest** and most other sectors in Lithuania was **during quarantine** period on national level in March to May of 2020. But **now timber trade trends show** that no major impact to forest industry was caused by COVID-19 and currently situation in **timber market stabilizes**. Although the deteriorating situation of companies related to the forest sector in Lithuania could be determined by the **decrease in exports of timber and timber products** due to the difficult situation in export markets, also caused by the COVID-19 crisis – during 8 months of 2020 the value of exports of timber and timber products shrank by 6 % in comparison to the same period in 2019 (imports value shrank by 5 %).
- In **Romania** there is an observed **decrease in the price of wood by 42%**... It is paradoxical, but although many companies have closed / suspended their activity / reduced their activity, in the sector there is a labor crisis because the staff has reoriented to other activities. At the moment, there is an overproduction crisis in the sector, due to **the excess wood on the market generated by natural disasters and the massive import** of wood from Germany, the Czech Republic, etc.
- Lower sales and export
- The wood industry in Poland suffers from the consequences of the economic slowdown in 2020 to various degrees (in H1 of 2020 sales in the pulp and paper industry remained at a level observed in the corresponding period of the previous year, while in the wood industry its decrease was 3.4% and the furniture industry recorded the highest fall in sales equal 10.2%). It is assessed that **the furniture industry that may suffer the most** from the consequences of the crisis due to the decrease in demand for Polish furniture in the European countries. The currently restriction (November), i.e. the closure of furniture stores, is criticized by furniture manufacturers who have not yet recovered from the spring lockdown and are now recording much worse financial results. In addition,

the **industry is struggling with a shortage of components for production and a high absence of employees due to the pandemic**, which worsens its situation. In turn, construction companies, which is another important segment of the timber market in Poland, see the general economic situation in Poland and abroad and the **increase in employment costs as major barriers to their development**. The **renewable power industry sector** has also **been impacted** by the economic slowdown caused by the coronavirus pandemic (closures or stoppages of factories manufacturing devices used in the renewable power industry cause delays in construction of installations and their connection to the electrical power grid, there are also problems with the availability of components manufactured in China). This is counteracted by successively introduced regulations included in the so-called "Anti-crisis shield".

- **Demand for forest wood assortments was significantly lower**, which further conditioned the creation of stocks or a reduction of work activities. In the wood industry as well, **due to reduced demand, the volume of work was reduced, and employers were trying to reduce the number of workers to a minimum**. However, a number of workers lost their jobs. **Exports were reduced significantly, and foreign buyers cancelled their orders**. After the end of the first wave of the pandemic, the situation has improved, but the **volume of production and exports is expected to be reduced by 10-20%**.
- Since March, the wood industry in Republic of Srpska, **Bosnia and Herzegovina**, has been in crisis. The **decrease in the production of forest assortments** compared to March 2019 was **22.4%**, and the **decrease in sales was -14.4%**. From that time on, the demand for products began to decline. The most important partners of the Republic of Srpska are Italy and Germany, and the wood processing industry in our country largely depends on the situation in those countries. Slightly smaller problems are with manufacturers of carpentry and wooden houses, thanks to previous orders.
- The beginning of the year was positive for both forestry and wood processing, even though at that time some companies that directly export to China needed to reduce production. Significant changes have been noticed since March. **The most affected** to the negative impact of COVID 19 were **small companies with up to 10 employees, larger companies have shown greater resilience**. A small percentage of companies have maintained production at the same level, they have been forced to **reduce production and even introduce some new products to survive**. Most employers responded to the crisis caused by COVID-19 through the following measures: **reducing working hours, reducing the number of employees and sending workers on collective vacations or unpaid leave**. **A slight increase in exports has been recorded since September, which was reduced to 60% compared to the same period last year**.
- The forest is managed by the State Management Bodies in **Georgia**. Thus, the number of employees at state management bodies has not decreased; however, it has to be assumed that **COVID-19 negatively affected the private wood processing companies**. The forestry sector forms only a small part of Georgia's economy. Legal logging, transport and wood processing contributed about 75 MGEL1 to Georgia's GDP in 2014. This figure does not include illegal logging and activities that add value to illegally harvested logs. Total GDP in 2014 was 25,190 MGEL, so the legal forestry sector contributed only 0.3%. In comparison, agriculture contributed 8.9%. Based on data we can assume that due to COVID-19 pandemic, **the forestry industry would have been affected and the contribution of the forestry sector to Country's economy had decreased even more**.
- With regard to the COVID-19 pandemic, **forest industry companies focused their reactive measures on cost-optimizing mainly through reducing working time (a number of working shifts) rather than reducing a number of employees**. Avoiding the reduction of employees was motivated by the necessity to keep the qualified work staff in companies. On the other hand, **forest industry in general did not record a decrease of demand for their products**; that was particularly relevant for saw milling industry and wooden building materials / products for housing (this could be explained that people were still interested in investing in housing, not only in residential buildings but also in wooden cottages and other buildings for recreational purposes).

In summary, many countries experienced decreased processing volumes and sales of their wood products especially between March and May 2020. Some of them claim up to 50% of sales drop. Most affected seem to be the countries and companies with strong international orientation as both export and import have been impeded due to the transport related COVID-19 restrictions. Some argue that both large and SMEs are affected, while others assume that SMEs are more vulnerable due to insufficient financial sources. Several countries noted that substantial reductions during emergency period in public and private construction work, especially in housing and tourism, led to a significant decrease in demand for wood and wood products on the domestic market leading finally to a negative impact on forestry. However, others did not notice decrease in demand, due to good domestic market demand. Many respondents noted that companies reduced working hours, gave employees collective vacation or unpaid leave, or adapted new products to cope with crisis. At the time of submitting their responses, several countries assume stabilization of timber market lately with minor losses to comparable 2019 period. During the validation workshop many participants confirmed uncertainty of the current situation as most countries are nowadays confronting the second wave of infection and partial lockdowns and more serious restriction measures. This appreciation might change in the coming weeks based on the further development of the pandemic in the next few weeks and months.

3.5 Access to forest financing and investment, and public spending on forests

Literature Review

Forests provide environmental and economic stability for millions of people, and investments in SFM (for example, integrate SFM into recovery strategies, increase international financial support to vulnerable countries, support public and private industries, and develop national forest financing strategies) are seen as key components to post-pandemic recovery (UN DESA 2020b). Efforts to transform production systems and continue ambitious public and private sector commitments to fight climate change may suffer from the reduced availability of public and private investment due to the economic crisis of COVID-19 (FAO 2020d). Low- and middle-income countries may have challenges to continue national public financing for forest-related activities due to increased spending on public health and unemployment benefits (UN DESA 2020b).

The literature review showed that **Ukrainian** forestry sector companies consider that stimulation programs would help them restore production processes, increase sales, and reduce accounts receivable (PPV Knowledge Networks 2020). However, they hardly make use of the available business support programs, and program utilization ranges from 1% to 23%, depending on the program. Forestry sector stakeholders underline difficulties with using national SME support programs due complicated procedures.

