

UKRAINE COUNTRY FOREST NOTE: GROWING GREEN AND SUSTAINABLE OPPORTUNITIES

Europe & Central Asia
Sustainable Development
Environment, Natural
Resources & Blue Economy

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Preface

This Country Forest Note (CFN) is a World Bank document prepared under the aegis of the World Bank Group Forest Action Plan¹ (FAP) FY16–20. The FAP lays out the Bank's vision for integrating the sustainable management of forests into the development agenda and defines priorities for the World Bank Group's (WBG) sectoral engagement. As envisaged in the FAP, this CFN presents an overview of the forest sector covering forest management and governance in Ukraine and links with allied sectors and its contribution to the economy. It is one among a cohort of 20 CFNs prepared during 2016–2020 by the World Bank for priority countries.

The Ukraine CFN is intended to strengthen the ongoing dialogue with Ukraine in this sector. The Government of Ukraine's ongoing deliberations on forestry should also benefit from the perspective offered in this Note, particularly for post-pandemic economic recovery.

This Note is based on a review of literature, discussions with key government counterparts in the Ministry for Environmental Protection and Natural Resources (MEPNR), the former Ministry of Agriculture and Food and the State Forest Resources Agency (SFRA) of Ukraine and development partners, academia, private sector entities and NGOs². It builds on prior analytical work of the World Bank through the Program on Forests (PROFOR) financed 'Ukraine Forestry Sector Note 2006' and the European Union financed Forest Law Enforcement and Governance programs (ENPI-FLEG, 2008–2016). It aligns with the World Bank Group Ukraine Country Partnership Framework (CPF, 2017–21) and ongoing technical assistance through the Ukraine Increasing Transparency and Improving Governance of Land program. The conclusions and recommendations reflect the views of the Bank team.

Due to a variance in definitions, the lack of regular data collection on wood processing and sawmilling enterprises and the lack of an updated national forest inventory, and also because data for forests managed by different agencies is not always consolidated for the entire country, it is difficult ensure consistency across all data sets. Wherever possible, the most recent national official statistics or internationally reported data have been used and, where there are differences for the same parameter, these have been noted in the document.

In preparing this report, the World Bank does not intend to make any judgment as to the legal or other status of any disputed territories or to prejudice the final determination of the parties' claims.

¹ Forest Action Plan 2016–2020. Under the FAP, CFNs were prepared for 20 priority countries for forest engagement by the World Bank Group.

² In addition to bilateral discussions, two roundtables were organized during December 2019 with a wide range of stakeholders in Kyiv and Lviv.

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This document has been prepared by a World Bank team led by Madhavi M. Pillai, and includes Myles Mac Donncadha, Vitaliy Storozhuk, Oksana Kovalenko, Nadia Kislova, Grace Aguilar and Linh Van Nguyen. Initial research and drafting were carried out by Nils Junge. The team thanks Elena Strukova Golub and Andrew Zakharenka for additional contributions. The team thanks Tuukka Castren, Muhammad Najeeb Khan, Silvia Mauri, Ian Gray and Juergen Blaser for their feedback and advice on the report.

The team is grateful to the representatives of development agencies, private sector associations and NGOs for their insights. The conclusions and recommendations and errors and omissions are the responsibility of the team.

Abbreviations

APD	German-Ukrainian Agricultural Policy Dialogue
ATC	Amalgamated Territorial Community
BAU	Business As Usual
CCC	Civilian Conservation Corps
CCTV	Closed Circuit Television
CEE	Central and Eastern Europe
CEP	Competitive Economy Program
CFN	Country Forestry Note
CMU	Cabinet of Ministers (of Ukraine)
COVID-19	2019 Novel Coronavirus
CPF	Country Partnership Framework
EBRD	European Bank for Reconstruction and Development
EGD	European Green Deal
ENPI-FLEG	European Neighborhood & Partnership Instrument East Countries Forest Law Enforcement & Governance Program
EU	European Union
EU TAEIX	Technical Assistance and Information Exchange Instrument of the European Commission
FAO	Food and Agriculture Organization of the United Nations
FAP	Forest Action Plan
FDI	Foreign Direct Investment
FMP	Forest Management Plan
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GHG	Green House Gas
GNI	Gross National Income
GVA	Gross Value Added
HS code	Harmonized Commodity Description & Coding System (United Nations Trade Statistics Knowledge Database)

LDN	Land Degradation Neutrality
LULUCF	Landuse, Landuse Change and Forestry
MAPF	Ministry of Agrarian Policy and Food
MEPNR	Ministry of Environment and Natural Resources
NDC	Nationally Determined Contribution
NFI	National Forest Inventory
NGO	Non-Governmental Organization
NRF	Nature Reserve Fund
NTFP	Non-Timber Forest Product
OECD	Organization for Economic Cooperation and Development
PROFOR	Program on Forests (Multi-donor Partnership administered by the World Bank)
SFE	State Forestry Enterprise
SFRA	State Forest Resources Agency
SFSU	State Fiscal Service of Ukraine
SMEs	Small and Medium-sized Enterprises
SSSU	State Statistics Service of Ukraine
UAH	Ukrainian Hryvnia (national currency)
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational Science and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USFS	United States Forest Service
USAID	U.S. Agency for International Development
USD	United States Dollar
VAT	Value Added Tax
WBG	World Bank Group
WWF	World Wildlife Fund



Executive Summary

- i. **Ukraine's forest sector has the untapped potential to contribute to environmental stability and the economic growth and the well-being of its citizens.** More so now, when recovery from economic crisis is an overriding priority for the country. At 9.6 million hectares, Ukraine has the ninth largest forest area in Europe. Even as forest area has remained stable over the last two decades, the sector underperforms when measured by gross value-added per hectare of forest and the value of exports of timber and wood products and workforce productivity. The political and economic crises, which peaked in 2014–2015, and the ongoing conflict in the eastern part of Ukraine, compounded the challenges for the sector. The challenge to trade and growth presented by the COVID-19 pandemic is another significant headwind. The present Government came into power in 2020 and is moving ahead on critical reforms in different sectors to strengthen the foundations for development and growth. This is an opportune time to realize the forest sector's full potential.
- ii. **The objective of this Note is to strengthen the dialogue with Ukraine on the forest sector in light of ongoing reforms in the country.** It explores how the sector could increase its contribution to the post-pandemic economic recovery. It presents an overview of the sector and outlines opportunities to increase jobs and value-added. It also looks at opportunities for a stronger forest-based 'green' economy through the revival of the wood processing industry. Short-term and long-term policy, as well as institutional and technical management actions, are proposed as the basis for a long-term partnership with Ukraine.

Key Issues

- iii. **A 'whole-of-sector' approach becomes important for balancing conservation and timber production to improve sector performance and sustainability.** Regarding these as mutually exclusive goals in Ukraine is detrimental to the development and health of the forests. Based on reports of illegal logging, biodiversity loss, climate change and low trust in the timber sector, the public is demanding a minimalist, 'no-intervention' approach to forest management. Unmanaged forests are not synonymous with conservation and can also increase the risk of damages from pests and fires. This could make forests, along with other land use and land use management (LULUCF) sectors, a net emitter by 2050,³ if no action is taken. At the same time, valuable timber could be lost that could otherwise be used in applications such as construction, locking away sequestered carbon very effectively, and providing much needed income for forest maintenance. A broad stakeholder dialogue is needed in formulating a national forest policy to address these complex issues. Multifunctional forest management, where the various functions are managed at the same time, needs to be promoted even more vigorously to ensure that at a national level, management planning is strategic and balances all objectives, including economic growth.
- iv. **Adequate and predictable financing is needed for afforestation and modernization of the sector.** The state budget does not finance forest management and the low net profits of forest enterprises limits their ability to reinvest. Afforestation targets to expand forest area have been largely unmet, and modern infrastructure and equipment for operations are underfunded. In some ways, societal demands for minimal forest intervention are consistent with the very heavy taxes paid by many state forest enterprises and their ensuing poor financial status. However, a comprehensive strategy to address the funding needs of forest management and afforestation will be timely and should include market and timber value chain reforms. Innovations in forest financing, such as a Payment for Ecosystem Services (PES), could fund the important public goods' functions of forests (watershed regulation, retention of soils and protection from landslides, etc.) and address disparities in funding for conservation. There is also room to consider options to allow private sector investment in plantations, such as fast-growing biomass plantations or agroforestry.

³ Ukraine NDC update 2020 <https://menr.gov.ua/news/35316.html>

- v. **Improving market conditions for the wood processing industry, and increasing the value of exports, are key to the sector's economic performance.** Ukraine's gross value-added per hectare of forest is nearly six times lower than Poland's. While the economic crisis of 2014–2015 is one of the causes, and average wages remain low, productivity in forest management needs to improve to ensure its sustainability. Sector investment in high volume, efficient primary processing is largely confined to products with low log specifications, such as particle boards. Transparent and dependable access to high specification logs is critical to lumber mills, gives them the confidence to invest and maximizes revenue for the forest grower. Starting with the domestic small and medium wood processing enterprises, several actions are required, including ensuring consistency and transparency in wood supply, the rationalization of tax policies and increasing ease of access to finance, especially in the wake of the current economic downturn. Going forward, the European Green Deal,⁴ which anticipates a carbon border adjustment mechanism to make the EU zone carbon neutral by 2050, could influence Ukraine's trade with the EU. Developing a strategy for green value chains, starting from certified, sustainably produced wood, and boosting innovation, can help meet the demand for green products as the European Green Deal comes into effect.

Recommendations

- vi. **Based on a review of the issues and opportunities, the following actions are proposed as a starting point for discussion and engagement with the World Bank and other partners.** These are predicated on the government leading a consultative process with a wide range of stakeholders. The actions have been prioritized for the short-term and long-term, keeping in view the urgency to contribute to the post-pandemic economic recovery. Some long-term actions, such as the development of a national forest policy and a geo-spatial database and forest inventory, need to be initiated soon, as a strong foundation for short-term actions.

Short-Term Priorities

- vii. **Planting and restoration of degraded lands and forests on an ambitious scale could leverage the sector for short-term recovery, while also strengthening the foundations of medium-term sustainable growth.** Mobilizing a national scale program as part of a national recovery plan can provide jobs for immediate relief and lay the foundation for the sustained production of goods and services (including tourism) from the forest assets created. While an enormous challenge, preliminary estimates suggest that the sector could sustain on average 20,000 jobs per year by restoring a potential 1.2 million hectares of degraded forests, shelterbelts and other lands over a 6-year period. Every job in the sector has the potential to generate at least 1.25 more through a multiplier effect. However, to achieve landscape restoration and job creation at such scale will require a new paradigm for Ministries, sectoral Agencies and amalgamated communities to work across traditional administrative boundaries. Ukraine has had centrally driven programs in the past; in the present context, local institutions and the private sector could be galvanized to respond to this national objective while serving local needs.
- viii. **Another priority would be to increase the active management of commercial forests, raise the efficiency of harvesting, and add a soft credit line for SMEs to increase jobs and revenue.** As part of a national stimulus plan, access to finance can help sawmills restart their businesses and bring back workers and harvesting contractors, equipping them with more modern equipment. Improved efficiency of wood processing, increased volume of roundwood sold for processing and improved utilization of roundwood for higher value applications could add 5–10 percent or US\$26m to US\$52m per annum.

⁴ The European Commission. The European Green Deal: Communication from the commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels November 12, 2019.

Assuming regulatory processes are set up to allow access to the timber in time (while it is still useable), additional harvesting in 350,000 hectares of pest and disease damaged forest (over a 6-year period) could yield about US\$77 million per annum. Separately, an increase in Gross Value Added (GVA) per unit of volume harvested (about 5 percent or US\$21.5 million by comparison with 2018) could be achieved by adopting a more optimized and demand-led approach to forest management planning.

- ix. **To ensure success, these priority actions need to be bolstered by a national forest policy and a robust forest inventory.** A collaborative process for a national forest policy is a first step to provide a platform for the convergence of diverse stakeholder interests towards a common national goal. Initiating this process in the near term will help mobilize the socio-political support necessary for large scale landscape restoration and afforestation and begin mainstreaming a landscape approach that harmonizes the management of forests and other land uses (agriculture, wetlands, pastures, protected areas). A robust, geo-spatial data base, starting with the national forest inventory, is a necessary foundation for both short- term and long-term investments in the sector.

Long Term Actions

- x. The following, long-term actions are essential for the comprehensive development of the sector and need to be expanded through national dialogue for the Ukrainian context.
- With agriculture and other land use in the rural space;
 - Assess the financing needs and gaps, explore new opportunities for funding conservation, agroforestry and farm forestry.
 - Carry out a functional review to streamline institutions to meet new policy and financing needs.
 - Establish a platform for direct engagement and participation of communities to harness the strength of people's interest in forest protection and improve public understanding of governance in the sector.
- **Strengthen the Technical Foundations for State Forest Management:**
- Invest in a modern geospatial management information system (MIS) to store and manage data, plans and activities of Ukraine's forest agency, the SFRA;
 - Ensure the spatial content of such an MIS is closely coordinated with information held by the state's Geodesy and Geocadaastre Service in order to minimize any conflicts with other land users, including other forest enterprises and municipal authorities;
 - Further strengthen and invest in essential infrastructure, such as the forest road network and in machinery, to improve the sustainability of logging operations, as well as to improve forest fire prevention and management;
- **Foster a Green and Sustainable Forest Economy:**
- Develop a 'green products' plan and incentivize state bodies and others to undertake 'green procurement' and 'construction with wood', and invest in a 'Circular Economy' to foster innovation and growth in the wood processing industry;
 - Review and rationalize the tax policy for timber producers;
 - Create a level playing field in the wood processing sector for state enterprises and the private sector and incentivize the use of legally produced timber.

- xi. Realizing the full potential of the forest sector requires continuity in leadership and coordination among ministries and with development partners. The new leadership of the State Forest Resources Agency has already indicated a willingness,⁵ and initiated action, to increase the transparency of timber auctions and electronic timber tracking and has opened up information on timber harvesting to the public, among others. However, strategic oversight and policy for the sector were shifted from the Ministry of Agriculture and Food to the Ministry for Environment and Natural Resources during 2019, leading to a hiatus in higher level decision-making. Ukraine has taken several important steps to increase transparency in the sale and the security of tenure of agricultural land and expects to transfer state lands to communities. This will increase opportunities for expanding tree planting on degraded lands if the local decision-making process can be collaborative and communities can be supported to see viable afforestation options for these lands. Continuity of leadership is also critical to keep up the momentum of reform in the forest sector and coordinate new measures with these highly significant land reforms. There is a need for Ukraine's Ministry of Environment to lead, coordinate and sustain dialogue with development partners active in this sector in order to capitalize on their comparative strengths and mobilize them in support of the reform agenda. A coordination platform, like those on land reform, decentralization, etc., will help consolidate and direct support as prioritized by the Government.

⁵ http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=208388&cat_id=32888



I. Introduction

Country Context

1. Rich in natural resources, Ukraine is yet to realize its full economic potential. The second largest country in Europe, it covers 603,550km², and is endowed with fertile lands and forests. Fertile black cotton (chernozem) soils cover more than half its land mass, offering agronomic conditions exceptional for producing a large range of crops.⁶ Globally, the Ukraine is an agricultural powerhouse, the fourth largest exporter of corn and sixth largest exporter of wheat. It also has rich deposits of minerals and coal, driving its strong manufacturing base. Strategically located in the center of Europe, it has access to the EU's market to the west and to Turkey and beyond to the east. Nonetheless, external shocks—combined with a history of slow progress on structural reforms—resulted in a serious economic crisis in 2014–2015. The Maidan Revolution of 2013–2014, leading to changes in government; the events in Crimea in 2014; and the ongoing armed conflict in eastern Ukraine since 2014, have all resulted in a contraction of real GDP by 6.6 percent in 2014 and by a further 9.8 percent in 2015.⁷ In recent years, economic growth has picked up; real GDP grew by 3.4 percent in 2018 and by 3.2 percent in 2019. Ukraine has undertaken considerable reforms to reinforce macroeconomic stability and bolster the foundations of economic growth. It continues to focus on strengthening anti-corruption institutions, de-monopolization and strengthening land and credit markets in partnership with the World Bank, IMF and EU.
2. Although the economy has been recovering since 2017, the COVID-19 pandemic will slow that progress. Current government priorities are immediate relief and economic recovery. The unprecedented challenge in public health and the economic challenges it presents are projected to cause a contraction of 3.5 percent of GDP in 2020—under a scenario where the virus subsides in the second half of the year, but uncertainty about this is high.⁸ Commodity exports such as iron, steel, mineral, and agricultural products, which form a large share of total exports, are likely to be impacted by lower global commodity prices and lower demand from the EU and Russia, Ukraine's largest trading partners.⁹ Jobs and incomes in several sectors (hotels, recreation and tourism, restaurants, etc.) are at risk due to the overall contraction of the economy. Around 10 percent of the 2 million Ukrainian temporary workers in Poland have returned home to Ukraine, and the rest may face difficulties due to economic slowdown in the EU. The provision of immediate relief for the most vulnerable sections of the Ukrainian population and of stimulating economic recovery are expected to be high priorities for the government.
3. With the ninth largest forest area on the continent (9.6 mill. ha.) and a strong tradition of scientific forest management, Ukraine has the potential to significantly increase the economic and environmental benefits of its forest landscapes. The sector is estimated to contribute about 0.5 percent to the Gross Domestic Product (GDP),¹⁰ and provides employment to nearly 200,000 persons in forest management, wood processing and the furniture industry. Employment figures would be higher if jobs in nature-based tourism, hunting and bio-energy sectors were included. A transition to a market-based system has been slow for the sector and, in addition, was impacted by the economic downturn of 2014–2015. Despite these setbacks, it is

⁶ Bernoux, Martial Michel Yoric; Fileccia, Turi; Guadagni, Maurizio; Hovhera, Vasyl. 2014. Ukraine - Soil fertility to strengthen climate resilience: preliminary assessment of the potential benefits of conservation agriculture: Main report. World Bank Group. Washington, DC.

⁷ World Bank Global Poverty Data

⁸ World Bank. 2020. "Fighting COVID-19" Europe and Central Asia Economic Update (Spring), Washington, DC: World Bank. Doi: 10.1596/978-1-4648-1564-5. License: Creative Commons Attribution CC BY 3.0 IGO.

⁹ Ibid.

¹⁰ Estimated from SSSU data for 2017.

noteworthy that overall forest cover has been maintained and economic activity has continued, albeit on a low scale. The sector has received widespread negative media attention in the last couple of years, mainly regarding allegations of illegal timber exports. But current national momentum on reform creates the right circumstances for transformational changes in the sector.

4. While Ukraine's forestry sector will also be impacted by economic downturn from the COVID-19 pandemic, it can offer immediate employment opportunities and underpin a sustainable, green recovery. However, there are two potential, negative fallouts of this crisis on forest landscapes and the people who depend on them for their livelihoods. The first could be a rise in the risk of the unmanaged felling of trees for fuelwood and small timber to make up for the loss of incomes and livelihoods elsewhere. The second is the direct impact on the incomes and livelihoods of those who depend on forest operations, such as owners of small and micro wood processing enterprises and their workers, and those employed in the nature-based tourism industry, all of whom may face losses due to a fall in demand for their services. Lower levels of funding could result in less effective oversight, lower intensity of inspection and reduced expenditure on forest maintenance. Global experience¹¹ has shown that direct employment in raising and managing forests provides immediate monetary relief as well as long-term employment from value-added goods and services (including tourism) from the forestry assets created. This can be an opportunity to boost innovation and investment to develop the jobs, products and services that could accelerate Ukraine towards creating a green economy and preparing to deliver on the next generation of sustainable products that will be in demand as economies in the region recover from the current crisis and the European Green Deal comes into effect.
5. The remaining sections of the Note are as follows: Section II focuses on the Status of Forests and their Management; Section III looks at the Social and Economic Contribution from Forests; Section IV reviews Forest Institutions and Governance; and, Section V looks to the future of Green and Sustainable Opportunities from the forest sector.

¹¹ Nair, C. T. S and R. Rutt 2009. Creating forestry jobs to boost the economy and build a green future. Background paper for the special event, "Impacts of Global Economic Turbulence on the Forest Sector", at the 19th session of the FAO Committee on Forestry, Rome, 20 March 2009. FAO

II. Status of Ukraine's Forests

6. Ukraine has a long history of forest management, with strong institutions in place that follow scientific, Soviet-style methods that entail detailed forward planning for forest expansion and maintenance. Its forests play primarily protective and recreational roles, with the provision of timber playing a secondary role, according to the Forest Code, 2006. This upcoming section focuses on how the forests of Ukraine fulfill these three roles by looking at trends in forested areas and at approaches to silviculture and forest management, as well as to the use of modern information systems for planning and monitoring forest use, and at efforts at afforestation and the restoration of forest landscapes. It also looks at how Ukraine's current approaches manage to balance the public good (biodiversity, climate resilience, and watershed maintenance) with revenue generation from timber and from other forest uses.

Forest Area and Ownership

7. Ukraine is considered a sparsely forested country with just 15.9 percent of its territory¹² having forest cover. However, in absolute terms, Ukraine's 9.6 million hectares of forest area ranks ninth among European countries¹³. It is of note that geographic areas of Ukraine under forests have generally remained steady throughout economic stress and conflict (Figure 1). Forests are the second largest use of land in Ukraine after agriculture, which takes up 70 percent of the country's land area.

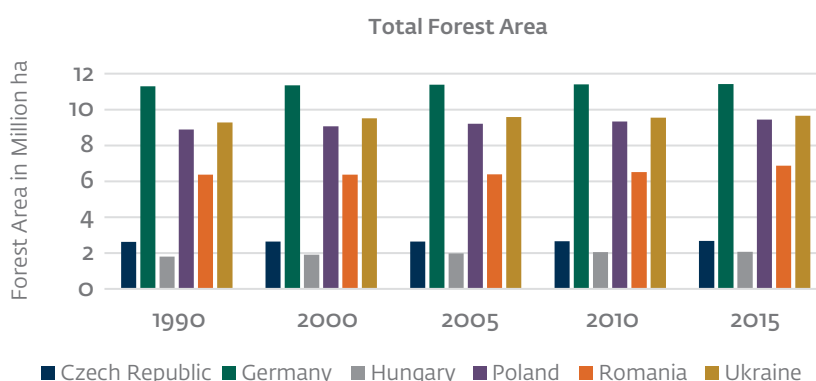


Figure 1 Trend in total forest area for Ukraine and selected comparator countries. Forests Europe 2015

8. The geography of Ukraine is very particular, with very different biomes, including dense forest biomes in the Carpathian Mountains and scattered forests in the Polissya zone, the sparsely forested forest steppes, and the nearly treeless steppes. The densest forest cover is found in the Carpathian Mountains (30–60 percent) in the west, followed by Polissya (15–30 percent) in the northeast. By contrast, forest cover is lower in the forest-steppe (5–10 percent) and steppe (<5 percent) zones (see Figure 2 below). There are significant differences in the productivity and potential for increased forest cover between these areas to a degree not seen in comparable Baltic and European countries. Forest cover is divided almost equally between coniferous forests (42 percent) and hardwood broadleaf forests (43 percent). The most common species of tree are Scots pine, pedunculate oak, Norway spruce, European beech, silver birch, black alder, European

¹² Public Report State Forest Resources Agency of Ukraine, 2019. Downloaded from: <https://drive.google.com/file/d/1UApjLMgDPtoMugliiTWBg4IXN8PAvWZ/view>

¹³ Ibid.

ash, European hornbeam, and silver fir. Their current composition is made up of pine (35 percent), oak (*Quercus spp.*) (28 percent), beech (*Fagus silvatica*) (9 percent), spruce (*Picea spp.*) (8 percent), and birch (*Betula pendula*) (7 percent).

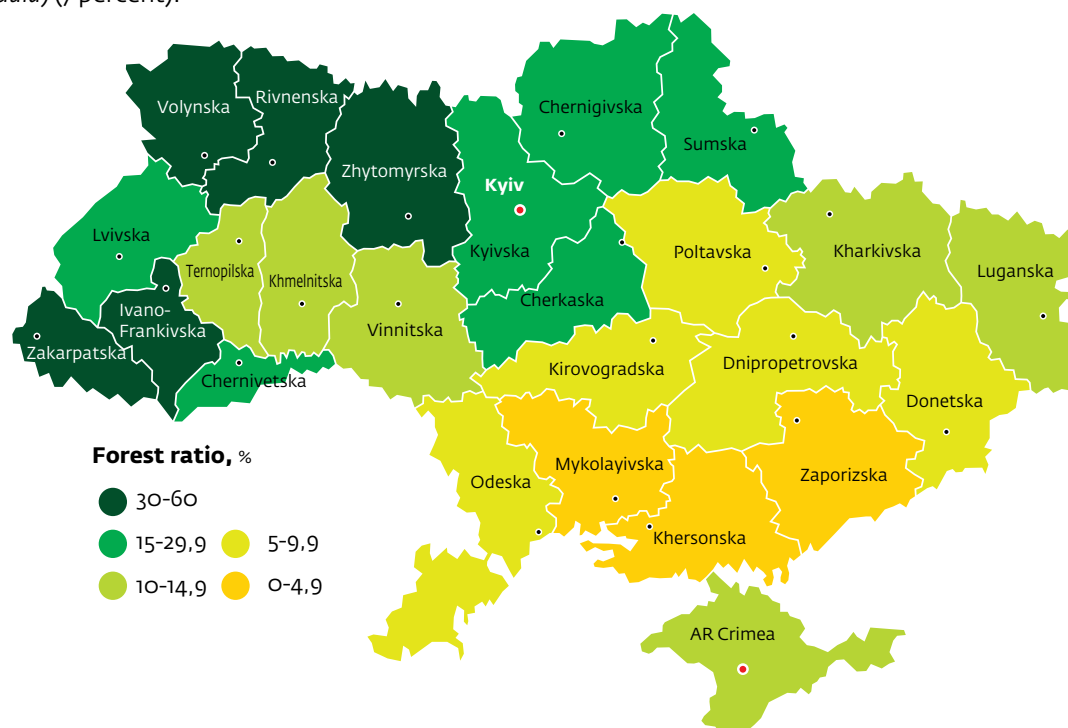


Figure 2 Distribution of forest cover by administrative region¹⁴

9. Ukraine has not experienced large scale deforestation. The recorded loss of tree cover due to the conversion of forest areas into non-forest land was only 50,000 hectares (less than 0.5 percent of total forest area) between 1990 and 2017¹⁵, and was mostly associated with change of land designations for the construction of roads or other infrastructure, and the allocation of land for the construction of housing in urban and rural areas that are carried out as per the law. Afforestation exceeded this figure, resulting in a net increase in the forest area of about 380,000 hectares over the period of 1990 to 2015¹⁶. Volume per hectare was estimated at 227.4 m³ in 2015, which is higher than in Belarus (193m³/ha) but lower than in many EU neighbors, such as Romania (281.4m³/ha), Poland (269.2m³/ha), and the Czech Republic (296.6m³/ha). According to SFRA,¹⁷ growing stock is estimated at 2.1 billion m³. And annual increment is estimated at 8.8 m³ per hectare in areas classified as available for wood supply.¹⁸
10. **Forest Ownership:** Virtually all forests in Ukraine are state-owned, with 87 percent state forest and 13 percent communal forest. State forests are given for permanent use to state enterprises under the coordination of different government Ministries and Agencies. About 73 percent of forest comes under the coordination of SFRA (see Figure 3) and is allocated to 309 'permanent forest users' (State Forest

¹⁴ SFRA 2019 and Dr. Ihor Buksha, Ukraine Research of Forestry and Forest Melioration, Kharkiv

¹⁵ Ukraine's Greenhouse Gas Inventory 1990-2017. Annual National Inventory Report for Submission under the UNFCCC and the Kyoto Protocol. Ministry of Ecology and Natural Resources of Ukraine, Kyiv - 2019

¹⁶ Forests Europe 2015, UNECE Geneva

¹⁷ SFRA Brochure 2019

¹⁸ Forests Europe 2015, UNECE Geneva

Enterprises)¹⁹,²⁰. About 800,000 hectares, or 7.5 percent of forest land, have not been transferred for use and is held as state-owned reserve land²¹. Unlike other countries in Central Europe, property restitution was not given consideration in Ukraine during the process of reforming forestry in the years following its independence in 1991. This decision was dictated by historical circumstances in the different regions of Ukraine and a general view in the country that forest management would not be sustainable if it were privatized. The best available information on the nature and extent of forests relates mostly to the 73 percent of forest that lie under the coordination of SFRA, while not as much is known about forests subordinated to other entities. Ukraine's approximately 300 State Forest Enterprises (SFEs) are overseen by 24 regional forestry departments at SFRA, which also has a headquarters role in coordination and policy formulation. SFRA is subordinated to MEPNR, and oversees specialist technical services, such as forest protection, research, forest breeding, etc.

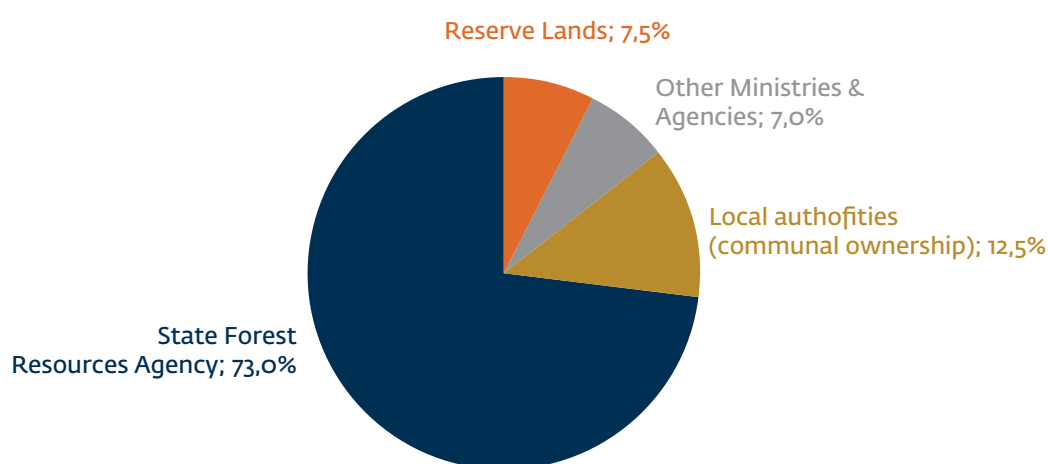


Figure 3: Total forest area by state entity responsibility

11. The categorization of forests—into (i) commercial, (ii) protective, (iii) recreational and (iv) Nature Protection, Scientific, Historical & Cultural forests—affects the degree to which forests can be exploited commercially. Forests under the coordination of SFRA's oversight include over 3,000 protected areas totaling nearly 1.4 million hectares (see Table 1). Recreational use forests are designated in another 1.5 million hectares, with tourism facilities operated by state forest enterprises. Within the forest areas under the coordination of SFRA, some 3.9 million hectares are designated for hunting and game management by SFEs. Regardless of the functional division, forest land in Ukraine can also be allocated to temporary users for recreation, tourism, sport, education, research or hunting management for a term of up to 49 years, applying various fees. The collection and sale of non-timber products (mainly birch sap, mushrooms, nuts, and berries) is carried out by state enterprises, temporary users and citizens.

¹⁹ State Statistics Service 2016

²⁰ Report on the results of the audit of the effectiveness of the use of budget funds aimed at forestry and hunting, protection and protection of forests in the Forest Fund of Ukraine. Approved by the decision of the Accounting Chamber 17.12.2019 № 37-3

²¹ State Forest Cadastre as of January 1, 2011. General data on the forest fund of Ukraine by administrative units

Table 1 Ukraine Forests Key Facts

Total Area of Country(km2)		603,550
Population (2015) (million)		44.5
Rural	13.2	
Urban	29.7	
Area under Agriculture (mill. ha)		41.5
Area of Forested Land (mill ha.)		10.4
Area of forests (mill. ha.) under coordination of		9.6
SFRA	6.7	
Reserve Lands	0.8	
Other Ministries & Agencies	0.9	
Local communities	1.2	
Private	0.02	
Area of forested lands (mill. ha.) by functional division		9.6
Commercial	3.9	
Protective	3.4	
Recreational	1.5	
Nature Protection, Scientific, Historical & Cultural Forests & Cultural Forests	1.4	
Forests Available for Wood Supply (mill. ha)		5.2
Growing Stock (billion m3)		2.1
Annual increment (million m3)		36
Total Round Wood Harvest million m3 (SFRA only)		19.7
Industrial Roundwood	9.0	
Fuelwood	10.7	

Source: SFRA 2019; State Forests Cadastre, Ukraine; Forests Europe 2015 & World Bank Data

12. Nearly 47 percent (4.59 mill. ha) of forests are certified by the Forest Stewardship Council (FSC), which has recently adopted a new country-specific standard;²² the Programme on Endorsement of Forest Certification (PEFC) is also being pursued. Ukraine could aim to reach the same level as neighbors such as Belarus, where nearly 90 percent of productive forests are FSC certified. The development of a centralized database of all SFE forest resources and the software to handle planning and operational records will greatly assist in maintaining records. The adoption of these certification standards would also inform the 'best practice' State Forest Management work processes, which need to be implemented by SFEs and supported by the management information system.

Forest Management and Silviculture

13. Establishing a Forest Information Management System and a National Forest Inventory (NFI) are urgent requirements; both are needed to modernize forest planning and management. Important, national-scale

²² <https://fsc.org/en/document-centre/documents/resource/428>

silvicultural decisions cannot be fully informed without an updated forest inventory²³. The primary purpose of an NFI is to offer an impartial assessment of forest resources and how these change over time, while the management inventory (known as the State Forest Survey in Ukraine) and allied Forest Management Plans (FMP) are used to guide short- to medium-term activities. In many former Soviet countries, data from the forest management inventory is adapted to fulfil the needs of the NFI as well, although it does not in fact meet many of the criteria for such a use²⁴. The periods of time that the State Forest Survey in Ukraine covers vary from one SFE to another, making comparisons and conclusions difficult; the latest State Forest Survey for the whole country was taken in 1996 (with a partial inventory taken in 2011²⁵). When carried out, the management inventory is comprehensive, but it is difficult to estimate its precision. A robust NFI uses skilled surveyors to collect additional forest data on deadwood, ecological indicators, regeneration and the detailed changes in forest growth that are needed for monitoring climate impacts and biodiversity changes, and for the reporting mechanisms that are part of Ukraine's EU and international obligations. International forest resource statistics, carbon accounting, and international expectations around transparency and repeatability require a detailed, sample-based approach to natural resources, where the precision of the indicators can be calculated, and the survey is fully representative of the nation's forests. The absence of a formal, sample based NFI and the presence of an outdated State Forest Survey has implications at various levels. For example, if policy or investment decisions are made in the absence of an up-to-date NFI and with limited or partial information, this could have long-term negative impacts on the accuracy of the allowable cut, age-class distribution, and species composition of trees, as well as on the sector's sustainability and its state of preparedness to address climate related disturbances.

14. On the positive side, SFRA has recently finalized a cooperation agreement with the German Federal Ministry of Food and Agriculture on support for the NFI, which is likely to begin in the near future after legislation is amended and financing designated. If it proceeds, the NFI will introduce state-of-the-art methodologies,²⁶ comparable to those of its European neighbors, for the collection and interpretation of data, boosting the credibility and transparency of the sector and expanding its potential for international cooperation and support. These methodologies should cover all forests in the country, not only those coordinated by SFRA, which is the case with the latest State Forest Survey data.
15. A new approach to forest management planning (in addition to an NFI) could help organize and store all the forest cadastre information in one, centralized, geospatial database. Boundary information held at the State Geocadastre could be referenced on a continuous basis to ensure compatibility. The system could host the State Forest Survey, as well as the entire planning system, in a modern, easily accessed form. Extending it to cover additional SFE functions could raise levels of efficiency and support performance management. An integrated 'Forest Resource Monitoring' approach, which takes advantage of improved and efficient remote-sensing and other methodologies, will reduce the cost and time required to conduct the State Forest Survey and accelerate the detection and treatment of pest- and disease-damaged areas. If optimization-based tools are applied, the forest management planning system will support modern, sustainable forest management better by maximizing the output of the resource across its ecosystem services and taking advantage of the inherent flexibility of the timing of forest interventions, while addressing climate and other challenges.

²³ The term 'national forest inventory' captures two concepts; (i) there is the sample-based National Forest Inventory (NFI) that is a statistically rigorous and independent, usually periodic, assessment of the extent and status of a nation's forest; (ii) the term is sometimes used to encompass a forest management inventory that is a complete enumeration of the forests within a particular ownership class or classes. A key distinguishing feature of these two types of survey is that in the former a high degree of detailed information is captured for a discrete sample plot of say, 500m² while in the latter the nature and geographic extent of all forest stands (of perhaps many hectares each) is described in varying levels of detail.