Survey Responses

In the survey the participants were asked about the access to forest financing and investment, and public spending on forests with two questions. The first question was to assess how the COVID-19 response measures have resulted in changes in accessibility of forest financing and investment in their country. From 38 respondents, 47% think that the COVID-19 response measures did not have influence on accessibility of forest financing and investment but have rather caused some delays; while some think this will be visible only later in year 2021. Although few respondents see accessibility on the same level as pre- COVID-19 period, some note that almost no funds are allocated to forestry nowadays. There is no significant financing and investment in forestry except some initiatives and projects supported by SDC, SIDA, UNFF. Even some

of the foreseen investments in forestry by the state were shifted to the COVID-19 fund. The COVID-19 pandemic will have bigger impact in the future related to forest financing.

On the contrary, 34% perceive the situation with COVID-19 having negative development for accessibility of forest financing and investments.

- Concretely, possibilities for financing in forestry in **North Macedonia**, which was already modest in the past dropped further, given changes that the COVID-19 is posing at global level. International project planning for forest development is delayed or has been postponed to later stage. Also, there is a decrease in overall investments in **North Macedonia**.
- In **Ukraine**, a decrease in the availability of the forest sector funding and investments is observed due to the introduction of strict quarantine in the first half of the year and a decrease in demand of forest products. This situation has led to a decrease in the activity of both state forest enterprises and private contractors working in the field of services for forestry production. Furthermore, the state budget will have a negative balance and incentives will be reduced. It is likely that the forestry sector budget will see reductions as is not considered important for economic recovery.
- In **Croatia**, uncertainties and questions are the problem for strategic planning. The biggest challenges are maintaining financial liquidity while preserving and retaining a skilled workforce. Projections for GDP decline due to economic crisis is not looking good. Lack of new orders are due to expectations of economic slowdown and recession. Very difficult trading conditions are currently observed due to the cancellation of many specialized wooden-products fairs till the end of year.
- The availability of the funds has been significantly reduced, which is seen in the amount of funds for expanded forest reproduction (allocated annually) and was significantly lower this year than in previous years. As far as we know, the investments in fixed assets have been reduced in the wood processing sector as well, and some projects have been completely suspended. However, after a short pause, planned capital investments, such as digitalization and the introduction of a new information system in the public forest enterprise, continued. In addition, negotiations on securing significant sources of funding for the forestry sector in **Bosnia and Herzegovina** have continued, with a special emphasis on negotiations with the World Bank.
- **Georgia** adopted a new Forest Code in May 2020. The sub-legal acts are under development as well. However, the COVID-19 pandemic had influenced on state and its financial recourse. The main source for the financing the forest sector reform is the state budget and support of donor organizations. **Georgia** faces the risk that implementing the new regulations and standards that were introduced by new Forest Code, and which are essential bases for the establishment of SFM can be hindered due to the lack the financial support.
- Forest owners and managers have limited revenues from timber sales and thus limited financial resources to fund planned forest management activities necessary to implement sustainable forest management principles (reforestation, tending of young forest stands, forest protection and adaptation). This directly impacts investments in forestry of **Slovakia**. But the causes of this situation are more complex, not only due to COVID-19.

Other 13% of respondents could not provide answer. Two respondents assumed better accessibility to loans and subsidies, and one concrete example given was provided by **Poland**, where the wood industries pushed to be mentioned explicitly in the “Anti-crisis shield,” a package of actions and legislative solutions aimed to reduce the negative economic impacts of the COVID-19 restrictions. Improving the business environment and stimulating entrepreneurship are important for forest-based companies.

To the second question, “How do you expect public spending for national and international forest programmes will change in the aftermath of the COVID-19 response measures?”, 29% considers that public spending on national forestry programs is likely to decline; 26% of respondents expect no major changes; 24% offered their own suggestion; and 21% did not respond to this question. Some descriptive statements by respondents are listed in Table 3.

Table 3: Overview of responses to “How do you expect public spending for national and international forest programmes will change in the aftermath of the COVID-19 response measures?”

Some expectations on how public spending for national and international forest programmes will change in the aftermath of the COVID-19 response measures
<ul style="list-style-type: none"> There is no special forest related program however forestry have been included in State Program aiming to provide economic stimulation due to overcome the negative effects caused by restrictive measures to prevent the occurrence and spread of acute respiratory disease COVID-19 caused by coronavirus SARS-CoV-2, for 2020-2022
<ul style="list-style-type: none"> Globally and at EU level: maintaining and increasing level of funds available (e.g. CAP) – awareness of the importance of agricultural but also forestry sector New funding opportunities (e.g. EU Recovery & Resilience Facility) Wood, product of sustainably managed forests - further promotion, arising of public awareness in the context of the EU Climate ambition Strong cooperation with the construction sector - use of wood as a material Increased research & development - new solutions
<ul style="list-style-type: none"> Definitely not toward positive trends, eventually decrease, servicing only the basic needs to maintain jobs, without any development components. Besides, even pre-COVID, forest financing in RNM has been one of the major obstacle toward SFM. It was just announced by World Bank that RNM has reached the worst recession in last 20 years (worst since the 2001 insurgency/armed conflict). This recession, along with increasing public debt would for sure not be favourable for forest sector in future.
<ul style="list-style-type: none"> The state budget will have negative balance and incentives will be reduced, probably also to forest sector which is not considered important for economic recovery.
<ul style="list-style-type: none"> Since the forestry sector is related to other sectors (at the first place Climate change) the expectations are that national and international programs will be sufficient for investment in forestry.
<ul style="list-style-type: none"> Public funds should be allocated to: - structural changes in the management of the industry; - for financing forestry works, especially in the forests of the south and east of Ukraine; -increasing the forest cover of the state to its optimal level; -providing works on national forest inventory.
<ul style="list-style-type: none"> The global decline in production, including in the timber industry, will lead to a decrease in revenues to the state budget of Ukraine, which is likely to negatively affect the financing of national and international forest programs.
<ul style="list-style-type: none"> My opinion is that national and international programmes and funding in forestry in the next 3 years will decrease and less and hardly accessible. Accent of the national and international forest programmes should be given to fast recovery of the forest sector in general. Starting from support in employment of the young people in the forestry; support of the international exchange, creating more sustainable and more resilience forestry system; promoting sustainable forest practices, promoting sustainably produced products, support timber industries, promoting payment for ecosystem services, supporting activities for reforestation, creating specific loans and credits for forestry industry, etc.