²⁴ Voluntary Guidelines on National Forest Monitoring, FAO

²⁵ German-Ukrainian Agricultural Policy Dialogue. 2017. Forest Inventories – Status Quo in Ukraine, Record of Germany and Guidelines by FAO. Report prepared by Storozhuk, Vitaliy and Polley, Heino. https://apd-ukraine.de/images/2018/APR/APD_APR_07-2017_Forest_Inventories_eng.pdf

²⁶ National Forest Inventory Brochure. APD

16. In addition to modernizing information management, forest management in Ukraine can become more strategic and adaptive as it moves closer to European standards. A national-scale assessment of how multi-functional forestry balances the different objectives of ecosystem services and timber production would be beneficial for more precise planning. A roadmap has been developed for the adoption of close-to-nature forestry, but this has not been officially launched. The current system divides the forest into four categories and 40 sub-categories (see Annex 1); for each sub-category and age-class of forest, there is an indicated set of silvicultural systems, thinning criteria, and likely assortment outputs, approval mechanisms, and treatment under the forest rent/stumpage regulations. But a system that shows how well the totality of plans—at regional and national levels—fit demand and the economic constraints of the SFE involved would be very useful for strategic planning. A possible solution to this complex situation is to apply mathematical optimization to balance the social, economic and environmental objectives over the entire forest. A strategic forest management plan, created with these tools, can be applied later as a draft forest management plan at the level of stands (management units of trees), greatly improving coordination and outcomes. The trends, outlined below, that emerge from an examination of forest management statistics for Ukraine, underpin the choice of this approach.
17. There has been an increase in sanitary felling: Sanitary cutting is needed to control the spread of pest and disease and to recover value from the forests affected as quickly as possible. According to state statistics (Figure 4), felling for phytosanitary purposes now accounts for about half the timber harvest's volume. Sanitary cuttings have become the main type of felling in middle-aged and under-mature stands. In the two, main problem categories (dieback and pest/disease outbreaks) this response appears proportionate to the incidence of the damage (Figure 5). In 2016, the Cabinet of Ministers introduced a regulation to ensure that final felling amounts were reduced by the equivalent to the volume removed during clear sanitary cutting for commercial forests, and it appears this has been effective, causing a corresponding decrease in planned, final felling and clear sanitary cuttings for 2018.

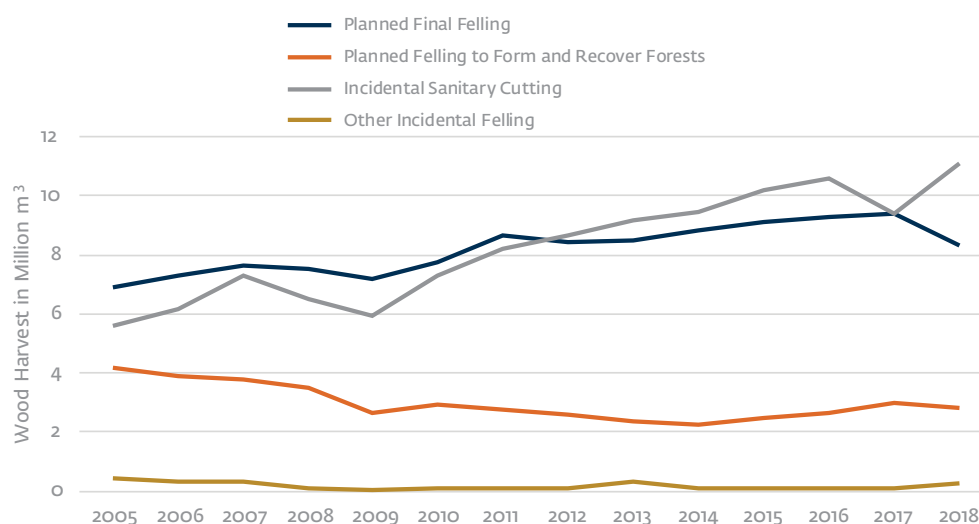


Figure 4 Total wood harvested by different types of felling 2005–2018 ('000 m³) Source: State Statistical Service

18. The recorded, selective sanitary cutting (Figure 5b) has not, however, cleared a backlog of damaged forest and should be addressed, recovering as much value as possible.

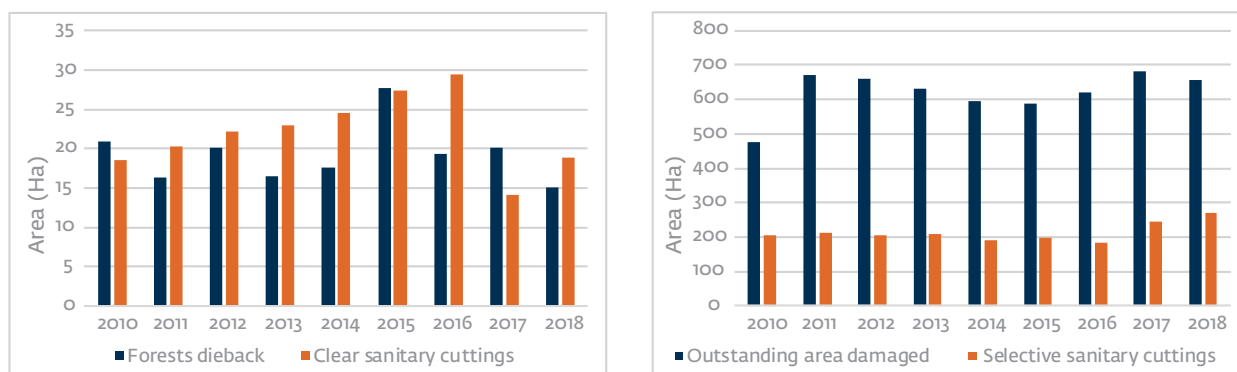


Figure 5 a) Clear sanitary cuttings and forest dieback and, b) Selective sanitary cuttings and outstanding area damaged (SFRA).

19. 'Close-to-nature forestry' is being encouraged in Ukraine, with regulatory conditions for the gradual abandonment of the clear-cut system and a transition as well to selective thinning and group felling. This is aided by placing constraints on the alternative system of clear-cutting including 3- and 5-hectare limits for clear-cutting commercial-use conifer and deciduous forests, respectively, and 3 hectares in all other categories of forests²⁷. In 2016, another constraint was introduced, with new Sanitary Rules prohibiting clearcuttings in reserves, reservations and national parks around the breeding sites of rare and endangered birds of prey and other species²⁸. The Law on Environmental Impact Assessment, approved in 2017, is unusual in an international context in that it requires an environmental impact assessment to be made of clear-cuttings of more than one hectare, which, given the additional inspection and approval that this entails, causes delays and uses additional resources. While gentler on the forest, and useful from a public information perspective, this approach will raise the unit cost of harvesting; require smaller and more specialized equipment; reduce the productivity of these operations; raise the road density requirement; and alter the profile of timber availability over time.
20. The annual area of clear-cut expanded 170 percent during the period of 2005–2016, with a significant increase observed during 2011–2016 due to an increase in the cohort of stands entering the mature phase²⁹. Clear-cut areas comprise clear-cutting based on management plans, as well as clear-cutting for sanitary purposes. Areas that are temporarily unstocked, and need to be restocked, are referred to as the 'planting reserve.' As a proportion of the total forest area under the coordination of SFRA, the size of the planting reserve has risen from 1.1 percent to 1.7 percent over the same period. The slower pace of this expansion when compared to the clear-cut areas demonstrates that it remains manageable. The increase in clear-cutting appears to be at odds with the stated intention to move to close-to-nature forestry and, while clear-cutting may have slightly decreased in 2018 and 2019, it requires close monitoring.

In addition, it would be better—as envisaged by the optimized planning approach outlined above—that the planning of harvest levels was not made simply on the basis of maturity but also included consideration of

²⁷ Storozhuk. V. 2014. Analysis of the division of forests by their functional designation. Background Paper for the ENPI FLEG II "European Neighborhood and Partnership Instrument Forest Law Enforcement and Governance Program"

²⁸ Resolution of the Cabinet of Ministers of Ukraine "On Approval of Sanitary Rules in the Forests of Ukraine" of 27.07.1995 No. 555 (in the redaction of the Resolution of the Cabinet of Ministers of Ukraine of October 26, 2016 No. 756)

²⁹ Brief Reference Book of the Forest Fund of Ukraine on the materials of the 2002 State Forest Survey



21. Thinning, or the selective removal of some trees to redistribute the growth increment across a fewer number of trees, has reduced since 1990³⁰. Also, for all species groups, the proportion of stands with the relative density of 0.9–1.0, which would normally be ready for thinning, has increased; this is observed mainly in the lower site indexes. These over-stocked stands will have high mortality (because of crowding-out by other trees) and thus a loss in recoverable wood volume. It is very likely caused by the decrease in the area of thinning in general³¹. This is despite the prevalence of middle-aged stands in the age structure of forests³². In Ukraine, thinning levels are significantly influenced by rules driven by the relative density of the stands³³, including a threshold below which thinning is not prescribed. The result of the introduction of such standards—and the Rules for Felling of the Formation and Rehabilitation of Forests—are low-intensity cuttings, aimed at removing the subordinate part of the stands. Various advantages to thinning are put forward, such as decreased vulnerability to natural phenomena (windstorms, etc.), decreased spread of pests and diseases, and reduced drought and fire risk, although definitive scientific evidence for these effects in the Ukrainian context could not be found. In contrast, poorly executed thinning or selective sanitary cutting can make the forest more susceptible to wind, snow, pest and other issues when the remaining trees are damaged. If not controlled carefully and carried out by well-trained staff and contractors, the wrong trees may also be removed. The net economic advantages of thinning to the SFEs is not clear with weak markets for small sized timber and the lack of premium for the larger dimension timber that thinned stands ultimately produce. Research is needed into the influence of the thinning regime on economic returns and the resilience of forest stands to pest/disease, and on climate change impacts. The appropriate level of thinning and close-to-nature forestry needs to be carefully considered.
22. Overall harvest levels have been increasing. Rising from a low of about 16 million m³ in 2009 to current levels of over 22 million m³ (including forests outside SFRA coordination), the overall harvest has risen significantly. In Ukraine, final felling is limited by the allowable cut and, on average, have equated to 85

³⁰ Fleg Brochure

³¹ Brief Reference Book of the Forest Fund of Ukraine on the materials of the 2002 State Forest Survey

³² Brief Reference Book of the Forest Fund of Ukraine on the materials of the 2010 State Forest Survey

³³ Normative and reference materials for taxation of forests of Ukraine and Moldova. Kiev: Harvest, 1987. 560 p.

percent of the limit over the five years 2014–2018³⁴. However, thinning and other cuttings are not subject to the limit and, over the same period, they exceeded 130 percent of the volume removed in final felling. The interactions between the two are complex—but caution must be exerted to ensure that the ability of the forest to sustain future felling is not undermined by the level of sanitary felling currently being carried out. A recent change in felling rules includes clear sanitary final felling in the allowable cut limit, but it may need to be expanded to also include selective sanitary felling.

23. The overall annual average increment was estimated at 36 million m³ in 2015³⁵ but this should be seen as an absolute outer limit and a wide safety margin built in to any planning, not least because of the uncertainty caused by climate change, fires, dieback, pest and disease outbreaks and the absence of NFI or an up-to-date State Forest Survey. The total current harvest is equivalent to about 60 percent of current annual increment and a new overall cap on annual harvesting is cited as 25m m³. Many factors influence the calculation of the sustainable cut, including the age profile (current and desired), productivity, species composition, thinning vs. final fell, regeneration, expansion and accessibility of forests. The principal risk to this calculation in Ukraine is the out of date nature of the State Forest Survey and the lack of detailed information from the NFI. Given that the timber will decay if left unharvested, it would be prudent to limit any increase in current roundwood harvest levels to the salvage of timber in forests affected by dieback and disease. Updating the State Forest Survey—and applying strategic planning tools to fully explore the options—can help plan forest sustainability.

Threats from Forest fires, Climate Change and Pests

24. The risk of threat from forest fires is constantly monitored but seems to be on the rise. The cause can usually be traced to careless burning on agricultural lands. State forest enterprises maintain fire breaks and a network of observation towers (many equipped with CCTV); they also conduct awareness raising activities and levy fines on those who violate regulations. An extensive stock of firefighting equipment is available in each locality. Although the number of reported forest fires is decreasing, the area burned per fire may be seeing an upward trend, which will need to be monitored, particularly in the context of climate change (see Figure 6). The 800 hectares of forest still heavily contaminated by the Chernobyl disaster is of particular concern, as fires occurring there could cause the release of dangerous levels of contaminants (as happened in April 2020 after a wildfire in the core area).

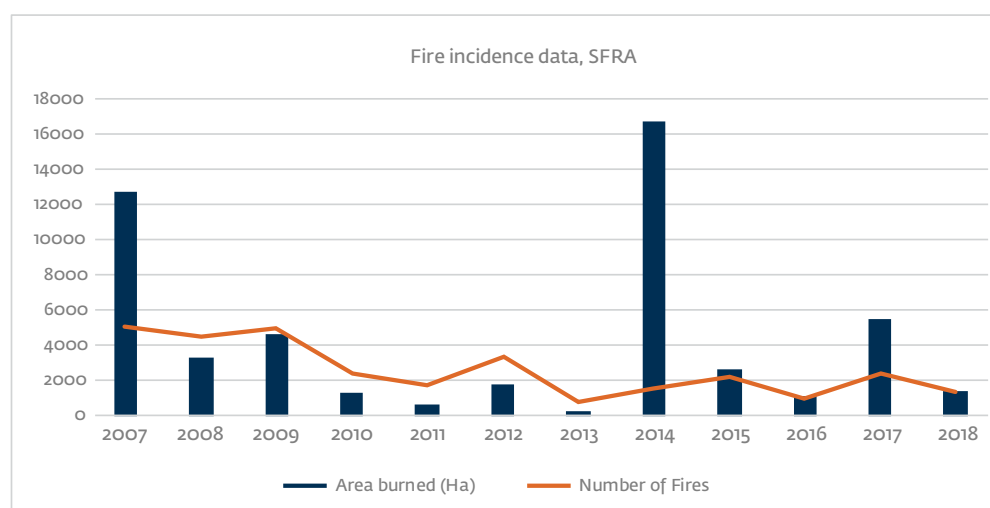


Figure 6 Fire incidence data, SFRA, 2007-2018

³⁴ SFRA Brochure

³⁵ SFRA, 2019

25. Improving the forestry sector's role as a net sink is one of the goals of the Paris Agreement on climate change. The average Green House Gas (GHG) sequestration of the Ukrainian forests for the 2013–2017 period was 51.3 million tons of CO₂ equivalent (Mt CO₂-eq.)³⁶. Ukraine's NDC update³⁷ projects that the LULUCF³⁸ sector could become a net emitter under the 'Business As Usual' scenario after 2050. GHG removals by forests alone are expected to fall to 29 percent of the 1990 baseline levels. However, if Ukraine implements all the anticipated reforms and legislation, including increased afforestation, under Scenario 2³⁹, the sector becomes a net sink, driven by higher rates of GHG removals by forests. GHG removals under this scenario are estimated to be 77 percent of emissions in 1990, and 92 percent of the baseline by 2050. This is due to a projected higher area of afforestation, and a more balanced age structure of forest stands due to reduction in clear felling.
26. However, unless action is taken to improve management and increase resilience, it is possible that climate change induced degradation of forests could reverse their role to a source from a sink. From 2010 to 2018, every year about 15,000 hectares of forest were reported damaged because of pests, diseases, fires, weather conditions and other reasons (Figure 7). A detailed assessment of impacts of climate change on Ukraine's forests⁴⁰ indicates that in the northeast (Polissya region), increased precipitation may lead to higher forest productivity, while hotter and drier conditions in the Steppe region are already reducing forest productivity. The study estimated that within a decade the entire Steppe zone and part of the Forest-Steppe zone will become unsuitable for pine trees and that, in 80 years, oak trees, one of the most drought-resistant species in Ukraine, will be unable to grow in Kharkiv, Poltava, Kirovohrad, Cherkasy, as well in parts of Sumy and Kyiv regions. A negative change in the hydrological regime of forest areas led to the sharp increase of forest dieback in 2015. A more updated assessment of impacts on forests, based on

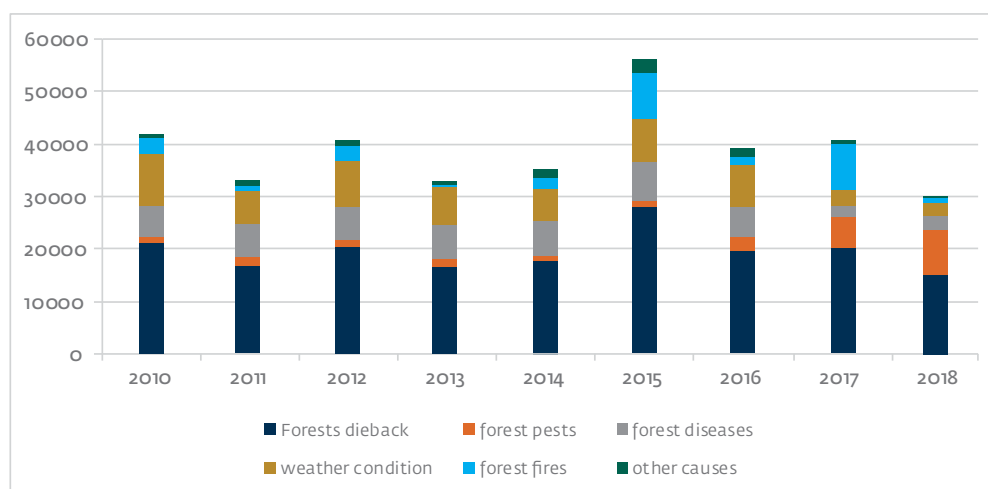


Figure 7 Forest dieback per cause, 2010–2018.

³⁶ Ukraine's greenhouse gas inventory 1990–2017.

³⁷ Ukraine NDC Update. EBRD 2020

³⁸ Landuse, Landuse Change and Forestry – includes wetlands, croplands, grasslands, settlements and other land as defined by UNFCCC

³⁹ Ukraine NDC Update. EBRD 2020

⁴⁰ Shvidenko A, Buksha I, Krakovska S, & Lakyda P (2017). Vulnerability of Ukrainian forests to climate change. Sustainability 9: e1152. DOI:10.3390/su9071152. Assessment carried out under the EU Clima East project

new climate projections, will become available in late 2020⁴¹, with new estimates of GHG sequestration potential and policy options to address potential impacts in different parts of the country. Ukraine lacks a strategy for forest adaptation to climate change, and so it is unclear how the sector should act to maximize carbon sequestration, adapt its silviculture and reforestation methods to a changing climate, and find the path that balances these with their many other functions.