- Pandemic situation does not affect to national and international programs. Better question is How or Why national and International programs did not affect Pandemic.
- I believe that after COVID-19 we will have unique opportunity as society for fresh restart and to plan some of the activities in the forest on more sustainable way. There will be a need for direct support of the people that depends on forests, forest industries, tourism sector related to forests, collectors of NTFP, support of the measures for landscape restoration and tending of the forest etc.
- I think that national sources of funding will be very limited, and that the focus must be on international sources of funding. One of the activities that I would recommend, and for which I personally submitted the initiative to the competent authorities, is the cooperation with the United Nation Forum on Forests and the design of national forest financing strategies/studies to mobilize resources for sustainable forest management (SFM). Along with this activity, it is necessary to educate staff at the national level in order to be able to communicate and apply for funds from different donors. There was a great lack of qualified staff for the preparation of project applications, as well as the overall project management and quality management.
- An authoritative and credible assessment is difficult as the pandemic is of an unprecedented nature and its effects are multi-directional and multi-faceted.
- Urgent measures are needed in the forestry sector, both at European level (possibly the establishment at EU level of the Directorate-General for Forests - DG Forest, to allow the absorption of European funds for ecological reconstruction of forests, implementation of "green deal", transaction with green certificates) and at national level, because now, when in our country the forest is declared, according to the law, an element of national security, it is necessary to budget the forest administration also through an adequate legislation and to ensure the access of forest administrators to financing programs and projects
- At a national level, the relevant forest administration authorities work on the programmes that will bring more financial resources to mitigate the effects of the COVID-19 pandemic and facilitate recovery in the forest sector.

3.6 Forest sector, international institutional capacity at the regional, sub-regional, national and subnational levels

There were hardly any concrete findings in the literature related to forest sector institutional capacity. Therefore, five questions were posed about how the COVID-19 restrictions have affected the functioning and administrative effectiveness of key forest sector institutions.

Survey Responses

Question 5a was about the effect of the COVID-19 restrictions on data and information gathering.

- 55% of respondents considered that restrictions have affected the process ranging to have only slight to clearly negative impact. Commonly named issues were 1) delays in data collection and processing (often due to home offices and illness of employees and their family members), 2) no possibility to conduct on-site work and to exchange it with remote work during quarantine, 3) data collection and overall data management was experienced as slower than in the past (especially difficult was predominant use of electronic means and transferring the communication and approvals from paper to digital form and was experienced as demanding for the forest institutions), and 4) sometimes the reliability and quality of data and information and its timely application had deteriorated.
- However, 32% of respondents did not experience major influences on forest management and administration, while some admit that field data collection activities were interrupted, as a result of travel and accommodation restrictions imposed especially in the first part of 2020.
- 13% did not provide an answer to this question.

In question 5b, the respondents were asked how the COVID-19 restrictions affected the physical presence of personnel on the ground and the ability to ensure operating standards were maintained and illegal activities were minimized.

- Most participants (45%) perceived the lack of physical presence of personnel on the ground due to the restrictions either impacted daily business or the tasks could not be completed in the time or quality expected. It was mentioned several times that the physical presence of forest service personnel reduced inspection and investigation against illegal activities. However, As mentioned in the survey responses and during the validation workshop, the potential effects of those restrictions on ensuring operating standards in forest management still has to be assessed.
- Some respondents (24%) claimed the restrictions had little effect on personnel's physical presence on the ground and their performance of their duties controlling, protecting using forest resources, minimizing illegal activities, and handling forest administration. In some countries, even during the restrictions personnel on the ground was not prevented from being on duty, or absent only in case of illness. Moreover, some observed more workload with minimizing illegal activities.
- 18% of respondents said that the restrictions had only minimal or no effect on the physical presence of personnel on the ground, but there was sometimes an issue with presence of administration due to compliance with restrictive measures.
- 13% did not respond to this question.
- Only **Belarus** reported that industry workers who ensured compliance of legal requirements (regarding the management, control, protection, conservation and use of forest resources) were

physically present at the workplace. Whereas **Georgia** implemented the project “Action Plan of National Forestry Agency to Address Crisis Caused by COVID-19” with the support of the German Government, where additional 120 people have been employed for four months to support forest use activities and improve forest protection, especially implement fire prevention measures on the ground.

In question 5c, respondents were asked how the COVID-19 restrictions have affected the ability of personnel to develop and refine their expertise and experience. The responses grouped within categories of positive (16%), indirect/ rather positive (26%), negative (26%), no impact (11%) and no information (21%) with only slightly higher share of negative effects. Most respondents perceive integration and use of new communication tool in short time as positive, however many acknowledge those are not always suitable replacement for development of practical experience and face to face contact in sense of effectiveness and capacities in the forest sector. For better understanding the first three categories are presented in the Table 4.

Table 4: Overview of positive, neutral and negative effects how the COVID-19 restrictions affected the ability of personnel to develop and refine their expertise and experience

Positive effects	Indirect/ rather positive effects	Negative effects
<ul style="list-style-type: none"> • To some extent, the staff had the opportunity to pay more attention to the need to improve their knowledge with the use of communication systems, to get acquainted with publications, to share experiences and practical skills remotely; • Distance learning tools are being developed, which is a clear step forward in increasing the availability of knowledge; • Remote work provided an opportunity for employees to develop and improve their knowledge, and efficiency depended on the employees themselves; • There have been few trainings for forestry staff conducted online and the improvement of the online organization of meetings / workshops/ communication sessions; • The abilities to develop and refine theoretical knowledge and expertise were improved due to enhanced possibilities to use remote meetings, but 	<ul style="list-style-type: none"> • There is indirect effects due to absence/ postponing of certain trainings, capacity buildings etc. • Significantly but not entirely - it was a period of Republic of Croatia having Presidency of the Council of the EU. It Was super challenging - but we made it. • Home office was the main working method - the positives and negatives are obvious - IT skills were developed, other experiences form personnel activities not. • This was to the certain extent compensated using the modern technologies. • Of course, being in self-isolation can to some extent contribute to the improvement of knowledge. At the same time capacity building has some challenges. In particular, restrictions related to coronavirus COVID-19 did not allow to hold theoretical and practical classes planned for May-June 2020 at the National Forestry University of Ukraine, which were planned for employees of Vinnytsia Regional Municipal Specialized 	<ul style="list-style-type: none"> • Overall stagnation on that part. This has even more worsened the situation on that topic. • The ad/hoc and non-regular education was significantly reduced. • Ability had worsened. • Negatively. In many cases, distance learning is less productive and effective, especially for gaining skills and experience. • Yes, in this context the COVID-19, has negatively affected this sector, and this is especially related to the lack of telecommunications experience. • Negatively, because usually training of personnel and refine of expertise and experience in forestry usually doing on place by mean face to face meetings. • Restrictions related to COVID-19 had a negative impact on the ability of staff to develop their expertise and experience. Some of the institutions switched their activities for

<p>development of practical skills and experience decreased.</p> <ul style="list-style-type: none"> While the current situation is surprising and unprecedented, personnel relatively quickly made a leap in understanding new phenomena and in being able to use modern communication tools. 	<p>Forestry Enterprise "Vinoblagrolis"</p> <ul style="list-style-type: none"> Reduced, due to less communication with domestic and foreign partners. Trainings, seminars, visits and similar activities have either been suspended or reduced to a minimum. The situation is better after the first wave, but it still refers to some basic activities. Indeed, this situation is a new experience for all staff. Due to this emergency, employees had the obligation to work from distance, participate in workshops and capacity building activities through online platforms. NFA guided and give orientation to the staff how to work from the home office. However, forest management body, NFA, planned capacity building activities and training for 2021. Significant effects. Training and educational activities went virtual or have been postponed to the next year. 	<p>development and capacity building sing new on-line tools for communication.</p>
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In question 5d, respondents were asked if there were gaps in legislation and regulations made apparent due to the COVID-19 restrictions.

- 26% of respondents answered in affirmative way by noting that it revealed gaps (in some cases and lack of flexibility and quick response), but it also provided lessons to be learned for future negative events. In some countries the legislation was updated to adapt to the situation, whereas in others the gaps are only observed. In some countries, as in **North Macedonia**, respondents observed the need for huge reforms in the forest sector in order to be harmonized with the EU legislation, with new approaches in forestry and with the requirement of different Directives, Conventions, SDGs, etc. Furthermore, telecommuting empowered employees to respond to gaps in laws and regulations. In this regard, too many delays are registered in the formulation of the new legislation and regulation. Some needed amendments of existing legislation and or establishment of new legislation are postponed. In some countries, it is already routine to eliminate gaps in legislation and regulatory legal acts as they are identified. Some respondents shared the opinion that there was a positive impact on normative legal acts and that the law enforcement should be implemented carefully.
- 16% of respondents did not perceive any gaps, and explained that quarantine restrictions, the introduction of remote work, and the illness of individual workers have reduced the potential for improving regulations. At the same time, one respondent argues that the number and quality of

draft regulations has decreased and timely adoption has been delayed; while another assumes it is possible that in the future new measures would be planned (in terms of reserving financial funds or similar strategy) in case of unpredicted situations such as this. Currently, there are provisions only for natural disasters, fires and similar scenarios.

- Other 24% could not provide response, 16% observed no impact, and 18% interpreted it as unclear or pointed to some gaps in legislation or stagnation in general, not necessarily due to COVID-19.

In question 5e, the respondents were asked to provide opinion about how the COVID-19 restrictions affected the need to revise strategic plans and risk assessments.

- 21% of respondents do not perceive need for revision and supports it with following few comments:
 - The global flows were reduced, major emphasis should be put on sustainable management of local resources.
 - The process of preparation and discussion of strategies, plans, etc. by stakeholders and the public is complicated, which affects the quality of important documents.
 - The risk is generated by the new economic conditions and measures are taken by the punctual needs.
- 34% of respondents report either on the need for revision, some undergone revisions, how remote work actually enabled revision of strategic level plans and risk assessments or that ways of risk assessment are being discussed, but no concrete decisions to reviews the plans of the strategic level have been made.
- 21% of respondents stated that the COVID-19 crisis did not cause revision of current strategic plans, but it may impact the content and structure of future plans. Some noted that that the crisis is still ongoing and completely new situation for all sectors, including forestry. Whereas respondents from one country thought the limitations associated with COVID-19 should be reflected in strategic plans with additional information about risk assessment in forest activity. Others noted some minor limitations as the revision of strategic documents was carried out using virtual means.
- The rest of respondents (24%) did not provide or did not have information to this question.

3.7 International and regional cooperation on forests and forestry issues

Survey Responses

This section depicts survey results about how the COVID-19 response measures have affected international and regional cooperation for example in terms of communication modalities, meeting effectiveness, duration and timeliness of procedures and processes, changes to the number and range of participants.

- 47% of respondents noted that the COVID-19 response measures negatively affected international and regional cooperation. Most respondents experienced postponed or canceled in-person meetings (which were often rescheduled to online channels). Some questioned the effectiveness and quality of remote interactions, experienced longer preparation time for the meetings, and noted the meetings are a poor substitute for in-person exchanges because cooperation is more complicated, requiring more effort and experience fewer people participating.
- 42% noted that COVID-19 response measures have brought challenges and opportunities. Positive responses were that virtual meetings saved time and resources and were a good use of the time

during lockdowns. Some argue that virtual means have improved the quality of international communication and cooperation and that virtual communication increased information dissemination to a larger number of people. One respondent noted that communication was challenging due to postponements in multilateral cooperation and moreso due to the use of virtual means, which did not have significant impact on the effectiveness of the bilateral communication.

- The rest of respondents (11%) did not have explicit answer.

Overview of all responses is provided in Table 5.

Table 5: Overview of responses how the COVID-19 response measures have affected international and regional cooperation

Negative effect
<ul style="list-style-type: none"> • Will deteriorate • Contacts, meetings were limited, events were reduced • Pace of international and regional cooperation events significantly decreased. On-line meetings are of the low quality and very cumbersome - no match to the physical meetings. • Negatively - networking meetings, communication, exchange of experts... • Having in mind that when I left FHD within MAFWE I was the only one decently speaking and writing English, and that time alone pushing the international agenda, now without knowing the details on my former colleague's attendance, I assume the international cooperation agenda is on stagnation, at its worst stage. Not to brag, though now as freelancer, my activities in the last 2 years since I left MAFWE might have been 90% in line with ministry priorities, mostly pro-bono, by request of current head of FHD and on his behalf, activities that strive to improve forest financing in the country. Nevertheless, for this report, status "stagnated". • All international meetings were either cancelled (majority) or organized as teleconferences. • Negatively. The number of international and regional physical meetings of key partners has significantly decreased, the number and duration of online communication and events has increased, and the effectiveness of meetings has not changed significantly. • COVID-19 coronavirus response measures have largely brought international and regional cooperation into video conferencing. There are almost no delegation trips to workshops or trainings. In particular, the trip of master's students majoring in "Forestry" to gain practical experience in the implementation of close to nature forestry in the forests of Germany (financed by the German side) was postponed for the first time in 13 years. There was also no trip for students of German higher education institutions to study the beech virgin forests of Ukraine (held annually since 2000). The acquaintance with beech virgin forests of Polish foresters, scheduled for June 2020, did not take place either. • Temporarily (do not know until what time) all international events are suspended ... • International cooperation has lost some of its communication and effectiveness of meetings • The establishment of strict quarantine, the ban on crossing the borders of a number of European countries, the restriction of the movement of various modes of transport, both international and regional, have significantly affected the ways of communication. This has led to a reduction in business meetings and their duration, as well as the number and range of participants. A number of international and regional meetings have been postponed or held by video conference. • The COVID-19 response measures contributed to the rapid increasing of online communications, increased time for preparation to meeting but in terms of meeting effectiveness I didn't see a visible progress. • The Russian economy is experiencing a serious crisis and I expect government spending to decline. • Moreover, the response measures to COVID have hampered international cooperation on forests and forestry. How do you explain the fact that at present, the European Commission has not had any dialogue with forest managers, the dialogue was limited only to NGOs and the Ministry of Environment?