27. Ukraine is adversely affected by bark beetle infestation, pine dieback and storms, which require sanitary felling. The area of forests suffering from biotic factors increased from 2 percent of all forests in 2009 year, to 5 percent in 2018⁴². The deterioration of the health of forests is currently considered a consequence of climate change and the only measure being pursued to address it is a relaxation of the restrictions on sanitary felling. It is important to also review the silvicultural regime, which may not be addressing forest resilience adequately; this is just one of the aspects that needs to be addressed in a climate change adaptation strategy for forestry in Ukraine. Research and the piloting of alternative management practices are necessary, in addition to carefully planned sanitary felling of already diseased and damaged stands. While sanitary felling needs to follow the detection of pest infestation as quickly as possible, this is not always happening; one of the commonly cited reasons for delay is the cumbersome procedure to obtain a permit for sanitary felling. The delay in receiving the felling permit could lead to more trees being infected by bark beetle and, in turn, larger areas need to be felled.

Illegal Logging

28. This issue received attention from multiple stakeholders during the European Neighborhood & Partnership Instrument East Countries Forest Law Enforcement & Governance Program (ENPI Fleg) program 2008–2016, with several roundtables, working papers and recommendations. There has also been renewed media attention due to new reports of the export of illegally harvested wood from Ukraine to some EU countries⁴³. Illegal logging needs attention at several levels—protection in the field, appropriate checks through the value chain, and independence of the entities performing verification and monitoring, all with sound legal backing. The present system has some level of all these elements, but the system as a whole is underperforming and could do much better by ensuring all forests, irrespective of management entity, maintain common standards for their protection and a common database for reporting on timber harvest and sales, illegal felling, and other losses.
29. As in many countries, the true extent of illegal logging in Ukraine is difficult to ascertain. Recent SFRA data indicate that around 110,000 m³ of illegal timber was detected in 2019 in two oblasts (regions) as a result of intensive checks. This is an increase of more than six times from 2018. Conducting similar checks in other areas could provide insights into whether these areas are an outlier in the country. The difficulty in detecting, reporting and resolving cases is demonstrated by the fact that of the 2,276 cases reported for criminal investigation in 2017, court decisions were handed out only in 15 percent of the cases, which, though better than in 2016 (9 percent), still does not send a strong message for deterrence.
30. All forests under the control of state forest enterprises (whether they are under the coordination of SFRA or not) employ State Forest Guards to fulfil the enterprise function of protecting the forest from illegal activities. Based on the findings of these Forest Guards, SFEs can be levied fines for illegal activity on their lands or with their timber (irrespective of its origins). It is clear, therefore, that a conflict of interest exists for State Forest Guards, whose employers may suffer financially if illegality is found. Oversight for SFE and State Forest Guard behavior rests with the Environmental Inspectorate of MENR, but its resources are limited. This institutional incongruity needs to be addressed for the proper and efficient control of illegal activity in forests.

⁴¹ Ongoing World Bank study: Ukraine Climate Change Assessment.

⁴² Pine Forests: Current Status, Existing Challenges and Ways Forward (Proceedings of International Scientific and Practical Conference) 12–13 June 2019 (Kyiv, Ukraine). Planeta-print, 2019, pp. 8–16.

⁴³ Earthsight 2018. 'Complicit in Corruption. How Billion-dollar firms and EU governments are failing Ukraine's forests' Earthsight UK.

31. The SFRA's recent initiatives⁴⁴ for the detection and deterrence of illegal sourcing and sale of wood in the country has begun providing stronger checks and legal backing to track illegal timber and increase transparency regarding harvesting operations. An electronic accounting system for all forestry users of Ukraine⁴⁵ has been introduced and now registers 95 percent of timber harvested. The official website of the single national system of timber electronic register is supported by the Forestry Innovative Analytical Centre, which provides checks on timber legality with a sticker number, consignment voucher number and license plate for all domestic timber. In addition, a new phone-based, crowd-sourcing system, 'Forest in the smartphone'⁴⁶, has been recently rolled out. It allows anyone with a smartphone to review the legitimacy of timber logging and verify the information online by checking the forest tickets. Timber classification has also been harmonized with EUTR since January 1, 2019, which should address the issue of misclassification in exports, although it may still be a problem in certain situations.
32. A WWF Forest Watch⁴⁷ report for 2017–2019 indicates that, in four Carpathian oblasts, only 4 percent of the total volume of illegal wood identified by the project was discovered in the forests under coordination of SFRA. Despite the sample not being representative, the findings indicate that there may be more illegal logging in forests on reserve lands and in the Nature Reserve Fund (NRF). This gives reason to also conclude that the national volume of timber harvest in official statistics has gaps and some raw material is going unaccounted in the value chain. Enabling a community-based forest protection system with crowd-sourced information can provide this protection, as long as the public is aware which agency at the oblast level or national level is mandated to investigate violations and enforce regulations when complaints are registered. The United States Foreign Services (USFS) International Programs is already carrying out such work (through several NGOs) that can be institutionalized to scale up community involvement in the monitoring and reporting of illegal logging.

Afforestation and reforestation

33. Lack of state funding and legal complexities hinder extensive reforestation and afforestation. Reforestation rules in Ukraine stipulate that felled areas be either artificially or naturally regenerated within one to two years after felling⁴⁸. Natural regeneration/reforestation is used in about 35 percent of the logged area. Due to the use of a system of gradual felling (group felling), approximately 50 to 60 percent of felled areas were naturally reforested in the Carpathians during 2013–2018. Natural regeneration may initially be low cost but species composition and the commercial and ecosystem value of the resulting forest and its climate resilience must be managed carefully over the longer term. The success of natural regeneration, in supporting the objectives of the specific forest, needs to be monitored and proactively managed to include maintenance and re-spacing etc. It is not clear if the decision to use natural regeneration in Ukraine is primarily a factor of cost or a move towards 'close-to-nature' silvicultural systems. For instance, in the Steppe oblasts, a lack of funds for raising seedlings and planting is forcing some SFEs to depend more on natural reforestation.

⁴⁴ Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on the Preservation of Ukrainian Forests and preventing the illegal export of rough timber" No. 2531-VIII, dated 6 September 2018 ("Law No. 2531-VIII"). This Law envisages a significant increase in the number of fines for illegal logging and destruction of forest cultures and young forests. The relevant amendments were introduced into the Code of Ukraine on Administrative Offenses, the Criminal Code of Ukraine, and the Law of Ukraine "On peculiarities of state regulation for activity of business entities related to the selling and exporting timber products". Decree of the President of Ukraine "On Certain Measures for the Conservation of Forests and the Rational Use of Forest Resources" No. 511/2019, dated 9 July 2019. Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Procedure for Monitoring Internal Consumption of Domestic Raw Timber and Control of Excessive Domestic Consumption of Domestic Unprocessed Timber" No. 1142, dated 4 December 2019.

⁴⁵ See Annex 1 on E-timber tracking system

⁴⁶ <https://lk.ukrforest.com/> and (<https://www.ukrforest.com>)

⁴⁷ WWW-DCP. USFA The Forest Watch Project. Developing opportunities in Ukraine to combat illegal logging. Project Activity Report for 2017-2018. Lviv, 2019 – 95 pages.

⁴⁸ Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Rules of Reproduction of Forests" of March 1, 2007 No. 303

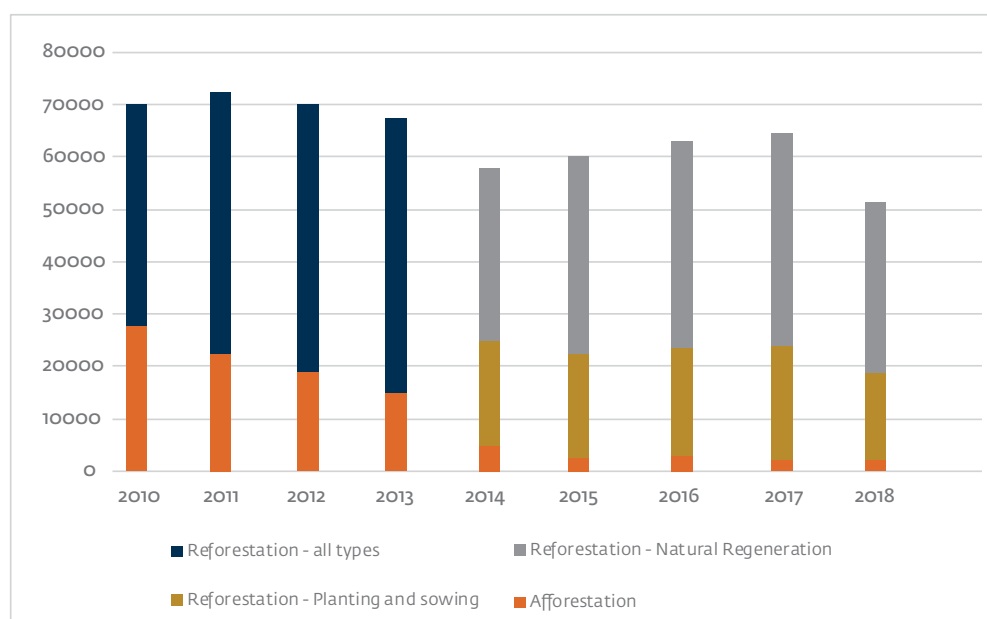


Figure 8 National afforestation and reforestation (ha), 2010-2018, source SSSU

34. It is estimated that an additional 2 million hectares of land needs to be afforested to reach the country's aspirational target of 20 percent forest cover. However, afforestation in Ukraine has been limited (see Figure 8), largely due to a lack of dedicated budget and of the administrative requirements needed for the registration of a different land use category⁴⁹. In 2015, only 7.23 percent of the required expenses of US\$25.25 million were financed for afforestation by the state budget. One estimate suggests that at this rate of funding, it will take afforestation and reforestation over 40 years to reach the 20 percent target⁵⁰. The extent of planting, which serve to protect soils from erosion, has reduced drastically (by about five times) to 2,200 ha since 2013, as many SFEs have faced significant budget constraints when income from commercial timber harvest was low.

Restoration of degraded landscapes

35. The lack of an integrated forest landscape approach is eroding the protective and restorative role of forests for Ukraine's agriculture. The country has the highest share of cultivated land in Europe (53.8 percent of the total area). However, about 54 percent of agricultural land is affected by wind erosion; climate-induced damage will increase if left unchecked. To counter the effects of erosion, about 440,000 hectares of forest shelter belts were established in the Soviet era to protect arable land and prevent soil erosion. However, following independence, the Land Code of 2002 removed 412,000 hectares of shelterbelt forests from the Forest Fund and classified them as 'reserve' or non-farming agricultural land, with no state agency holding responsibility for their management. Illegal felling, fires and pests have degraded these shelterbelts to a large extent. The planting of new forest shelterbelts has practically ceased since 1995.

⁴⁹ Green Paper on Timber Market Regulation. Better Regulation Delivery Office. 2017. Kyiv, Ukraine

⁵⁰ Ibid.

36. A landscape approach is also important for Ukraine to meet its goals under the Bern Convention⁵¹ to establish a network of critical habitats (Emerald Network)⁵². Forests, wetlands, peatlands and grasslands and waterbodies, which are interspersed with croplands, need to be a part of such a network to ensure that agriculture is productive and protected from floods, acidification and erosion. Under the present circumstances while the land reform process is underway and, as nearly 600,000 hectares are likely to be transferred to communal (ATC) ownership, it is essential to ensure that (i) former shelter belts and other lands that have natural habitats are not converted to croplands; and, (ii) to establish a system for their management with ATCs as part of the Emerald Network. While a draft law for the Emerald Network is under consideration, the protection of critical habitats and biodiversity outside such legally protected domains is important for its success. Such an approach could be the starting point for establishing a Payment for Ecosystem Services and other schemes to function as incentives for farmers and communities to maintain the natural habitats.
37. The implementation of Ukraine's (2016) targets for Land Degradation Neutrality⁵³ (LDN) will need creation and management of shelterbelts, in addition to improving agricultural practices⁵⁴. It is estimated that there are 2 million hectares of degraded or abandoned agricultural lands suitable for growing trees for paper, pulp, energy, or as cover crops⁵⁵, but there is no system to facilitate agroforestry or tree farming on a large scale. There have been various plans^{56, 57} for creating shelterbelts since 2011 but these were never implemented, due to the lack of a budget and legal/bureaucratic constraints for enabling the private sector to invest in them.

⁵¹ Bern Convention <https://www.coe.int/en/web/bern-convention/emerald-network>

⁵² The current list of approved Emerald sites for Ukraine (270,000 ha) are areas which already have varying degrees of protection under the law.

⁵³ National target-setting to achieve land degradation neutrality in Ukraine final country report. 2018. Land degradation neutrality target setting programme (LDN TSP), a partnership initiative implemented by the secretariat and the global mechanism of the UNCCD. As per the Associated measures for LDN target "Stabilization of soil organic carbon content in agricultural lands" Prevention / minimization of organic matter decline by: transformation of arable lands on slopes over 7 degrees and other lands which are not suitable for plowing to other types of land use, conservation of degraded lands, etc.; preservation and improvement of existing forest shelter belts and other protective plantings, as well as creation of new ones.

⁵⁴ <http://www.unece.org/fileadmin/DAM/timber/meetings/2019/20191216/2019-5-belgrade-ukraine-poliakova.pdf>

⁵⁵ Ibid.

⁵⁶ Resolution of the CMU of Ukraine "On Approval of the Concept of Development of Agroforestry in Ukraine" of September 18, 2013 № 725-p. Ordinance of the CMU of Ukraine "On Approval of the Action Plan for the Implementation of the Concept of Development of Agroforestry in Ukraine" of June 18, 2014 No. 582-p.

⁵⁷ Committee on Agrarian Policy and Land Matters of Verkhovna Rada of the XIII convocation. Decision on the results of the field meeting "Issues of Reforming Forestry in Ukraine" of February 13, 2018. Minutes No. 68 <http://komagropolit.rada.gov.ua/uploads/documents/30108.pdf>

Summary

38. A review of the trends in Ukraine's forest management shows:

- The Forest Code 2006 professes the economic role of forests as secondary to their protective and recreational functions; forest cover in Ukraine has generally remained stable but there is the potential to increase the area under forests through afforestation, which is currently underperforming due to financial constraints.
- The current complex system of management with detailed stand level prescriptions does not provide a coherent picture of the entire forest area and a National Forest Inventory (NFI) is yet to be completed. The sector could take advantage of modern remote sensing and planning software for quantitative techniques to improve the accuracy and efficiency of survey and management planning, reporting data for all forests irrespective of ownership.
- The transition to 'close-to-nature' forestry is in its infancy, may not be practical in many areas, and is being rolled out without enough data to model the costs and the ecosystem and other benefits. In making this transition, different scenarios need to be carefully assessed, so that the system as a whole remains sustainable and thorough training and regulatory supports are in place.
- The combination of planned felling and felling in response to pest, disease and general dieback is significant and rising. Caution is needed to ensure its sustainability, particularly in the absence of an up-to-date forest inventory.
- The landscape and agriculture protection roles of forestry, though understood and appreciated, do not receive funding and mandates for implementation, which is a huge untapped potential in the country.
- A strategy for climate change adaptation is needed for the forest sector.

III. Social and Economic Contribution of Ukraine's Forests

39. Forestry is an important sector in the transition economies in Eastern Europe, as evidenced by an increase in the production and sale of timber and wood products in EU markets. This section reviews data on Gross Value Added (GVA), labor productivity, employment and exports. A brief examination of revenue flows from the sector to the State Budget provides an insight into the contribution made to the economy and opportunities for improvement. It is acknowledged here that these figures alone do not capture the full range of environmental and social benefits provided by Ukraine's forests.

Employment opportunities in the sector

40. Globally, each job in the forest sector is estimated to generate 1.5 to 2.5 additional jobs in the wider economy⁵⁸, indicating the strong multiplier effect forestry jobs can have on the economy as a whole. In Ukraine, the forest sector continues to employ a large number of people: the SFEs employ about 49,000 staff⁵⁹, and overall employment in forestry and logging—including all SFEs and private entities in 2018—was 68,000⁶⁰. After adding the figures for wood processing (75,700) and the furniture industry, including artisanal enterprises (55,500), direct employment in the sector was nearly 200,000. It may be safe to assume that this figure would be much higher if employment in nature-based tourism, hunting, and the pulp and paper industry was also included. It is positive that Ukrainian forestry is supporting so many in employment, but its forest products need to be traded internationally, and workforce efficiency is key to be able to compete effectively. For example, using the benchmark of volume of timber removed per person employed ('000 cubic metres per person), the EU average is 0.92 whereas Ukraine is less than one third of that, at 0.28. On an area basis, a 2015 estimate put the number of employees in forestry and logging at 6.25 per 1,000 hectares, far above the European average of 1.58. It is important for the sector to use this benchmark to chart its trajectory for the next 15 to 20 years, looking at increased mechanization, how its workforce profile may need to change in the future, and what training and skills will be in more demand.
41. Private sector employment in Ukraine's forestry sector is limited primarily to the wood processing and furniture sectors, and linked to small sawmills, of which 12,476 are registered with the State Statistical Service. Most SFEs also operate their own sawmills, annually processing about 2.2 million m³ or outsourcing their work to contractors. The furniture sector has about 7,606 private enterprises. There are a number of development initiatives and reports being published on the wood processing sector, but coordination between them seems lacking^{61, 62}.

⁵⁸ Nair, C. T. S and R. Rutt 2009. Creating forestry jobs to boost the economy and build a green future. Background paper for the special event "Impacts of Global Economic Turbulence on the Forest Sector" at the nineteenth session of the FAO Committee on Forestry, Rome, 20 March 2009. FAO.

⁵⁹ SFRA Brochure 2019.

⁶⁰ SSSU Data.

⁶¹ Roadmap of Competitive Development of Ukrainian Furniture Industry, EBRD, 2018.

⁶² Realizing export potential of the wood and processed wood value chain in Ukraine by strengthening related quality infrastructure, UNIDO, 2019.