- **Cooperation is more complicated, online meetings are less effective, there are less participants**
- Problem of communication between all stakeholders and performing of education (seminars etc) is dominant. **The collaboration was stopped, and communication was mainly based on webinars.**
- There is a big problem here, of course, we try to maintain all communication related to cross-border cooperation, the World Bank, GIZ, UNEPOM, UNDP, and other organizations with which we cooperate. It goes **harder than in normal situations**, but we try to develop projects. **The number of participants is reduced to a minimum.**
- **Georgia** is implementing several projects in the forestry sector supported by Governments of partner countries. In the framework of those projects, Georgia receives the assistance of international experts who had to travel in Georgia. However, **most of the missions have been cancelled that negatively influence the development and achieving the results of programs.** Besides, using **online platforms for discussions are not that effective. Timeliness of procedures and processes takes more time with limited human capacity.**

Challenges and opportunities

- **Bilateral cooperation have been slowed down and sometimes putted on hold.** Most if international meetings are postponed or conducted in on-line format. Conducting on-line meetings in virtual format has negative and positive effects. As of **positive effect it is saving costs and time for traveling.** As of **negative effect absence of possibility of bilateral contacts during the event and time difference of the meetings.**
- I would like to stress that international and regional cooperation are affected in all kind of modalities, firstly as the **postponing of planned activities and meetings, and then on the meeting effectiveness** etc.
- **meeting effectiveness, overload of activities**
- Communication takes place remotely using video conferencing. **Efficiency, the duration of meetings is not reduced.** At the same time, **the exchange of practical experience and skills is difficult.**
- **The introduction of electronic means of communication** (Zoom, Google meet, Microsoft team and others) **has improved the quality of international communication and cooperation.** Of course, **travel restrictions limited it.**
- The pandemic period had affected international and regional cooperation, in sense of **communication modalities.**
- International and regional cooperation is reduced. Contacts and participation in meetings, conferences, workshops, etc. In live are reduced. Certain attempts to continue the started activities or to start new ones are made through **on-line meetings, webinars which of course affects the effectiveness of the implementation of the processes.** But it is **a good and only way to keep some of the process in the forestry sectors ongoing. Some activities at national level are organised with a smaller number of participants.**
- meetings are now on-line, **no big change in extend of cooperation**
- International and Regional cooperation now is put into on-line mode, and so far it is the best way for expression the real interest for such cooperation. For example you can see the attendance to specific presentations on international conference GEA (Geo Eco-Eco Agro) <https://www.youtube.com/channel/UCFJPHS3YrgVX-V--sW-Q-9w/videos>
- COVID-19 response measures affected international and regional cooperation in terms of **communication modalities, meeting effectiveness, duration and timeliness of procedures and processes.**
- **Travel limitation, relatively slow adaptation to online communication and meeting systems**
- COVID-19 response measures **decreased number of physical meetings** on international and regional levels and **subsequently effectiveness of cooperation.** Many international meetings were **postponed**, some of them **organized remotely shortening their duration and intensifying processes.** **Numbers of regional meetings (mostly organized remotely) have increased, effectiveness, duration, timeliness of procedures and processes, number and range of participants left unchanged.** We think it is caused by wide range of technologic solutions and possibilities for organization of **remote meetings**, also such meetings are **much**

cheaper to organize (no need for flights, hotels, meeting rooms, etc.). **Sometimes it becomes a challenge to participate in all events.**

- **Cooperation in forestry requires filled research, monitoring, meetings and communication in live.** But, due to COVID-19 international and regional cooperation and communication was shifted from in live to online. **Meetings, conferences and others are organised on some of the communication platforms. Such communication can help to overcome some period of already started cooperation but on the long term is not visible. Positive side of the online communication is that there is almost no limit on number of participant and findings from some conference can be disseminated to more people.**
- The actions taken in **Poland** should be supported by the European Union funds, which are to be used to finance undertakings connected with, inter alia, health protection, digitalisation, development of entrepreneurship, and climate protection. Since these funds are intended to **finance the “green” and digital transformation**, one should expect that **wood companies will also benefit from them.**
- Most of the planned activities of the Forestry and Protected Areas Agency are carried out online. Nevertheless, reports are drawn up and activities are carried out.
- For **Slovakia**, currently chairing FOREST EUROPE, the pan-European ministerial process on forests (46 European countries and the European Union), **the pandemic situation has been a great challenge.** All physical FOREST EUROPE meetings (organized by the Liaison Unit Bratislava) had to be cancelled since March 2020 on. This was particularly challenging for this final stage of the run towards the Eighth FOREST EUROPE Ministerial Conference (originally planned for October 2020). Even the ministerial conference itself had to be postponed to April 2021. **Despite those difficult circumstances**, the draft documents for the Ministerial Conference have **been prepared and negotiated through virtual meetings.** At the moment, it seems that the preparatory process will be concluded successfully and those documents will be tabled to European ministers responsible for forests for signature at the Eight FOREST EUROPE Ministerial Conference in Bratislava next April. As regards **bilateral cooperation, the meetings were conducted virtually** or, in some cases, physically but in a limited format (limited number of participants). In principle, this modus operandi **has had no significant impacts (either positive or negative) on effectiveness of the cooperation.**

4 Opportunities and threats for SFM

Literature Review

In **Ukraine**, the need for improvement of automation of production processes and manual labor reduction in forestry sector companies was pronounced during pandemic (PPV Knowledge Networks 2020). Moreover, the stakeholders underlined urge for support in online sales skills development, the recruitment of online marketing specialists and coaching to apply online sales channels.

Some officials in **Belarus** perceive videoconferencing as an important channel of communication, in light of closed borders and geographical distance and as an emerging opportunity during the pandemic. In a webinar to present opportunities for cooperation with Belarus in the field of wood processing, Canadian and British participants were able to establish first business contacts (Belta). Although confirming significant sales reduction and impact of pandemic on concern economic results, the chairman of Belarus Bellesbumprom corporation suggests searching for alternative ways to diversify production and exports in general (Lesgazeta).

Some voices in **Russian Federation** argue that it is a priority to be able to adapt to mobility and flexibility in strategic planning of each forest industry company (ABF).

Croatia projects economic slowdown, recession and GDP decline impacting forest sector and contractors. The next period will have very difficult trading conditions, reduced demand and uncertainties in the strategic planning, with biggest challenge to maintain financial liquidity (EU Forest Directors General 2020).

Survey Responses

In the survey (question 9), respondents were asked to share their view of the major opportunities and threats for SFM in their country that will result from the COVID-19 situation.

- 39% of respondents identified both opportunities and treats; 34% shared only threats; 18% did not answer this question; and 8% shared only opportunities.
- The most important opportunities resulting from this situation include 1) raising public awareness of the benefits of forests in the pandemic time, 2) increased importance of recreational function of forests in urban and peri-urban environment, 3) better use of modern technologies to enhance national and international communication and cooperation, strengthening competences of employees as well as digitalization of whole forest sector and 4) a decrease in externalities caused by human activities on forests.
- Major threats relate to reduced sales on the timber market and falling prices of timber and timber products. These issues can result in declining income in the forest sector and may lead to negative impact on sustainable forest management practices (afforestation, reforestation, thinning, etc.). Most participants were concerned with possible increase in illegal activities due to reduced income, increased unemployment, reduced funding for investments and other activities, which would lead to increased pressure on resources and will engender overall stability and viability of the forest sector.

Table 6 provides an overview of the responses related to opportunities and threats for SFM.

Table 6 : Overview of the major opportunities and threats for SFM

Opportunities
<ul style="list-style-type: none"> • 1. possibility to attract interest of society to forests and demonstrate forestry activities and SFM, improve communication with society 2. increase usage of remote communication technologies and enhance national and international communication and cooperation 3. possibility to use funds for COVID-19 impact recovery in short term 4. intensifying and shortening decision making process through IT solutions • The opportunities for SFM are related to promoting sustainable tourism in mountain areas, development of different start-ups related to forests, increasing the local visitors in the forests, changing the habits of the people for spending more time in the forests, implementing more sustainable practices in forest management etc. • Raising public awareness on the benefits of forests (ecosystem services), especially peri-urban ones, with a positive effect on environmental education. • Major opportunity is in raising public awareness toward nature as only resort in pandemic era. I can't see the treat to SFM. It is so childish to expect such treat because all environment-oriented arena create SFM. • The major opportunity is that some externalities caused by human activities will be decreased. • Search and involvement of additional mechanisms and sources of financing of forestry activities. • Major opportunities are to develop online tools and innovation for evaluation, verification and data gathering. • Opportunity - possible change towards positive perception of forest sector. • There is an opportunity looking ahead, having in mind that there are some developments concerning strategic development of forestry sector, starting with an methodology for forest inventory, then recent IPA FWC project, reviewing the forest sector and setting stage for a big 1.3m euro IPA project planned to be launched in 2021, then an ongoing GCF project idea note (still under processing by NDA and searching for an Accredited Agency) and some other project proposals under development. • Change of paradigm: People interests, Climate change, Risk, Natural hazards are the important opportunities and treats in same time. • Policy of the economic protection will lead to the strengthening of the forest sector • Opportunities - better using virtual means of communication and forest sector digitalization • After COVID-19 situation becomes better, higher demand for timber with lower prices due to recovery of wood industry. • Reduction of environmental pollution as a result of production slowdown during the lock-down periods; The growing role of the recreational/social function of urban forests (especially in large agglomerations); Further development towards Industry 4.0 and increasing employees' competences in the use of electronic communication tools. • In certain situations, increase of the standing volume due to the lower intensity of cutting. Focusing on new sources of funding with an emphasis on international funds. Greater intersectoral cooperation. Orientation to new ways of doing business based on digital technologies. Adoption of teleworking as an acceptable model, which in the future (in combination with regular work) may reduce business costs. It is similar with distance learning, which can reduce the cost of schooling, increase interest in studying, but also enable greater cooperation with international higher education institutions. Amendments to the regulatory framework with the provision of material and financial resources in response to such and similar situations. Increasing entrepreneurial activities, especially small entrepreneurs in the field of ecotourism, agroforestry and the use of non-wood forest

products. Launching new initiatives to increase protected areas, but also the restoration of degraded areas. Diversification of business activities in forestry, such as increasing the area of plantations of fast-growing woody species, in order to obtain wood raw materials, biomass for energy, but also CO2 sequestration and protection against erosion and floods. Raising plantations would have the positive effect of reducing the pressure on private forests.

- **Building capacities for sustainable forest management is an obligation in a pandemic situation**, of course, in accordance with the possibilities. Planning and supervision, support for forest certification, development of information systems, supervision, etc. are important here. Fire protection and afforestation are also important. **Efforts should be made to maintain the productivity, regeneration and vitality of forest ecosystems even during a pandemic.**

Threats

- **1. distortion of markets** due to unequal and unfair state aid in different countries **2. falling prices of timber and timber products and thus declining income in the forestry sector** **3. due to lack of finances decrease of forestry activities (afforestation, reforestation, thinning, etc.)** **4. possible increase of illegal activities (illegal forest felling, illegal trade of timber, etc.)** **5. decrease of logging contractors, professional forest machines operators and forest workers**
- If the COVID-19 continues for longer period there is a possibility for **increasing the illegal activities**, especially illegal logging as a direct pressure on forests. Also, **unemployment in forestry sector** will increase and **incomes for peoples who depend on forests will decrease.**
- **Threats to the long-term viability and stability of the forest sector** as a result of **increasing problems in the timber market**
- The major threat expected could be the **potential negative trend of the wood market**
- The main threat for SFM in North Macedonia from the situation with COVID-19 is arising from the **possibility of the main systems collapse in the country** (health, economic and financial). This can lead to **increased pressure on forests as a resource**, which will jeopardize the principles of sustainable forest management. Also, **reduced incomes and increased unemployment** of the population can **negatively affect the occurrence of illegal activities in the forest.** **Inadequate and insufficiently precise legal strategic and planning documents** are an additional threat.
- **The major threats for SFM is linked to forest protection and timing for forest operations** especially in spring forests planting season which become shorter in Ukraine due to climate change effects
- The main threats include **reducing the influx of workers, especially young people, into the forest industry; reduction of financial revenues to forest enterprises, especially from domestic consumers.**
- The high level of morbidity will lead to **economic losses of enterprises and workers in the industry**
- Initially, **forest products sales decreased due to the coronavirus situation, which limited forest management opportunities.** Now the situation is starting to improve.
- Due to the economic crisis, of course, this is a threat to sustainable forest management.
- Drastic measures to contain the spread of COVID-19 will undoubtedly have a negative effect on forestry. **Shrinking sales markets, a gap in value chains, a decline in investment, a sharp drop in demand for forest products caused by a decline in industrial production both domestically and abroad** will negatively affect all areas of forestry, including sustainable forest management.
- It is difficult to answer. Obviously, the bigger problem is the **lack of state funding for sustainable forest management.**
- The major threat that will result from the COVID-19 situation is that **planned measures and activities will not be implemented timely.**
- **Deterioration of forests, economic and financial performance of forest enterprises** and other enterprises and organizations related to their activities.