Value Addition and Exports

42. Ukraine, in common with many comparator countries has seen steady growth or stability in GVA from the forest sector⁶³ between 2010 and 2018, although it still lags far behind that of neighboring countries. Following its collapse after independence in 1991, Ukraine's timber processing industry developed dynamically, starting in the late 1990s, as it became privatized. However, the global financial crisis of 2008–2009, followed by the political events during 2013–2014, contributed to high rates of inflation and the significant contraction of national GDP, affecting all sectors, including forest-based industries. We can adjust for the differences in the relative size of the forest resource in comparator countries by comparing GVA on a per hectare basis (see Figure 8). For example, the 2017 GVA per hectare in Poland is over six times that of Ukraine. The high proportion of forestry in Ukraine with a protective function (about 33 percent in 2010) is often cited as a reason for Ukraine's lower GVA, but in 2010 the proportion was the same in Poland (33 percent). While the comparison may be simplistic, and the forests of Poland may be inherently more productive, the scale of the difference in economic contribution is worth noting.

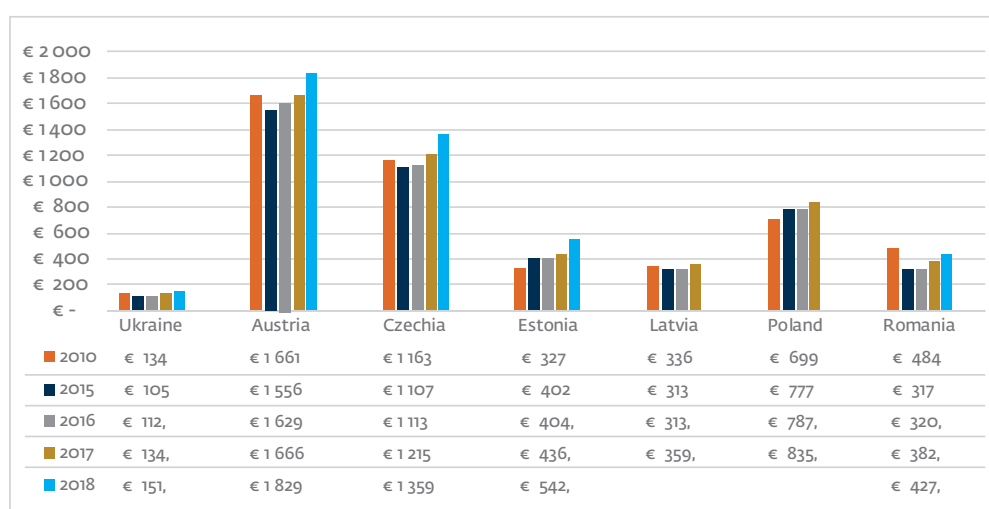


Figure 9 Comparator countries GVA per hectare of forest: (Actual areas in 2010 and 2015; 2016 to 2018 areas are assumed to be unchanged from 2015. No data available for Latvia and Poland for 2018).

43. One reason for Ukraine's low GVA could be due to the type of timber and how it is classified and sold. About half of the harvest comes from clear fells, which would normally be large enough to produce round logs suitable for added value. Despite this, more than half of the harvested wood in Ukraine is sold as low-value fuelwood. See Figure 9 for a comparison with selected comparator countries. The volume-weighted average of the comparators is 83 percent in 2017 compared to 45 percent for Ukraine and, while about one third of the clear-cutting is for sanitary purposes (which may include low quality wood), the gap is very large. It is sometimes argued that the timber classified as fuelwood, according to the Ukrainian system, is actually of good enough quality to be used as roundwood; whatever the facts may be, this material appears to be only achieving fuelwood prices, and this is the key to GVA.

⁶³ Forest Sector data includes NACE 2 (forestry and logging) 16 (Manufacture of wood and of products of wood and cork, except furniture) and 17 (Manufacture of paper and paper products).

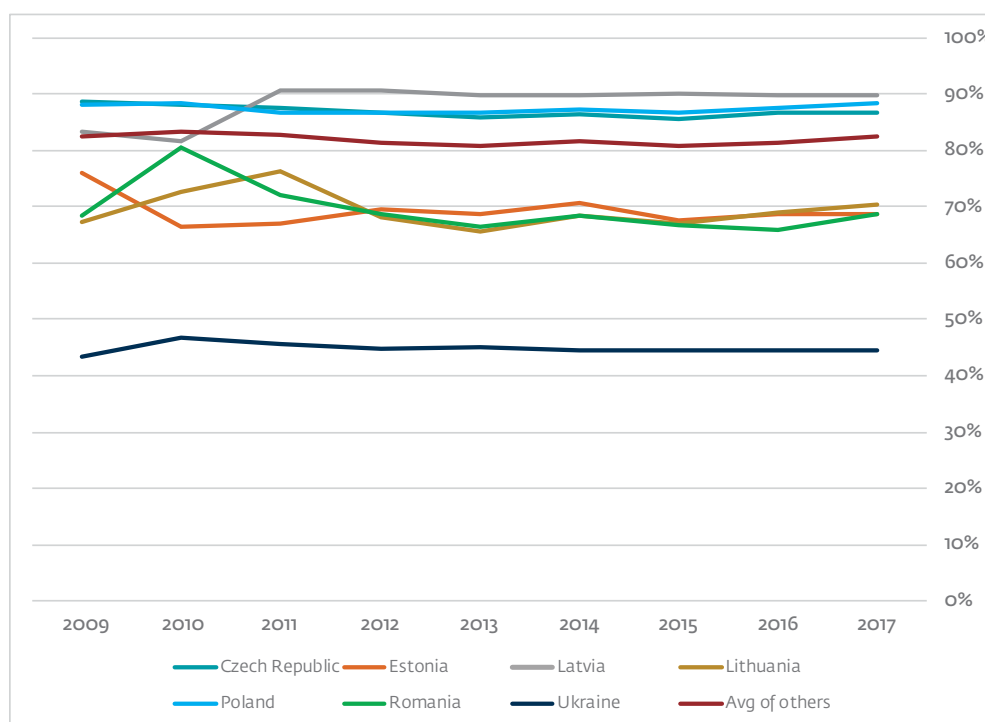


Figure 10 Percent of annual harvest volume classed as roundwood with the remainder being classed as fuelwood (UNECE/FAO TIMBER database, 1964–2017, as of July 2018). 'Avg of others' is the weighted average of the six other countries.

The value of forest products exports (forestry, wood, pulp and paper and wooden furniture) in 2018 was lower for Ukraine (US\$1.9 billion) when compared to countries with lower forest area: Poland US\$7.5 billion, Latvia US\$2.3 billion, and the Czech Republic US\$3.6 billion (see Fig 10). This could be linked to the lower quality of wood harvested compared to these countries and the low level of value addition. The Ukrainian authorities are responding to weaknesses identified in the system; in 2017 a new internal order of SFRA came into effect to ban the export of firewood logs in excess of 2m long, which this will have a positive effect

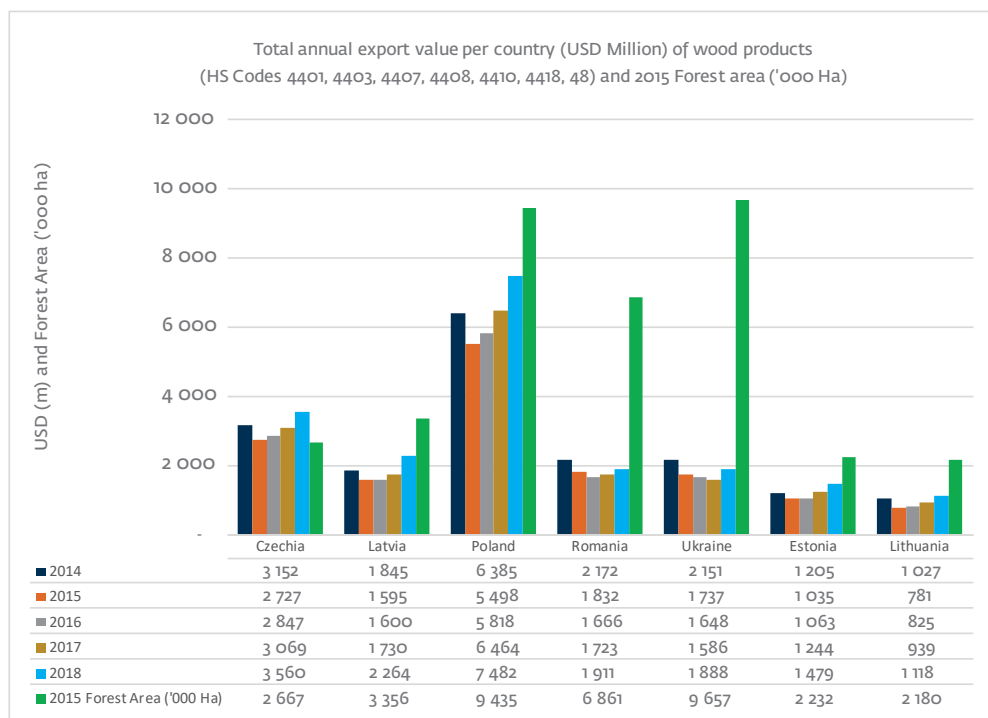


Figure 11 Total value of wood industry exports in Ukraine and peer countries (2014–2018) US\$ million

The Effect of the Moratorium on Roundwood Exports

44. Beyond increasing the availability of raw material in the domestic sector, the government needs to assist small and medium enterprises with technology to boost their competitive edge in the export of value-added goods. As part of efforts to increase the value of wood exports and further develop a domestic competitive wood processing industry, a moratorium on the export of roundwood (HS code 4403) was adopted in November 2015 covering all species except pine. From 2017 Pine was also included in the ban. Over the period 2016 to 2018, the total value of wood exports has grown by 17 percent, with a distinct trend away from roughwood, with sawn wood showing a 42 percent increase over the same period (see Figure 11). The number of small wood processing enterprises rose by 23 percent in the same period⁶⁴ and thus the measure seems to be having a positive effect. The EU for Business program supported the development of a Road Map for the furniture sector in 2018. Introducing a credit facility, ensuring a reliable supply of raw material at fair prices, and training in financial control, woodworking and furniture design and production would help in the development of the sector. Without strong domestic industrial demand, it is possible, however, that prices will be suppressed and SFEs will be forced to reduce harvesting, leading to the deterioration of standing timber or, worse, to encouraging illegal exports to ensure reasonable returns.

⁶⁴ State Statistical Service of Ukraine

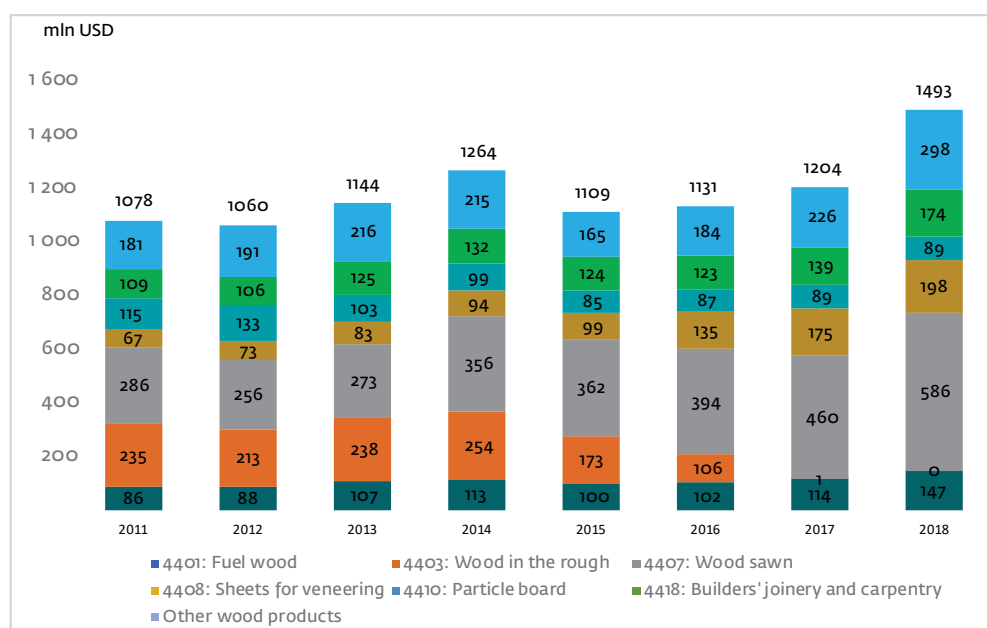


Figure 12 Export of timber products million US\$ (updated SFSU)

Wood for energy

45. The downgrading of solid wood fractions (including chipping) into these products needs to be avoided where there are higher value applications and markets. According to a preliminary estimation by SFRA, the total annual resource of woody material and forest biomass that can be used for energy production is about 2.4 million cubic metres. This is in addition to its supply of 3.1 million cubic metres firewood for domestic consumption, which is sold at a subsidized price to local communities. The market for domestic and export fuelwood and pellets is large but the economic merit of this activity (measured both in carbon balance and financial terms) needs to be carefully evaluated before any sudden expansion into the production of pellets or wood chips. Strategically and economically it may be best to position wood for energy (in the form of sawdust, chips) as a by-product from the manufacturing process of higher value add solid wood products.

Timber Market Monitoring and Sales Mechanisms

46. Since February 2020, forest enterprises with an annual net income of more than 10 million Ukrainian Hryvnia (UAH) (approx. US\$340,000) have been obliged to sell all their timber through the electronic auction system. Previously, a large proportion of timber was sold by auction, but unsold lots were later sold by negotiation, often for export. Sales of unprocessed timber by other forest users (accounting for 27 percent of forest land) remain outside the legal environment, although it is hoped that recent regulations requiring the central registration of all timber sales will address this issue. The lack of information about the sales of unprocessed timber on the domestic market by other forest users makes it difficult to properly monitor the volume of domestic timber sales; nor does it enable the assessment of equality of access to forest resources, or track the impact of these and other regulations (such as a ban on the export of unprocessed timber). Introducing a common platform for information and reporting would allow an assessment of the impact on revenues (or expenses) of the State by assessing the redistribution effect (additional revenues of Ukrainian manufacturers); the protection effect (the increase in expenses of Ukrainian manufacturers, losses to the national economy); and the consumption effect (losses incurred by the Ukrainian consumers)⁶⁵.

⁶⁵ Green Book on Timber Market Taxes, Better Regulation Delivery Office 2018.

Box 1: The state of State Forest Enterprises (SFEs)

About 73 percent of Ukraine's forests are under the permanent management of over 300 SFEs coordinated by the SFRA (which has 24 territorial departments). The Head of SFRA can establish or dissolve enterprises and appoint their directors. The SFRA approves the annual plans of SFEs and monitors performance. Each enterprise is responsible for the full range of forest activities: harvesting, reforestation, afforestation, protection against fires, pests and diseases, and hunting and preservation in nature-reserve areas. Some also have processing units that use roundwood as their raw material. Ten-year, Forest Management Plans are endorsed by MEP and subject to Environmental Impact Assessments. A typical SFE has about 25,000 hectares of forest and staff. SFEs fund their activities mostly from 'Own Means' revenue from timber and wood processing. The enterprise sets prices for works, services and products independently. SFEs sell all their harvested industrial roundwood through electronic auctions, which are carried out quarterly. For SFEs under the coordination of SFRA, the income (from harvesting wood products) generates 92 percent of their net forestry income. This goes to cover all forest related expenses, as well as all non-profit activities and projects. In the Carpathians, an SFE earns about US\$79/ha, in Polissiya US\$94/ha, in the Forest Steppe, US\$104/ha, and in the Steppe, about US\$21/ha. Thus, there is wide variation with respect to economic performance, linked to the environmental limitations of forest management in the different ecoregions. SFEs with insufficient forest resources to carry out final felling have normally been funded from the state budget. However, the lack of state funding during 2016–2018 caused the mass dismissal of SFE employees in the Steppe region. In 2019, a special fund was formed through an increase in forest rent payments, but only staff salaries and the administrative costs of state budget dependent enterprises were covered. Funds flow back to central and local governments from the SFEs via land tax, corporation tax on profits, forest rent (also known as stumpage) and government dividends.

47. After considering the possible effects of imposing a timber export ban, a legislative limit of 25 million m³ was introduced in 2019 for the country's yearly, domestic consumption of unprocessed timber to prevent illegal exports. In order to monitor this limit, the government now obliges forest users to use the state electronic timber accounting system for entering information on timber harvesting and sales. This system also allows the government to consider introducing a certificate of origin for all wood products, and not just unprocessed wood.

State Forestry Enterprises finances

48. In 2018, the highest range of incomes for the best 35 forestry enterprises operating under the coordination of the SFRA ran from UAH 120–250 million (US\$4.5m–US\$9.4m), with gross profit of UAH 29–69 million (US\$1.0m–US\$2.6m) and net profit of UAH 4–17 million (US\$150,000–US\$641,000), and a net profit margin (net profit as a percentage of revenue) of between 5 and 14 percent. Net profit margin in general for all SFEs was 2.8 percent and varied from -3.1 percent to 5.5 percent for regions (see Figure 12). This would appear to leave very little in the way of financial resources to invest in the use of higher cost, low impact silvicultural systems, increased road density requirements, as well as challenges posed by climate change, pests and disease, and the country's current inability to meet afforestation targets. It also shows how the SFEs in certain geographic areas are very challenged and need to act to reduce costs if tax and other conditions continue at current levels.



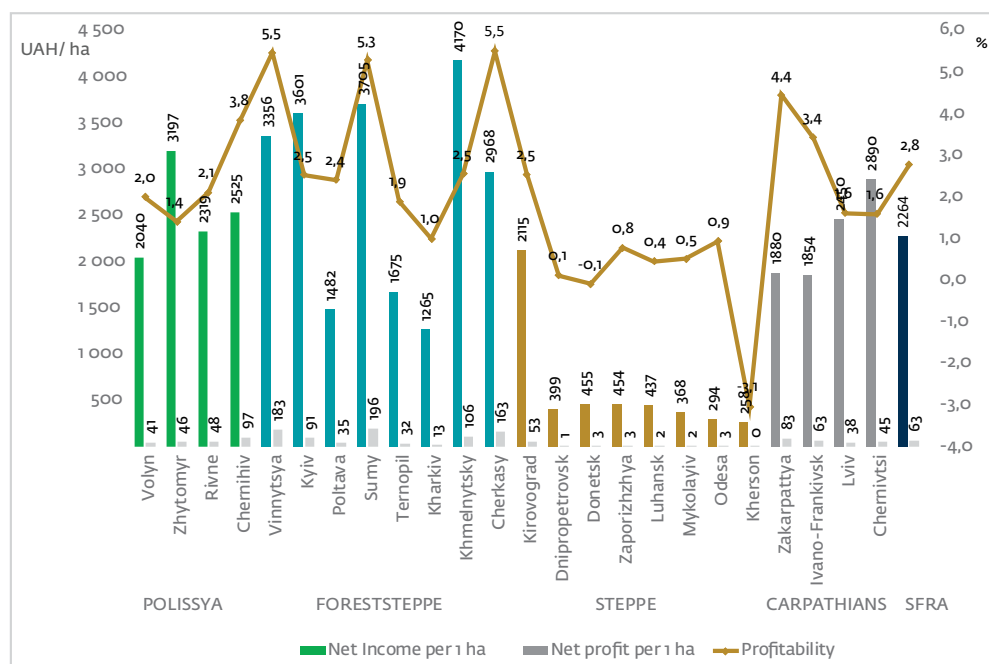


Figure 13 Relations between net income and net profit per 1 hectare (profitability) for forest enterprises of SFRA per oblasts (and a total for all) in 2018

49. **Contribution of State Forest Enterprises to State Revenue:** The SFEs are taxed by the State through a land tax, a tax on profits, and by way of a 'stumpage fee' or 'rent' as it is now referred to in Ukraine. This is a flat fee per unit of timber volume (and not a percentage of value) with fixed, lower fees applying to low value assortments when compared to higher value assortments. Using field survey information as input, a computerized algorithm forecasts the assortments that will result from planned harvest activity, and this information is used as the basis for calculating the forest rent, which is payable in advance by the relevant state forest enterprise. However, if the mix of assortments actually harvested is of a lower average grade, the rent is not normally re-calculated to a lower value and the difference refunded. In addition, tax rates vary according to the type of activity (e.g. sanitary versus other types of felling) and have risen sharply in recent years, going up to US\$185 million for 2019 (Figure 13). Taxation is a necessary means of paying for government services, and SFEs do reap the benefit, for example, of public road infrastructure. However, it is adding complexity to an already difficult operating environment. Paying tax on land and simultaneously paying it to access those same lands would appear contradictory. The stumpage fee structure can also create a bias towards the production of lower value assortments because they may yield a higher net margin to the SFEs. Paying a flat fee to access certain types of timber, and later a percentage on the profits accruing from the same operation, can create tensions and pervert incentives within the system; so can labelling what is essentially the same operation differently, for example as the partial removal of the crop through thinning or partial sanitary felling, while applying different tax treatments. This should be a high priority for discontinuation⁶⁶. A common tendency among SFEs is to minimize their net profits because of the high taxes paid to the State Budget (described as a 'dividend') on these profits.

⁶⁶ Doi: 10.32702/2306-6792.2018.22.47 Yu. Marchuk, Head of the Department of Botany, Dendrology and Forest Selection, National University of Life and Environmental Sciences of Ukraine, Kyiv. Equivalent withdrawal of forest resource rent as an important component of the financial and economic mechanism of forestry in the context of decentralization. (Еквівалентне вилучення лісоресурсної ренти як важлива складова фінансово-економічного механізму лісогосподарювання в умовах децентралізації)

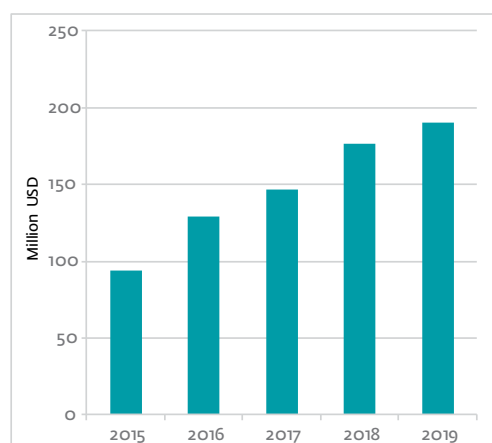


Figure 14 Tax and payments to State Budget

Summary

50. In summary, when estimated using traditional metrics, the economic contribution of Ukraine's forests seems to be low, both as a proportion of GDP and in terms of GVA. Compared to peer countries in the EU with similar or lower forest cover, in particular, there is scope for higher economic returns. However, it needs to be noted that employment in forest sector jobs makes an important social contribution and, while there is no data on this as yet, the value of the functions of watershed protection, biodiversity, and erosion prevention in forests cannot be overlooked. The key constraining factors seem to be:

- **Inefficiencies associated with management processes**
 - As noted in Section II, while forests are under stress, and while there seems to be a management response in terms of sanitary felling, the lack of a national forest inventory and of a strategic national plan make it difficult to estimate the best mix of silvicultural systems that would yield the highest GVA, while continuing to have environmental and social objectives;
 - The number of employees per cubic meter of wood harvested is high; sustainably raising output and re-deploying workforce to other tasks could increase overall productivity, bearing in mind regional disparities within the country due to different forest types;
- **Low emphasis on high value raw material and goods in the value chain**
 - The harvesting of a higher percentage of low value wood is one of the reasons for lower returns;
 - There is higher concentration on exports as rough or sawn wood versus processed goods, especially when compared to countries in the neighborhood.
- **Low level of incentives to increase private sector investment**
 - Allowing some SFEs to carry out their own processing is unfair for private entrepreneurs, especially with respect to access to quality raw material;
 - Private enterprises need consistent and reliable data on timber availability, which is currently not the case;
 - The tax regime for SFEs does not encourage efficiency;
 - SFEs pay state stumpage/rent fees on the timber; a land tax; and very high taxes on their profits;
 - While there are processes in place to prevent bias towards classifying harvests as containing a high proportion of low grade material (in order to pay lower forest rent fees), the presence of this fixed rate structure may be acting as a disincentive towards optimizing the value of every tree that is harvested, especially when overall taxation levels are so high.



IV. Forest Institutions & Governance

51. The combined influences of globalization and domestic transition have created specific challenges for forestry in formerly transitional economies, including Ukraine. The challenges include the adaptation of the forest sector to a market-based economy, harmonization with EU standards⁶⁷, and the adaptation of the forest cadre to new forest management approaches, layered on top of longstanding traditions of forestry institutions. New socio-political realities in the country demand more openness and transparency; citizen activists are taking to monitoring forest operations in the field and through the media. The following is a review of how the current system responds to these changes and what new initiatives are being implemented to deal with illegal logging and to increase transparency in the sale of timber, and how the sector can build on the momentum created by reforms in other related sectors. The key issues for change are: (i) the articulation of a national forest policy and strategy; (ii) aligning the legal basis for forests with those of other land uses in the land cadastre; (iii) a review of forest sector institutions would help assess how state forest enterprises can be more efficient and less vulnerable to conflicts of interest and short-term fiscal constraints.

The Key Institutions

52. Institutional responsibilities are well defined at the level of the President, the Parliament and the Ministry for Environmental Protection and Natural Resources (MEPNR). At the highest level, the President of Ukraine has the power to issue decrees directing the Cabinet of Ministers to take actions affecting the forest sector. This authority has been used quite frequently in the recent past. The Verkhovna Rada (Parliament) and the Cabinet of Ministers have powers to define the basis of Ukraine's forest policy, adopt legislation, as per the Forest Code, and approve national programs related to the protection, conservation, use and restoration of forests and transfer of state-owned forest lands for permanent non-forestry use.

Table 2 Institutions and roles

Institution	Role
Ministry for Environmental Protection and Natural Resources (MEPNR)	Formulation of forest policy and coordination of other state authorities related to forest, national parks and nature reserves. The MEPNR is vested with the authority to enforce compliance with environmental impact assessments, approving forest management plans, and has, under subordination, authority responsible for law enforcement.
State Environmental Inspectorate (SEI)	Responsible for implementing state policy for state supervision/control in the field of environment protection, sustainable use, restoration and protection of natural resources.
State Forest Resources Agency (SFRA)	Apex organization responsible for oversight of implementation of forest and hunting policy and coordination of activities of SFE over 73 percent of the forest land in the country via 24 Regional Forestry Departments.

⁶⁷ Soloviy, I. P., Nijnik, M., Deyneka, A. M., & Melnykovich, M. P. (2017). Reimagining forest policy, institutions and instruments through concepts of ecosystem services and social innovations: Ukraine in the focus. Scientific Bulletin of UNFU, 27(8), 82–87. <https://doi.org/10.15421/40270812>

State Forest Enterprises (SFEs)	In total 385 entities are subordinated to SFRA, of which 309 have territorial responsibilities with the full range of forest operations. The rest provide services such as forest survey and planning tasks. SFEs are economic entities with ownership rights over all harvested wood and revenues from sale of the harvested timber. Some have their own wood-processing facilities and compete with the private wood-processing industry for resources ⁶⁸ .
State Forest Guard (SFG)	The state service with the law-enforcement status, formed by officers of SFRA and SFEs and responsible for the protection of forests on the territory of Ukraine ⁶⁹ . Officials of the SFRA and its oblast departments are paid from the state budget while those employed by SFEs are paid from SFEs budgets ⁷⁰ .
Oblast, Rayon and local levels the Oblast Administrations and Local self-governance bodies (city/village councils)	Authority to hand over state-owned forest lands in their respective territories for ownership or permanent use or long-term temporary use. They also set limits for the use of non-timber forest products.
Amalgamated Territorial Communities, or hromadas	Established under Decentralization Reform, in place of village/settlement councils, by uniting on a voluntary basis. They receive transfers of resources and responsibility from executive authorities for local self-governance. They become owners of forest resources located on their territory. Since 2018, amalgamated communities have received (in communal ownership) about 1.5 million hectares of state reserve lands. ⁷¹

53. The roles of all institutions except the Amalgamated Territorial Communities (ATCs) are well defined when it comes to the management of forests. As the country moves further along in terms of the decentralization and delegation to the ATCs of powers and resources, it will be important to reflect on their role in the better management of forest landscapes, including the options for systematic technical support for managing forests under their purview.
54. The wood processing and furniture industry come under the purview of the Ministry of Economy and Trade, which does not have direct links with the upstream forest management agenda. While wood processors and other trade associations have some engagement with SFRA and regional level forest management entities, a stronger inter-ministerial link would help to ensure that strategies for Small and Medium Enterprises (SMEs) in this sector are robust and promote sustainability and the certification of raw materials. Such coordination is also useful for developing a forest sector strategy that takes into consideration the wood industry's needs.

⁶⁸ SFRA Internal Report of 2018. Economical activities of SFEs - Sale and salaries of the employees at different oblasts and natural zones.

⁶⁹ CMU Order of September 16, 2009 N 976 "On Approval of the Regulation on State Forest Guards" <https://zakon.rada.gov.ua/laws/show/976-2009-%D0%BF>

⁷⁰ REPORT on the results of the audit of the effectiveness of the use of budget funds aimed at forestry and hunting, protection and protection of forests in the Forest Fund of Ukraine. Approved by the decision of the Accounting Chamber dated 17.12.2019 № 37-3

⁷¹ CMU Regulations of January 31, 2018 No. 60-r "Issue of transfer of state-owned agricultural land into communal property of the amalgamated territorial communities"; <https://zakon.rada.gov.ua/laws/show/60-2018-%D1%80> and The State Geocadastré summarized the results of 2018 in the field of land relations. December 27, 2018, Press Service of the State Service of Geodesy, Cartography and Cadastre

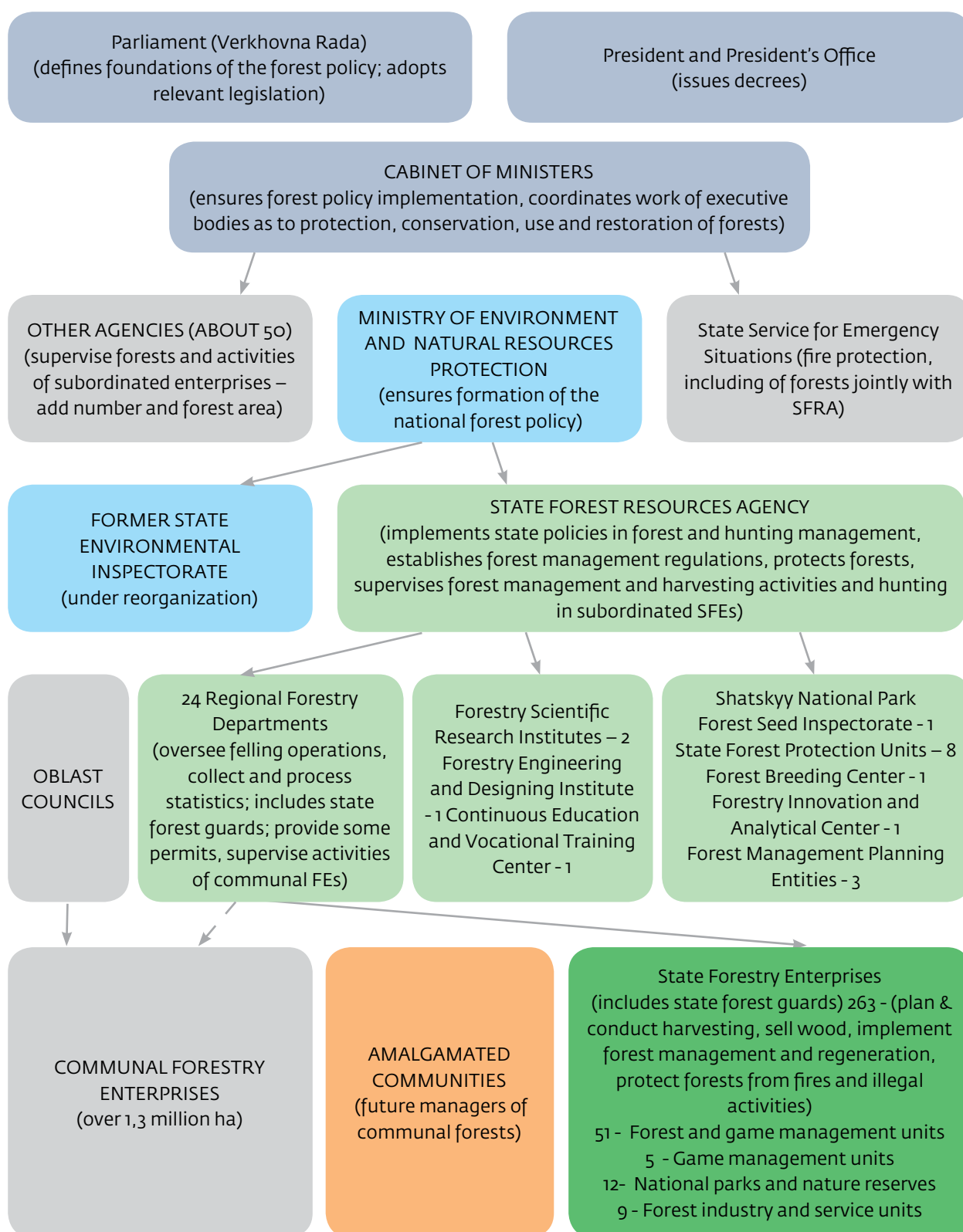


Figure 15 Institutional Relationship Chart

*solid arrows indicate direct reporting

Forest Law and Policy

55. Ukraine needs to articulate its national forest policy and strategy. The Concept for Reform and Development of Forest Management⁷², adopted in 2006, has become outdated and, aside from the Forest Code 2006, Ukraine lacks a written forest policy that lays out a vision for how the country's forests should be managed. The goals of forest management designed to meet economic, ecological and social objectives, and of diverse stakeholders, are not explicitly articulated and available in the public domain, nor are any specific metrics and indicators given that could be used to measure progress. Forestry is the second largest land use in Ukraine after agriculture and without such guidance it is difficult for politicians and other decision-makers to make informed choices when prioritizing development interventions and for the public to assess the merits of changes in public land use. There is a tendency to use short-term measures and blunt instruments, such as moratoriums, bans and decrees. The result is a plethora of legal rulings that are cumbersome to navigate for forest managers and complicated and opaque for the public to understand. Experience from around the world has shown that forest governance is often undermined when people do not know enough about public sector institutions and their policies. Between 2015 and 2017, several attempts were made to agree on a forest policy, but they failed to materialize due to lack of consensus between all interested stakeholders.
56. The core act, the Forest Code of Ukraine, was adopted in 1994 and revised in 2006, with numerous additional amendments thereafter which have not all been well coordinated. The Forest Code would benefit from review in order to align its provisions with new forest management approaches, and with the Tax Code and other laws that impact the timber value chain. Issues which could potentially benefit from a review include provisions specifying the mechanism for setting rent or stumpage fees and felling ticket volumes, and the potential for conflicts of interest arising from the presence in the same organization of the issuers and controllers of felling tickets for thinning and sanitary felling. There are other laws which have been instituted to increase the protection and conservation of forests and biodiversity and reduce indiscriminate felling. Laws related to environmental impact assessment, restriction on felling during animal breeding periods (the new draft law on the Emerald Network, for instance), fall into this category, which reflects recent thinking on these issues.
57. Better alignment of the Forest Code with the Land Code will reinforce forest landscape management. Ukraine does not have an integrated landscape management approach, although the draft law for establishing Emerald Network sites is a move in that direction. Tracts of abandoned agricultural lands or State lands with forests may not be recognized as 'forest' under the Land Code. Registration of forest lands in the Land Cadastre may not be up-to-date or match forest area figures from the Forest Cadastre⁷³. Under the ongoing land reform process, the following draft laws (see Table 3) could have some level of impact (negative or positive) on forests and natural habitats that have not already been assigned the legal status of forests or protected areas. The fact that some of the SFEs coordinated by SFRA may not have legal registration for the forest lands they work on means there is all the more reason to closely coordinate with the ongoing changes in this space.

⁷² CMU Order No. 208-r of April 18, 2006 "On Approval of the Concept of Forestry Reform and Development";

⁷³ State Forest Cadastre: January 1, 2011 General data on the forest fund of Ukraine by administrative units <https://data.gov.ua/dataset/341e5bd6-3855-4507-9a53-f95a9a1e3035>

Table 3 Draft Laws which are pertinent for forests and natural habitats management⁷⁴

Draft Law #	Purpose
2370	Law on National Spatial Data Infrastructure (NSDI). Provides free and open access to cadastre data and mandates interoperability between the cadastres and registers.
2194	Law on decentralization of land management from State Geocadastre to local communities.
2195	Law on E-Auctions for state land. Essential for transparent transfer of state land via lease or sale.
2280	Law on spatial planning, includes procedures to elaborate and enforce territorial development plans for meaningful decentralization and more transparent land management.
3205	Law on Partial Credit Guarantee. To enable small farmers (under 500 hectares) to receive credit from banks, backed by a partial credit guarantee facility.