- Threats are **postponed of silviculture and other activities.**
- Threats - **financial losses of the sector**
- **Reduction of funding**
- Treats - **illness of personal resulting in delays of performing this or that function, less possibilities of experiences exchange between regions, limitation of awareness rising activities and social events related to forests.**
- There is a risk that the **management structures will be completely blocked**, now that, in addition to **decapitalizing the sector**, the irresponsible statements of the authority's representatives have triggered the infringement procedure.
- **Limiting the implementation of the principles of sustainable forest management as a consequence of a further reduction in the demand for wood products** in the EU (especially in Germany), resulting in a decrease in wood sales and income in forestry. **Shifting environmental protection to the background** in the short-term state policy **due to limited financial resources** and the need to support the economy with public funds.
- If the forest operations are carried out by low intensity, the problem of forest stability can be the main issue. **The lower income may produce low investments** which can lead to forest destruction due to biotic and abiotic stress. Also, **illegal activities can be increased due to the overall economic situation** in the country. **Reducing the number of workers, especially in the wood processing sector. Reduction or complete cessation of started and new investments and donations** by domestic and foreign investors and donors.
- The main threat is that **forest management authorities will not be able to carry out foreseen activities** in the forest.
- **Georgia** adopted a new Forest Code in May 2020. The sub-legal acts are under development as well. However, the COVID-19 pandemic had influenced on state and its financial recourse. The main source for the financing the forest sector reform is the state budget and support of Donor organisations. Georgia faces the risk that implementing the new regulations and standards that were introduced by new Forest Code, and which are essential bases for the establishment of SFM can be hindered due to the lack the financial support.
- Despite the relatively short/mid time frame of the COVID-19 pandemic so far (8 month since its first occurrence in the **Slovak** territory), its **effects on forests and sustainable forest management may be long-term in nature, provided that they are not mitigated in coming year(s).** Therefore, those **effects and impacts cannot be assessed in such short period of time in a sufficiently complex manner.** We can only provide some preliminary views and assessments of risks based on recent information available and expert observations. The first and second wave of the pandemic occurred in spring and autumn 2020 i. e. during the periods when certain silvicultural activities, mainly reforestation, in forests are scheduled for. Therefore, it was challenging and problematic for forest owners and managers to ensure proper carrying out of those activities. The main limitations resulted from nationwide governmental anti-pandemic regulations that were aimed to protect lives and health of people. A part of the measures taken restricted free movement of persons and thus also affected largely all economic activities as a whole – lockdown (that applied also to forest areas and forestry operations). The situation on timber market has worsened. Even before the pandemic, the **European market has been saturated by huge volumes of calamity timber from last-years storms and bark beetle infestations.** That caused **low prices of timber on the market (especially softwood) and difficulties with sales.** Under those circumstances, forest owners have had limited revenues from timber sales and thus limited own financial resources to fund planned forest management activities necessary to implement sustainable forest management principles (reforestation, tending of young forest stands, forest protection and adaptation). It has to be said here that the causes of this “unpleasant” situation go back to forest disturbances that occurred in Slovak forests over last two decades and those causes lie with the way how those calamities were treated with (conflicts between forest management and nature conservation, insufficient forest adaptation to climate change). **The current COVID-19 pandemic just worsened this situation of forest owners..**

To the last question (10), “Have policies or strategies intended to alleviate negative consequences of the COVID-19 measures in the forest sector been implemented or developed in your country? If so, please describe them,”, 37% of respondents answered positively; 13% stated no policies or strategies have been implemented explicitly for forest sector; 11% provided negative response; and 39% of respondents did not answer or were not aware of such (see Table 7). General comment to this question in the validation workshop was that the governments reacted mainly ad hoc in pandemic situation and hardly any new policies and strategies were developed with different measures.

Table 7 : Description of national policies or strategies intended to alleviate negative consequences of the COVID-19 measures in the forest sector been implemented or developed in the countries

Short description of implemented policies and strategies intended to alleviate negative consequences of the COVID-19 measures in the forest sector

- Forestry have been included in the State Program aiming to provide economic stimulation due to overcome the negative effects caused by restrictive measures to prevent the occurrence and spread of acute respiratory disease COVID-19 caused by coronavirus SARS-CoV-2, for 2020-2022
- Policy of the economic protection will lead to the strengthening of the forest sector
- Recovery plan is opening the financial sources for better implementation of close to nature forestry measures
- To the certain extent YES, mainly in the field of postponing the obligations from third parties, excluding the obligations for forest protection etc.
- Strategic measures to mitigate the adverse effects of COVID-19 in the forest sector are under discussion.
- In our opinion, the Republic of Belarus has chosen the most successful and effective way to combat the COVID-19 pandemic. **Belarus** did not close its borders, did not stop production, fulfilled all its international obligations, and provided the country's population for beds and medicines. All spheres and branches of production, including forestry, continued their stable work with physical distance, mask regime, enhanced compliance with sanitary standards and other quarantine measures.
- In Ukraine, from May 27, 2020, there is a "State program of economic stimulation for 2020-2022 to overcome the negative effects caused by restrictive measures to prevent the emergence and spread of acute respiratory disease COVID-19 caused by coronavirus SARS-CoV-2" The State Forest Agency of **Ukraine** implements the measures within the above program and provides monthly information about it to the Cabinet of Ministers of Ukraine. To solve the current problems related to COVID-19, the State Forest Agency issues instructions to the relevant subordinate enterprises, organizations and institutions.
- There will be a decrease in government funding and a shift in the burden of spending on enterprises.
- The Government of **Lithuania** dedicated 10 % of the national gross domestic product for implementing economic and financial instruments, amounting to 5 billion EUR. Policies or strategies weren't developed specifically for forest sector, but a number of measures were developed and applied for all entities including those related to forest sector. Specific measure related to forest sector: Government Resolution on trade of timber and forest residues produced in state forests was amended by introducing possibility to extend period of payment for purchased timber additionally for 1 month if buyer provides guarantee on the execution of contract (pledge of property, bank guarantee, trade credit insurance or similar). This amendment applies during quarantine period and one year after its end.
- Government of Republic of **Croatia** has a number of measures implemented in forest sector, such as extension of payment deadlines for wood, co-financing of entrepreneurs and SME for liabilities to the state and employee salaries.
- Support for innovativeness and digitalization, especially when facing the crisis caused by the COVID-19 pandemic and fierce global competition, is of great importance for the enhancement of the competitiveness of **Polish** companies. Therefore, the Accessibility + programme, entitled Things are for People, finances activities in eight thematic areas: architecture, transport, education, health service, digitalization, services, competitiveness, and coordination (including, inter alia, the projects of new, ergonomic furniture for people with special needs, e.g. sensory furniture) are very promising.

<http://www.unece.org/fileadmin/DAM/timber/country-info/statements/poland2020.pdf> However, many projects are in the start-up phase, hence it is difficult to assess their effectiveness.

- The Government of Republic of Srpska, **Bosnia and Herzegovina**, has adopted a set of measures in terms of delaying the payment of fiscal and parafiscal obligations, and certain financial resources have been allocated to help the economy to overcome the crisis caused by COVID-19. The new Forestry Development Strategy will consider measures in response to potential future situations such as COVID 19.
- In 2020, the Government of **Georgia** continues the systematic development of a basis for the sustainable multifunctional use of forests. However, due to COVID-19 worldwide pandemic, the state of an emergency in the country implied economic and administration restrictions. Thus, the National Forestry Agency had to revise the initial plan of 2020 and suspended some of the forest management activities that adversely influenced the budget of the Agency, as well as had social and economic implication at the national level. To address the challenge NFA received the support from Government of Germany amounting 250 000 EURO and implemented the project “Action Plan of National Forestry Agency to Address Crisis Caused by COVID-19”. The objective of the Project was to support the implementation of forest protection and forestry operations that were impacted due to COVID-19. In the framework of the project NFA, implemented the forestry activities to support creation of additional job opportunities and sustaining the livelihoods of the rural population. 120 people has been employed through project for 4 month. In addition, harvested about 5301.73-m3 wood for provisioning fuelwood for public organisations.
- In general, there have been measures and actions of legislative and non-legislative nature taken by the Government (governmental regulations, etc.). The Government of **Slovakia** is currently preparing and fine-tuning the National Recovery Plan that should include forestry. The Plan will serve as a strategic document allowing / facilitating financial support from EU funds (EU Recovery Plan) for transformation of a national economy (so also forestry) to greener, more resilient and more digital and thus promoting the recovery from COVID-19 pandemic. The Ministry of Agriculture and Rural Development has proposed the amendments of several already existing legislative acts that relate to forests as a reaction to the COVID-19 pandemic. Those proposals include extensions of deadlines for certain legal obligations applicable to forest owners and managers in managing forests (e. g. obligation to replant / regenerate forest after principal felling in 2 years’ time) because of the impossibility to fulfil those obligations this year.