58. The anticipated transfer of about 600,000 hectares of state lands with natural habitat to ATCs⁷⁵ is another aspect of land reform that needs to be coordinated with the GeoCadastre. Decentralization reform could be used to increase incentives and promote agroforestry and tree planting on less productive agricultural lands and give ATCs incentives not to convert wetlands and other naturally regenerated lands into croplands. In reviewing legal and institutional frameworks, it will also be important to create avenues for ATCs to seek and obtain technical support for the management of forests and natural habitats, as well as for the management of Non-Timber Forest Product (NTFP) production and harvesting, and agroforestry or tree plantations. Establishing a Payment for Ecosystem Services (PES) program with ATCs could be an option to help maintain wetlands, forests or pastures under ATC management. The current window of opportunity of the ongoing decentralization reforms could help in facilitating the establishment of such new and innovative policies.

Forest Financing

59. The analysis in Sections II and III provides the basis to conclude that investment in forest management, maintenance and afforestation is largely not happening due to a lack of resources. The SFEs do not re-invest in the resources due to the low level of profits, and State budget contributions to the sector have been dwindling over the last decade, paying mostly for critical administrative expenses. The Government's national budgetary allocation for forest management and protection is less than a quarter of what it was in 2011⁷⁶, coming down from US\$73 million in 2011 to US\$18 million in 2019. State budget support to forest management was terminated in 2016. State budget funds are only being used for national parks, science and research and SFRA employee salaries. It is also alarming that allocations for research and development have been less than US\$0.5 million for four consecutive years (2015–2018) and increased only in 2019 to US\$0.7 million. As SFEs are responsible for investments in machinery and harvesting equipment and other capital expenditure, it is not surprising that there has been very little investment in essential forest maintenance and silviculture and modern agile machinery, which in turn makes it harder to clear areas suffering from damage and apply 'close-to-nature' management approaches. To help those SFEs without profits from timber cover their expenses for forest management, a special state budget account was created to allow the reallocation of part of increased rent payments from profit-making SFEs, into a special account. The aim was to finance the expenses of SFEs unable to cover their expenses for forest

⁷⁴ World Bank-EU ongoing activity 'Supporting Transparent Land Governance in Ukraine' [<https://ukraine-landpolicy.com/>]

⁷⁵ The decision of the Committee on Agrarian Policy and Land Relations of the Verkhovna Rada of the XIII convocation "On the results of the field meeting: "Problems of forestry reforming of Ukraine" of February 13, 2018, Minutes No. 68. This is additional to the 1.5 million hectares mentioned in footnote 73.

⁷⁶ SFRA Budget <https://zakon.rada.gov.ua/laws/show/1016-2017-%D0%BF>

management due to a lack of harvestable timber. While this may help tide them over in the short term, it is important to take a strategic view of whether SFEs in some regions can continue to operate as profit-making enterprises in the long term if they are entirely dependent on timber production. Unless bold and transformational steps are taken at the highest level, it may be difficult for the sector to emerge from this vicious cycle.

60. There is a need to review the policy for financing the sector in Ukraine, especially in view of the emphasis on the public goods functions of forests for biodiversity, watershed protection and nature values. Public sector financing for forestry in the EU averaged US\$12.4/ha of forest in 2013. Using this benchmark, Ukraine's state budget allocation for SFRA in 2019 averaged US\$2.4/ha of forest. It is unclear how SFEs which largely do not make sufficient profit (see Figure 12) and pay very high taxes, can continue to fulfill the expectations of delivering both economic and environmental goods and services to the country. Such a review is even more essential now, in view of an economic slowdown and the potential impacts of climate change on forests. There are a number of innovative options which Ukraine could seek to explore on this front, including the PES programs within EU. There is also the potential for bringing in private sector finance to grow trees on degraded land, with buy-back guarantees from paper and pulp manufacturers. The new Partial Credit Facility (see Table 3) could be designed to include provisions for farmers and communities to use for raising shelterbelts on degraded lands. The potential role of forestry has never been more important, nor have the threats to it ever been so great.

A Citizen's Platform for Forests

61. Citizen activists and civil society organizations are now more actively engaged in monitoring and protection⁷⁷ and the SFRA and the forest sector is responding by increasing transparency and improving communications and outreach. Ukraine's forest sector has been in the news over the last couple of years, mainly due to allegations of illegal timber exports to the EU. The temporary ban on export of roundwood, which started in 2015 for a 10-year period, is still in place. Whether this temporary moratorium is justified or violates the Deep and Comprehensive Free Trade Agreement and Association Agreement with the EU is for the Arbitration Panel established for this purpose to decide. Regardless, the ideal situation is that the paying ability of domestic processors will rise, so that a moratorium is redundant. Media attention to these issues, however, demonstrates that both within the European region and the country, the economic and ecological value of Ukraine's forests is recognized by the public, and that Ukrainian society cares about forest governance⁷⁸.
62. Creating a platform for collaboration with ATCs and civil society will be an important means to improving governance and building a coalition with all sections of society. The need for a platform for engaging citizens on forest policy and governance was well-received during the ENPI Fleg programs. With new information technologies and social media platforms, the role of citizen activists and citizen journalists has grown exponentially in all sectors and regions. To align itself better with decentralization in the country, and harness the energy of new, dynamic civil engagement, there is scope to engage with a wide range of stakeholders for monitoring, protection and education. It will also be important to clarify to a wider audience the role of forest management in maintaining ecosystem services and the conservation value of forests.

⁷⁷ WWF https://www.panda.org/wwf_news/?280980/

⁷⁸ https://fe8a03e2-1131-44e7-a06a-fb468c2a30d4.filesusr.com/ugd/624187_673e3aa69ed84129bdfefb91b6aa9ec17.pdf

Forest Institutions: Need for a Review of Roles

63. The separation of policy, enforcement and commercial functions is important in Ukraine's forest sector. The roles of the forest sector institutions are well defined on paper: the policy and enabling conditions for the sector are set by the Parliament and the Ministries in charge of them, while SFRA is responsible for the implementation of forest policy and oversees SFEs, which act as commercial organizations and manage the forest estate. Frequent political changes, the lack of recognition for the importance of the sector and limited resources within the Ministry in charge have de facto left SFRA to shoulder all the responsibilities of the sector, leaving it open to criticisms of conflict of interest. The State Forest Guard, which has a law enforcement function, is employed by the SFE, which has technical and commercial roles. Having these critical functions in the same organization increases the scope for conflicts of interest and the under-reporting of challenges. The SEI, which is supposed to monitor SFEs, seems challenged in performing this role. SFEs also have a commercial role, in the sale of timber, and some have their own processing units, giving them an unfair edge in access to high quality raw material. While these may be legitimate functions, they do not provide comfort to private entrepreneurs seeking an even playing field.
64. Some international reviews have recommended⁷⁹ the adoption of a structure where policy, regulatory and commercial functions are separated to avoid conflicts of interest. In the early 2000s, within Eastern Europe there were efforts to review and guide the transformation of State forest organizations into service institutions⁸⁰. In general, the experience of these countries showed that the results of the reform depend on the unique conditions determined by the institutional and legal frameworks in their respective countries and that the 'separation of functions' could have little effect unless it was adapted to the country's legal, socio-political and cultural realities⁸¹. An important national consideration in the changing circumstances of the country relates to decentralization and the potential for ATCs in some oblasts to become more involved in the management of forests or protected areas, seeking and using technical support from SFE professionals. Globally, greater participation by locally present communities in the conservation and management of forests has been shown to be beneficial to resources in the long run.
65. Any recommendations concerning institutional reform of the forestry sector should (i) include both, formal and informal forest sector institutions' analysis, functional reviews and consultation with stakeholders; (ii) look at the opportunities being created through decentralization of the functions and devolution of powers to ATCs and their role in forest management, as well as opportunities for greater citizen participation in conservation and protection; (iii) chart a clear path and timeline with all stakeholders; and, (iv) ensure changes are aligned with the country's legal and administrative system.

⁷⁹ EU TAIEX 2018; World Bank 2006; ENPI Fleg II Reports on Forest Governance 2012-2016

⁸⁰ World Bank 2005. and Storozhuk. V. 2018. Essays on the Reform of the State Forest Sector of Ukraine: Introduction to the Issue of the Implementation of Organizational Models of State Forest Management. Background Paper for the PROFOR "Facilitating Forest Sector Reform in Ukraine"

⁸¹ World Bank 2005. Forest Institutions in Transition - Experiences and Lessons from Eastern Europe

Summary

66. The foregoing review of forest sector policy, institutions and governance highlights key issues, which if addressed, will raise sector performance and thereby justify a much more positive public image for forestry in Ukraine:

- ***Forest policy and legal framework***

- Lack of a unifying vision and policy and strategy may be impeding the development of the sector through contradictory and inefficient actions.
- It is important and urgent to align the Forest Code with the Land Code and to address other legal disparities that prevent the proper functioning and expansion of the sector and increase the scope for bringing in other sources of finances, in addition to state budget income and SFEs' own earnings.

- ***Streamlining Institutional Roles, Governance and Financing***

- There is potential for, and public perception of, conflicts of interest in the current institutional setting, especially within the SFEs. The independent functions of oversight, commercial and law enforcement need to be better demonstrated.
- There is a large number of SFEs in the sector; several may not be self-sustaining. A wider institutional review would be needed to rationalize the number and/or provide measures for improving their efficiency.
- There is a need to consider and create space for emerging opportunities for forest management through ATCs, as decentralization is expanding their role in local development.
- Public sector financing of forestry is extremely low, and largely insufficient to sustain the management and development of the resource. This issue needs a high-level review and bold, transformational steps.



V. Ukraine's Forests: Growing Green and Sustainable Opportunities

67. Based on the foregoing analysis, Ukraine's forest sector has the potential to make a robust contribution to the economy, as well as towards environmental stability and to society as a whole. However, the sector currently underperforms, in terms of productivity, gross value added, the value of exports, and in its recognition of producing important public goods. The level of domestic processing is low in comparison with neighboring countries and incentives to raise private investment in the sector are not demonstrating strong results. While forest cover has been largely stable and professionals in the sector maintain strong adherence to technical norms, other issues such as low investment, high levels of staffing and the large number of state-owned enterprises could be leading to higher costs and lower returns. The institutions overseeing the sector find it difficult to maintain their independence when it comes to policy, law enforcement and commercial arms of the sector. Public sector financing of forests is very low. There is the potential for raising private financing for conservation and afforestation programs that needs to be carefully explored.

Box 2: The United States and Republic of Korea: How two of the world's highly developed economies used forest restoration to renew natural assets

Korea started from a bleak position at the end of the Korean War in 1953. Slash and burn agriculture had destroyed forests, reduced soil fertility, increased erosion and caused declining agricultural productivity. To reverse this, the Government began large-scale forest rehabilitation in 1973. Its focus was on planting millions of hectares of trees and the erosion control of mountain slopes. Successive government plans continued with this work; during a financial crisis in 1998, the government emphasized the creation of new jobs through a large-scale public labor project, expanded for the planting, thinning and tending of 930,000 hectares over 10 years. From a GNI per capita of US\$67 in 1953, standing volume of 6m³, and population density of 222 persons per km², the country was able to grow its economy and forests to reach a GNI per capita of US\$21,000 and standing volume of 126m³, despite reaching a higher density of 485 persons per km² in 2010. In 2010, forest cover in the Republic of Korea amounted to around 64 percent of the country's total land area, almost a doubling of Korea's forest area in around 60 years. The Korean Forest Service estimates that Korea's forests now contribute 9 percent of GDP. This success is attributed to strong legal and political support and a bottom-up approach that includes citizens and NGOs.

In the US, a Civilian Conservation Corps was credited for successfully employing over 3 million men during the Great Depression of 1933, who planted nearly 3 billion trees and laid nearly 125,000 miles of trails, developed 800 new state parks, and helped 40 million acres of farmland with erosion control and the rehabilitation of drainage ditches to create better grazing conditions. Shelterbelts were planted, as part of the Prairie States Forestry Project, on farmlands affected by dust storms and soil erosion. In all, more than 222 million trees created about 18,000 miles of shelterbelt.

Based on: Kyung Joon Lee and Yeo Chang Youn 2018. How the Republic of Korea Successfully Implemented a Country-Wide Reforestation Policy within 40 Years. Policy Brief in Development Asia, Asian Development Bank; The Civilian Conservation Corps and The National Forests. Gerald W. Williams, Forest Service Historian (Retired); updated by Aaron Shapiro, Forest Service Historian in US Forest Service Today, March 21, 2008. <https://theconversation.com/fdrs-forest-army-how-the-new-deal-helped-seed-the-modern-environmental-movement-85-years-ago-91617>;

68. While strengthening the forest sector, it is also possible to contribute to Ukraine's sustainable post-COVID-19 recovery plan. A global recession and possible restrictions on migrant worker movement, and internal displacement due to the ongoing conflict in the Donbas region, will increase the demand for more local jobs. The forest sector can offer employment in establishing new forest plantations, timber harvesting, forest maintenance, fire prevention, transport and the processing of timber, in addition to creating ancillary or indirect jobs related to the production of nursery material and equipment (see Box 2). These investments can serve as capital for the future growth of the wood processing and furniture industries as the trees mature and demand is re-established. Planting in degraded areas and in shelterbelts at this time will also significantly benefit agricultural output in the south of the country, where wind erosion and the incursion of sandy soils is a major problem. Valuing other goods and services of forests, including wider forest landscape approaches, should be pursued to gain a balanced view of the sector.
69. The recommendations in this section have been categorized by timeline into Short-Term and Long-Term actions in view of the urgency for contributing to a post-pandemic, economic recovery. The Long-Term actions are not contingent on the completion of the Short-Term priorities, and there are benefits to initiating them simultaneously. Key recommended actions are grouped under three pillars: (a) Strengthening Policy and Institutional Foundations; (b) Strengthening Technical Foundations for Forest Management; and (c) Fostering a Green and Sustainable Forest Economy.

Priority Actions: Short-Term

70. The planting and restoration of degraded lands and forests on an ambitious scale could leverage the sector for short-term recovery, while also strengthening the foundations of medium-term sustainable growth. Mobilizing a national-scale program as part of a national recovery plan can provide jobs for immediate relief and lay the foundation for the sustained production of goods and services (including tourism) from the forest assets created. While an enormous challenge, preliminary estimates suggest that the sector could sustain on average 20,000 jobs per year by restoring a potential 1.2 Million hectares of degraded forests, shelterbelts and other lands over a 6-year period. Every job in the sector has the potential to generate at least 1.25 more through a multiplier effect.
71. This restoration will help Ukraine move closer to achieving its ambition of expanding forest cover by 2 million hectares. However, to achieve landscape restoration and job creation at such scale will require a new paradigm for ministries, sectoral agencies and amalgamated communities to work across traditional administrative boundaries. While this may not be easy, the examples in Box 2 do show that it is possible. Ukraine has had centrally driven programs in the past; in the present context of decentralization, local institutions and the private sector could be galvanized to respond to this national objective while serving local needs. See Table 4 below for more details on short-term actions.
72. Another priority would be to increase the active management of commercial forests, raise the efficiency of harvesting, and mobilize a soft credit line for SMEs as a priority to increase jobs and revenue. As part of a national stimulus plan, access to finance can help sawmills restart their businesses and bring back workers and harvesting contractors, equipping them with more modern equipment. Improved efficiency of wood processing, an increased volume of roundwood sold for processing, and the improved utilization of roundwood for higher value applications could add 5–10 percent or US\$26m to US\$52m in value per annum. Assuming regulatory processes are set up to allow access to the timber concerned in time—while it is still useable—additional harvesting in 350,000 hectares of pest and disease damaged forest over a 6-year period could yield about US\$77 million per annum. Separately, an increase in GVA per unit of volume harvested (of about 5 percent or US\$21.5 million in comparison to 2018) could be achieved by adopting a more optimized and demand-led approach to forest management planning.

73. To ensure success these priority actions need to be bolstered by a national forest policy and a robust forest inventory. A collaborative process for a national forest policy is a first step towards providing a platform for the convergence of diverse stakeholder interests to work towards a common national goal. Initiating this process in the near term will help mobilize the socio-political support necessary for large scale landscape restoration and afforestation and begin mainstreaming a landscape approach that harmonizes the management of forests and other land use (agriculture, wetlands, pastures, protected areas). A robust geo-spatial data base, starting with the national forest inventory, is a necessary foundation for both short-term and long-term investments in the sector.

Long Term Actions

74. The following long-term actions are essential elements for the comprehensive development of the sector and need to be expanded through national dialogue for the Ukrainian context (see Table 5 below).
- **Strengthen the Policy and Institutional Foundations:**
 - Articulate a unifying vision and national forest policy that mainstreams the management of forest landscapes in harmony with agriculture and other land use in the rural space;
 - Assess the financing needs and gaps, and explore new opportunities for funding conservation, agroforestry and farm forestry;
 - Carry out a functional review to streamline institutions to align with the changing context due to decentralization, the increasing role of ATCs, and the potential for a greater private sector role and the funding of forestry;
 - Establish a platform for direct engagement and participation with communities to harness the strength of people's interest in forest protection and improve public understanding of governance in the sector.
 - **Strengthen the Technical Foundations for State Forest Management:**
 - Invest in a modern geospatial management information system (MIS) to store and manage the data, plans and activities of SFRA;
 - Ensure the spatial content of such an MIS is closely coordinated with information held by the state Geodesy and Geocadaastre Service to minimize any conflicts with other land users, including other forest enterprises and municipal authorities;
 - Further strengthen and invest in essential infrastructure, such as the forest road network and machinery to improve the sustainability of logging operations, forest fire prevention and management;
 - **Foster a Green and Sustainable Forest Economy:**
 - Develop a 'green products' plan and incentivize state bodies and others to undertake 'green procurement' and 'construction with wood', and invest in a 'Circular Economy' to foster the innovation and growth of the wood processing industry;
 - Review and rationalize the tax policy for timber producers;
 - Create a level playing field in the wood processing sector for state enterprises and the private sector and incentivize use of legally produced timber.

75. Realizing the full potential of the forest sector requires continuity in leadership and coordination, both among ministries and with development partners. The new leadership of SFRA, the State Forest Resources Agency, has already indicated a willingness⁸² and initiated action to increase the degree of transparency in timber auctions and to increase electronic timber tracking, and has opened information on timber harvesting up to the public, among others. However, policy and strategic oversight of the sector was shifted from the Ministry of Agriculture and Food to the Ministry for Environmental Protection and Natural Resources in 2019, leading to a hiatus in higher level decision-making. Ukraine has taken several important steps to increase transparency in sale and tenure security of agricultural land and expects to transfer state lands to communities. If the local decision-making process can be collaborative and if communities are supported to see the viable afforestation options for these lands, this will increase the number of opportunities for expanding tree planting on degraded lands. Continuity of leadership is critical to keeping up the momentum of reform in the forest sector and coordinate actions with these highly significant land tenure reforms. There is a need for MEPNR to lead a sustained dialogue with development partners active in this sector in order to capitalize on their comparative strengths and mobilize them in support of the reform agenda. A coordination platform like those already existing on land reform, decentralization, etc., will help consolidate and direct support to forestry, as prioritized by the Government.

⁸² http://dklg.kmu.gov.ua/forest/control/uk/publish/article?art_id=208388&cat_id=32888



Table 4 Short-term recommended actions 83 84

Pillar	Action	Steps	Outputs
Fostering a Green and Sustainable Recovery	Initiate a nationwide, targeted program to plant trees in shelterbelts, as well as in degraded State, private and communal lands, with incentives for farmers and communities and the private sector.	<p>Identification of available lands from remote sensing and cadastre records, in coordination with Geo Cadastre, and plan collaboratively with ATCs;</p> <p>Ensure the sustainability of these plantations through their incorporation into a long-term forest management framework that includes monitoring and accountability;</p> <p>Establish additional nursery capacity, soil preparation, transport, planting, maintenance, beating-up, weed control, etc.</p>	<p>Preliminary estimates indicate the possibility of creating 20,000+ jobs⁸³ in direct employment per year for 6 years, with about 1.2⁸⁴ million hectares afforested by the end of it. However, the size of area planted, and number of jobs created, could vary, and both depend on the enabling legal and socio-political conditions necessary for such large-scale mobilization.</p> <p>Restoration/improved management of forests and shelterbelts creates opportunities for establishing nature-based tourism, recreation, hunting, and NTFP harvesting. There is also potential for development of PES in collaboration with ATCs.</p> <p>Land Productivity Dynamics improved; timber raised will provide entrepreneurial opportunities after about 8 years, when the first thinning takes place.</p>
	Incentivize private sector investment in wood processing.	<p>Establish credit line for SMEs in wood processing;</p>	<p>Improved efficiency of wood processing and value-added opportunities (5–10 percent or US\$26million to US\$52million p.a.)</p> <p>Increased volume of roundwood sold for processing by SMEs.</p> <p>Improved utilization of roundwood for higher value applications.</p>

⁸³ Based on data from Standards of Production for Performance, Forestry, Forest Protection and Fire Management. State Committee of Forestry of Ukraine, Ukrainian State Design Institute of Ukrdiprolis Forestry Scientific Department of Standardization, Metrology, Standards and Estimates. Kyiv 2007

⁸⁴ VERKHOVNA RADA OF UKRAINE, Committee on Agrarian Policy and Land Relations. Decision from February 2018, Protocol #68. About results of Committee meeting on a question: "Problems of forestry reform in Ukraine". The Committee stated that Ukraine has at least 2.5 million hectares of land unsuitable for agricultural production and in need of afforestation to improve the environmental situation and meet social needs in accordance with the Sustainable Development Goals (UN, 2015) and the requirements of the Paris Agreement on climate change (2015).

Pillar	Action	Steps	Outputs
Strengthening Policy and Institutional Foundations.	Develop forest policy and strategy.	Engage and collaborate with stakeholders to cover all aspects of the sector: forest management, biodiversity management, wood processing.	Establish a platform for national forest policy development. Initial vision and policy document developed.
Strengthening Technical Foundations for Forest Management	Increase active management of commercial forests.	Initiate an immediate review of high priority areas where forest stands need attention due to risk of fires or pest attacks and can benefit from the mobilization of labor in felling or replanting. This could recover the timber of dead or dying trees that would otherwise deteriorate.	Additional harvesting in 350,000 ha of pest and disease damaged forest (over 6 years) yielding about US\$77million per annum.
		Procure agile harvesting equipment.	
	Establish NFI as part of National Forest Monitoring System.	Execute current NFI implementation plans.	Robust, independent tool for the assessment of success in forest policy and in climate change impact and adaptation.
	Modernize the collection and management of State Forest Survey Data.	Conduct a needs assessment. Devise a development roadmap.	Reliable, rapid and cost-efficient survey and centralized forest cadastre database.
	Raise efficiency of exploitation.	On a pilot basis, demonstrate the impact on net revenues of market-led planning and assortment management, using optimization software and algorithms.	Increased GVA per unit of volume harvested (about 0,5 percent or US\$21.5 million compared to 2018).
		Align plans with the sources of highest demand and revenue.	



Long term Actions

Table 5 Long term recommended actions

Pillar	Action	Steps	Outcomes
Strengthening Policy and Institutional Foundations	Develop forest policy and strategy.	Establish a platform for direct community engagement. Engage and collaborate with stakeholders to cover all aspects of the sector-forest management, biodiversity management, wood processing.	A national forest policy and vision for Ukraine. Strategy with clear, relevant, time-bound targets and monitoring mechanisms.
	Conduct function review.	Align institutions with new policy and vision (above).	Roadmap for reform. Clear process, roles and responsibilities.
	Assess forest financing needs and gaps.	Analyze feasibility of different financing options: PES, buy-back arrangements with farmers for tree farming.	Policy on new options for financing ecosystem services, areas and plantations.
	Review and align forest code and land code.	Assess regulations and functions in light of the changing needs of the sector and results of functional review.	Forest Code aligned with the Land Code.
Strengthening Technical Foundations for Forest Management	Adopt more systematic forest management planning systems with new technologies.	Build on the centralized geospatial cadastre database to compile plans that balance economic, social and environmental objectives.	Appropriate investment plans (roads etc.) using evidence-based decision making;
		Initiate ongoing necessary research to support valuing ecosystem services and answer questions raised by climate change adaptation and lack of information on thinning effects.	Better forecasting of harvesting; Better decision making under uncertainty; Better understanding of the value of public goods and trade-offs being made.



Pillar	Action	Steps	Outcomes
	Extension services to support communal/municipal forestry management.	To ensure communities receive state lands with natural Draft law #2194.	Forests and newly afforested lands are managed to maximize economic and ecosystem services across all land types and ownership;
	Establish the basis for forests to be retained or newly created on different categories of degraded lands.	Review the institutional and regulatory arrangements. Revise the Forest Code or any other relevant instruments.	During Land Reform, the lands that already have tree cover are retained where possible; Increased participation of farmers, entrepreneurs and ATCs in agroforestry and plantations; Barriers minimized for Reserve lands or lands of other designations to become afforested.
Fostering a Green and Sustainable Forest Economy	Continue to strengthen the controls for timber sale, transport and tracking.	Continue to strengthen the processes and broaden to include the wood from forests under all permanent users.	A more robust system of trading, permitting and tracking timber will engender greater trust and reduce the potential for fraud/illegal logging.
	Develop a 'green products' strategy for the wood processing industry.	Identify innovative industries for start-up financing and product development. Identify the timber needs for the sector.	The system will incentivize maximum sustainable GVA creation in the sector as whole.
	Review and rationalize the tax policies for timber producing enterprises.	An equitable system of taxes, performance indicators and incentives are developed.	
	Create a level playing field in wood processing sector for private entrants;	Review processes for timber sales to increase equitable access to all enterprises, not only SFEs.	



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World Bank Global Poverty Data

Annex 1: Types of Felling in Different Categories and Sub-Categories of Forests

The conditions for growing forests depend on the division of forests into categories, their classification for the inclusion in commercial use, and a logging system introduced based on these factors. A comparison of previous and modern logging systems—introduced by the 2006 Forest Code with changes to logging rules—shows different types of logging for different forest categories has hardly changed despite the introduction of forest division into new categories. Selective and clear sanitary cutting is still allowed in almost all categories (except nature reserves).

FF – Final Felling, usually named as Main Use Felling; CC – Clear Cutting, GC – Gradual Cutting, SC – Selective Cutting
RF – Reforestation Final Felling

SC – Sanitary Cutting: CSC – Clear Sanitary Cutting, SSC – Selective Sanitary Cutting,

RSC – Reshaping Cutting

RC – Restoration Cutting

LSC – Landscape Cutting

TH – Thinning (including care in young stands)

Sub-Categories of Forests	Types of cuttings <small>(Yellow color indicates the necessity of approval)</small>									
	FF			RF	SC		RSC	RC	LSC	TH
	CC	GC	SC		SSC	CSC				
Natural Conservation, Scientific, Historical and Cultural Designation Forests										
Natural Reserves										
Biosphere reserves (Conservation Area)										
Biosphere reserves (buffer zone)										
Biosphere reserves (Zone of anthropogenic landscapes)										
Biosphere reserves (Area Regulov. Bequun)										
National Natural Parks (conservation area)										
National Natural Parks (zone Regulov. Recreation)										
National Natural Parks (area hospital recreation)										
National Natural Parks (Economic Area)										
Regional Landscape Parks (conservation area)										
Regional landscape Parks (area reg. recreational)										
Regional landscape parks (area stats. Recreational)										
Regional landscape parks (economic Area)										
Protected forest Tracts										

Sub-Categories of Forests	Types of cuttings <i>(Yellow color indicates the necessity of approval)</i>									
	FF			RF	SC		RSC	RC	LSC	TH
	CC	GC	SC		SSC	CSC				
Natural monuments										
Preserves										
Forests of historical and cultural purposes										
Forests of Scientific Purpose, Inc. Genetic Reserve										
Recreational Forest										
Forests within settlements										
Forests 1 and 2 zones sanit. Protection of HO sources.										
Forests 1 and 2 zones of Counties San. Ohor. Medical-Ozdor. tert.										
Forests 3 zones of constituencies SAN. Health care. Tert.										
Forest Park part of forest green areas										
Forestry part of the forest green areas										
Recreational-health forests, outside the green areas										
Protective Forests										
State Protective Forest Strips										
Protective Forest Strips										
Forest Drainage Bands										
Scaffoldings in Railways										
The forests of Motor road drainage										
Erosion forests										
The forests along the railroad withdrawal lanes										
The forests along the road drainage										
Forests along the riverbanks, around lakes, reservoirs, etc.										
Bayraic and other protective scaffolding										
Commercial Forests										
Operating forests										

Annex 2: Electronic Tracking of Timber in Ukraine –

A brief Overview

Electronic timber accounting has been carried out in Ukraine since 2010. The Action Plan—for the implementation of the United State Electronic Timber Accounting System (USETAS) 2009–2012 envisaged a phased introduction of the piece-wise accounting of timber assortments, all the way from logging to storage points and processing and shipment, to the end consumer. The pilot project for maintaining USETAS, prepared by the Cabinet of Ministers of Ukraine in 2017, envisaged the introduction of mandatory electronic timber accounting by all permanent forest users. A new round of electronic timber accounting began in 2019. The President of Ukraine was obliged to introduce electronic accounting into enterprises belonging to the Ministry of Defense of Ukraine, and later, the Oblast State Administrations (OSA) required state permanent forest users to ensure the implementation of the Presidential Decree and ensure proper control over the timber turnover and the cabinet ministers' plan of implementation of the Presidential Decree. At the end of 2019, the Cabinet of Ministers approved the procedure for monitoring the internal consumption of raw timber, based on the information submitted by forest users to the USETAS. Thus, the government has taken a major step in transforming the departmental electronic accounting system into a nationwide system. According to the procedure, SFRA is obliged to publish monthly data on the monitoring of the internal consumption of timber.

Users of the USETAS

As of December 1, 2019, electronic accounting is to be carried out by 504 enterprises, of which: 297 are enterprises and organizations belonging to SFRA; 12 are enterprises under the Ministry of Defense; one, under the Ministry of Internal Affairs; 3, under the Ministry of Education and Science; one, under the National Academy of Agrarian Science; 2, under the State Affairs Directorate; 46, under the Ministry of Environment and Natural Resources; 140 are communal enterprises attached to the Oblast Councils of Ukraine; and one is a private and collective-owned enterprise. Other ministries and agencies are also connected to the system, although they do not keep records of timber production but can use the system for control and information exchange purposes. In total, more than 3,700 mobile users are connected to USETAS. Access is provided to the unified, state electronic timber accounting system on-line—using mobile equipment—by the Ministry of Internal Affairs and the National Police, the State Fiscal Service and the State Customs Service.

Technological support

The basis of USETAS systems are the technology, equipment and software of the Austrian company Latchbacher, adapted to the Ukrainian legislative system and standards. SFRA assigned the function of the administrator of the USETAS to the state enterprise “Forestry Innovation and Analytical Center” (LIAC, formerly Ukrainian Forestry Center of Consulting and Logistics/GP “Ukrlesconsulting”). Methods of electronic timber accounting include:

- separate accounting of logs, which consists of marking each saw-log or veneer log with a separate tag;
- accounting of industrial roughwood by batches, when each log is tied to one tag;
- accounting of pulpwood and wood fuel by stacks, in which all logs are tied to one tag.

Going by the unique tag number, a buyer can refer to an open database and check the origin and quality of the timber assortment information coded on the tag.



Log with tag and checking of legality in the server of the LIAC

This information is entered into the system via mobile Android devices; subsequently the information is transferred to a central server and to the servers of regional administrations and forest enterprises. The reading of this information is carried out at the point of the formation of batches of shipped goods. The system automatically provides freight bills and exchanges data with the 1C accounting program, allowing the accounting of logs in logging areas and upper and lower warehouses, and data on the shipment of wood to buyers, to be linked into a single system.

The role of USETAS in the system of control of legality of wood

The USETAS will cover exclusively primary timber accounting, offering the ability to provide buyers and the authorities in control of timber with information on the origin of any recorded assortment of timber. To control the critical points of the timber circulation system, law enforcement and other authorities must have permanent mobile access to the USETAS, including the means to control the flow of information and the activities of the system administrator. The system will mainly function to prevent illegal logging, reducing the problem of legality to the marking-up of assortments. However, despite establishing the USETAS, the problem of mixing up assortments in the process of their processing remains, as well as problems of blending timber of different origin and remaining in control of supply chains. In order to counter the turnover of illegal timber (especially processed timber), the state still needs to develop overall legislation on the legality of origin. The introduction of a system for monitoring the internal consumption of untreated timber should also be considered an element of e-governance in forestry.



Annex 3: Overview of the Role of Development Partners

- 1 Several development partners are already working on some of the issues outlined above, notably the EU, German bi-lateral assistance for Agriculture, USAID, and USFS, FAO, UNIDO, EBRD and the World Bank. A coordination platform like those led by the Ministry of Agriculture, Ministry of Territorial Development, etc. would help consolidate and direct their support, as prioritized by the Government. The EU-Ukraine Association Agreement (signed in 2014 and fully ratified in 2017) is a key framework document, and support for reforms is the main theme for development cooperation. The EU Technical Assistance and Information Exchange (TAEIX) expert mission in 2018 on the reform of forest governance, resulted in recommendations for the institutional restructuring of the forest governance system in Ukraine (TAEIX, 2018). However, these recommendations have not been taken on board by Ukraine.
- 2 The German-Ukrainian Agricultural Policy Dialogue (APD) has been assisting Ukraine in reforming agricultural policy and legislation since 2006. Forestry has been part of the Policy Dialogue since 2017, with a new phase planned for 2019–2021. The project aims at improving framework conditions for sustainable, multifunctional forest management in Ukraine, including the updating of a National Forest Inventory and improving the economic performance of selected state forest enterprises. APD also provides targeted expert support on a Climate Change Strategy being developed by the Ministry of Agrarian Policy and Food.
- 3 The FAO is currently implementing the Global Environment Facility-sponsored project, Integrated Natural Resources Management in Degraded Landscapes in the Forest-Steppe and Steppe Zones of Ukraine. (2018–2021). This project has a component addressing standards for planting linear-type shelterbelts, taking climate-smart agriculture into consideration as an overarching principle (FAO, 2018).
- 4 The United States provides technical assistance through USAID and through the USFS. USAID has recently financed an upstream review of the political economy of the forest sector and is finalizing an assessment of the potential of the furniture sector for further development. USFS, through its International Programs division, provides training and capacity building on fire response coordination and suppression (in the Chernobyl Exclusion Zone and a number of other territories); disaster risk reduction and emergency response coordination to improve the capacity of state agencies to respond to natural and human-caused disasters; as well as support for counteracting illegal logging (in the form of capacity building for residents to observe and report suspected illegal activity); water quality and watershed management, and support for environmental education and eco-tourism development. A number of activities are carried out in partnership with NGOs, such as the WWF, Center for Civic Initiatives, and NGO Forza (USFS, 2020). WWF is implementing two projects in the forest sector. The Forest Watch Initiative was started in 2016 and is funded by the International Renaissance Foundation, the Embassy of Finland in Ukraine and the US Forest Service. The project focuses on building civil society's and law enforcement agencies' capacity to reduce illegal logging and establish cooperation between professional foresters and civil society, and vice versa (Public Report on Project Activities: 2017–2018, WWF, 2019). Over time, the project has transformed into a civil society movement with its project activities implemented by several local NGOs in the Carpathian region. Strengthening networks and investigation for a more effective implementation of the EU timber regulation/Forest crime (2019–2021) is another project implemented by WWF jointly with Interpol and funded by the EU. The project aims to enable effective law enforcement by stimulating networks able to detect forest crime and respond to it (WWF, 2019).

- 5 The World Bank's engagement in the forest sector was limited to technical assistance. For more than 10 years, the World Bank was one of the implementing organizations (along with IUCN and WWF) of the EU-funded Forest Law Enforcement and Governance (FLEG) Programs (Phase I 2008–2012 and Phase II 2012–2016). The programs focused on improving forest governance in the seven countries of the EU's European Neighborhood and Partnership Instrument (ENPI) East region: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, and the Russian Federation. In Ukraine the results of the program were a comprehensive set of recommendations for improving forest law and forest management practices, developing policy strategy and forest sector reform. The program also established a platform for stakeholder dialogue on forest sector issues.
- 6 The World Bank's support for land reform and increasing investment in agriculture will have indirect impacts on the forest sector. The WB-EU program 'Supporting Transparent Land Governance in Ukraine' has been helping Ukraine develop a comprehensive package of laws and enabling conditions to open up the agricultural land market in the country and make land governance transparent. The Accelerating Private Investment in Agriculture Program aims to remove constraints to increasing the participation of small- and medium-sized enterprises (SMEs) in agricultural markets to take advantage of improved land governance and access to inputs. It aims to facilitate the completion of the registration of state land, including forest and natural reserve land. The total area of unregistered land still under state control, including around 4 million hectares of unregistered state agricultural land, as well as forests and protected watershed areas amounting to at least 12 million hectares. Together, these programs will transform Ukraine's land governance system and increase incentives for investments in agriculture, which is a key driver of the Ukrainian economy.