At the end of the questionnaire the respondents could add additional comments. A respondent from Poland summarized well that COVID-19 has caused global direct and indirect impacts on all aspects of our daily lives, and hence on the consumption patterns and the production and delivery of many goods and services, not least sustainable forest products. Respondents from a few countries noted that we are currently in the second wave of pandemic, and it might be too early for such recapitulations, as they largely depend on the further spread and effectiveness of the measures to combat COVID-19. This uncertainty was strongly emphasized in the validation workshop, as the impact of pandemic will be possible to assess only at the later stage. It is certainly a new experience, with negative impact, to learn from, but one respondent expressed clear hope for pandemic to terminate as soon as possible. During the validation workshop participants discussed if it would be possible to go back to normal or consideration of facing new normal might be more appropriate. In that sense, the effort should be made to introduce more digital means in data gathering and overall work in forest sector. One respondent noted that educational and training processes at universities and other educational institutions have worsened. This will affect the quality of knowledge and skills of future foresters-practitioners and scientists and the state of forests and forestry. Other researcher from Bosnia and Herzegovina, is open for cooperation on further research related to the impact and measures to combat the consequences of COVID-19 on the forestry and wood-processing sector. In addition, they are open for cooperation with foreign higher education and research institutions, in terms of joint study programs or joint participation in project activities (related to COVID 19, but also other topics). One comment refers to the overall ambition of this research as obviously well directed to

find what is the consequence of pandemic, but more vice versa research should be done. During informal exchanges with our contacts, some remarked that the formulation of the survey questions was complicated and some people were hesitant to answer if they were not able to respond to all points. The contacts from Russia indicated that people possibly were concerned to share their expert opinion on the actual situation, therefore didn't respond.

5 Conclusions and Recommendations

The damages to forestry due to COVID-19 conditions are numerous and will increase if the impact from the COVID-19 persists or increases. Survey responses from stakeholders in Eastern Europe varied widely depending on their perspective, and in many cases, respondents did not have information on all elements of the assessment. In general, it appears that economies with less dependency on export and import markets experienced fewer difficulties during the pandemic time. Moreover, big businesses appear more resilient compared to small ones, which experienced major damages. Although the forest sector was assessed to be less affected than to other sectors by pandemic, some findings report a strong impact from the restriction measures. In Eastern Europe, the countries are in a situation that is difficult to assess at this moment as most struggle with the second wave of pandemic. The long-term consequences of the COVID-19 pandemic on the forest sector depend largely on the duration and severity of the pandemic itself, the process of economic recovery and the country's political course. As for now, there are no dramatic changes observed in regard to public investment in SFM, forest governance, forest health and use of forest products. This however does not mean that changes will not occur in the coming months as the further course of the pandemic situation is unpredictable.

In the validation workshop **the approach and findings of the assessment was endorsed**, several times was underlined that **further monitoring of the situation is advised** and could **not** be observed as **conclusive** as the situation is changing rapidly.

Several recommendations were suggested during the validation workshop:

- Another survey on a later stage and before the UNFF 16 session is advised, to capture the situation in more accurate way.
- Effort should be made to introduce more digital means in daily work in the forest sector.
- Strengthening capacities to gain more experience in use of digital technologies and to enhance efficiency and adopt interactive approaches.
- A good balance between virtual and face to face interactions should be envisaged in the future collaboration and daily work in forest sector to enhance efficiency and adapt to new trends.

Continuous monitoring is advised with suggestion to repeat similar analysis in several months, when the situation would be hopefully easier to assess.

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Annex 1: Initial Assessment of the impact of COVID-19 on SFM in the Eastern Europe region

Survey questionnaire

Country:

Name of respondent:

Representing institution/organization:

Please provide your short qualitative opinion of COVID-19 impact on sustainable forest management grouped in several categories of questions. Please note that no quantitative data and official country statement is expected, but rather your observations as an expert. Please feel free to make reference and forward any national relevant documents in form of news, policy briefs or other information dealing with this topic.

Sustainable Forest Management

- 1 What effects, both positive and negative, have the COVID-19 restrictions had on the scope and timing of SFM activities in support of different forest functions; *i.e.* thinning and felling, natural and artificial regeneration, conservation, protection?
- 2 How have the COVID-19 restrictions changed the lifestyle and livelihood pattern of those people dependent, directly or indirectly, on forests (*e.g.* in terms of income flows, financial compensation payments by governments, forest resource use not only by locals, use for recreational purposes)?
- 3 How have the COVID-19 restrictions changed the lifestyle and livelihood specifically for women and youth dependent, directly or indirectly, on forests?

Forest industry

- 4 What changes occurred as a result of the COVID-19 restrictions that affected the forest industry (*e.g.* related to employment, skills, product supply chains, sales, exports / imports)? Please differentiate between larger industries and SMEs where possible and relevant.

Forest sector institutions

- 5 How have the COVID-19 restrictions affected the functioning of key forest sector institutions (*e.g.* related to the forest service / administration effectiveness) with respect to the following topics?
 - a. Data and information gathering and application;
 - b. The physical presence of personnel on the ground to ensure operating standards are maintained and to minimize illegal activities;
 - c. The ability of personnel to develop and refine their expertise and experience;
 - d. Gaps made apparent in legislation and regulations;
 - e. The need to revise strategic level plans and risk assessments.

Access to forest financing and investment, as well as public spending on forests

- 6 How have the COVID-19 response measures resulted in changes in accessibility of forest financing and investment in your country?
- 7 How do you expect that public spending for national and international forest programmes will change in the aftermath of the COVID-19 response measures?

International and regional cooperation on forests and forestry issues

- 8 How have the COVID-19 response measures affected international and regional cooperation? Please specify concrete issues (e.g. in terms of communication modalities, meeting effectiveness, duration and timeliness of procedures and processes, changes to the number and range of participants).

Assessment of opportunities and threats

- 9 In your view, what are the major opportunities and threats for SFM in your country that will result from the COVID-19 situation?
- 10 Have policies or strategies intended to alleviate negative consequences of the COVID-19 measures in the forest sector been implemented or developed in your country? If so, please describe them.

Do you have any other comments or points you would like to raise?