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Report on round table discussions aimed to present proposals on achievement of forestryrelated indicators of SDGs and on the publication of information booklet about the contribution of the forest sector to the achievement of SDGs indicators in Russian and English

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Project Activity 3.1.1.1: Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation

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ACTIVITY 3.1.1.1.

PROGRESS REPORT 4 «Report on round table discussions aimed to present proposals on achievement of forestry-related indicators of SDGs and on the publication of information booklet about the contribution of the forest sector to the achievement of SDGs indicators in Russian and English»

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Content

| List of figures | 4 |
|---|----|
| List of abbreviations | 4 |
| Executive summary | 5 |
| Introduction | 7 |
| 1 To organize and hold 2 round tables (interim and final) aimed to present proposals on achievement of forestry-related indicators of SDGs and involving a wide range of stakeholders (minimum 50 participants in each round table) | 8 |
| 1.1 Information about round table 1 | 8 |
| 1.2 Information about round table 2 | 15 |
| 2 To prepare an information booklet about the contribution of the forest sector in the achievement of SDGs indicators | 16 |
| APPENDIX 1. List of participants of round table 1 held on February 5, 2020 | 17 |
| APPENDIX 2. Agenda of round table "Integration of sustainable development goals in policy papers of the forest sector of Belarus" | 19 |
| APPENDIX 3. Final report | 20 |
| APPENDIX 4. Layout of information booklet "Forest sector of Belarus. Contribution to sustainable development goals" | 53 |
| APPENDIX 5. Cost estimates of the round table discussions and publication of the booklet | 76 |

List of figures

| Figure 1 | Round table 1, February 5, 2020 | 8 |
|----------|---------------------------------|----|
| Figure 2 | Presentation by A.V. Neverov | 9 |
| Figure 3 | Presentation by P.A. Protas | 10 |
| Figure 4 | Presentation by V.V. Nosnikov | 10 |
| Figure 5 | Talk by L.V. Fedorovich | 12 |
| Figure 6 | Talk by G.Yu. Fedorov | 13 |
| Figure 7 | Talk by Ya. V. Kashurina | 13 |
| Figure 8 | Talk by L.N. Rozhkov | 14 |

List of abbreviations

UNSPF – United Nations Strategic Plan for Forests SDG – Sustainable Development Goal GEF – Global Environment Facility BSTU – Belarusian State Technological University

Executive summary

The importance of the forest sector to economic, social and environmental strength of Belarus is noted in main policy papers of the Ministry of Forestry. At the same time, poor attention is given to the dialog with general public which generates conflicts with local communities and non-governmental environmental and conservation organizations. Recently, the Ministry of Forestry has strengthened its efforts on raising awareness among local people.

Round table 1 was held on February 5, 2020 in the BSTU conference room (Figure 1) and was aimed to involve the largest possible number of participants from different regions of the country and to inform the involved experts about the outcomes of Project Activity 3.1.1.1. On the same date, Belarusian State Technological University was hosting the 84th Scientific and Technical Conference of teaching staff, researchers and PhD students (incl. international participants). So, we had the opportunity to invite to the round table not only participants from Belarus but also experts from Lithuania, Russia and Finland.

The first speaker was A.V. Neverov with the presentation "Sustainable development goals and forestry: general and applied aspects of research". The existing Strategic Forestry Development Plan for 2015-2030 contains many of the SDGs indicators. The most demanding and relevant challenge is to implement the SDGs in the actual forestry practice; the development strategy of the forest sector must be in line with the SDGs. Practical implementation of sustainable development goals can be advisory (indicators – PROXY) and mandatory (guidelines).

Then the floor was given to P.A. Protas with the presentation "Achievement of sustainable development goals in the logging sector of the Ministry of Forestry of the Republic of Belarus". Harvest and use of firewood are constantly growing in Belarus, amounting to 1,721 t of reference fuel in 2018. Most firewood is sold through the system of the Ministry of Forestry of the Republic of Belarus. Generation of heat from renewable sources is also growing in the total heat energy mix. It makes 9.1% of the total energy, 6% being generated from biofuel. Firewood makes more than half in the renewable energy mix.

Speaker 3 was V.V. Nosnikov who spoke about The role of the Belarusian forest sector in protection of terrestrial ecosystems (SDG 15). The forest sector is concerned with almost all sustainable development goals, but the greatest impact is done on SDG 15. A key indicator of the Goal and its target 1 is "Forest area as a proportion of total land area" which is common to global and local dimensions. The transfer of forest lands to other land uses with associated decrease in forest area may be indicative of unsustainable use of ecosystems. Large-scale pathological or catastrophic events have detrimental effect on forest cover. However, they do not affect the sustainability of forest management. The main problem is the calculation methodology that is used to calculate the indicator. Forest certification is an important activity of the Ministry of Forestry which promotes forest productivity, resilience and biological diversity, mitigates negative environmental impacts of logging industry, promotes export capacity of the forest sector and removes barriers of international trade. However, to reduce the number of the indicators, it is advisable to suggest a consolidated indicator irrespective of certification types.

The indicator of average growing stock shows the productivity of forests. However, the growing stock is directly linked to the carbon sequestration function. As the forest phytomass increases, so does the carbon stock in forests. From this perspective the average growing stock can be considered as both economic and environmental indicator of sustainable forest management.

The average timber harvest in 2018 amounted to 83% of the average stock change and only 49% of the average increment. The sustainability of felling operations can be proved by

comparison with the average increment. As the average timber harvest cannot be used to assess sustainability of forest management, this indicator should be replaced by the ratio of the average timber harvest to the average stock increment.

L.V. Fedorovich took the floor during the discussion round upon the first session of presentations. He advocated the separate inventory of FSC and PEFC certified forests. He also expressed the opinion that the plan of forest roads construction may be considered as unreasonable in view of the ongoing experiment of the self-sustained operation of forestry enterprises.

Speaker 4 was A.V. Neverov with the presentation "National Program "Belarusian Forest" for 2016-2020: main provisions and interim results of implementation". The National Program is a priority document that outlines main challenges to be addressed. It was noted that generally the indicators were performed and the activities under the National Program were done at an appropriate level. All indicators related to sustainable forest management demonstrate steady growth or remain stable. The Ministry of Forestry has to involve considerable amount of its own resources to fund the National Program activities, if the public funding is reduced. The performance of the National Program was assessed at 0.85 and recognized as medium.

V.V. Nosnikov presented the Draft National Program "Belarusian Forest" for 2021-2025. The responsible customer of the National Program is the Ministry of Forestry of the Republic of Belarus. The National Program "Belarusian Forest" that is effective for the current five-year period has a stronger focus on timber industry which can be clearly seen in the text content of the Program. The forest sector plays an essential role in the achievement of sustainable development goals. The central SDG here is SDG 15 "Life on Land", so it is given the biggest attention in the draft Program. The draft National Program is split into several subprograms, the titles of the subprograms may be modified depending on the priorities set. In conclusion it was noted that headline targets and most notable actions are still being defined.

Questions were asked and some proposals were made to the draft National Program under the working title "Belarusian Forest" for 2021-2025 during the discussion after the presentations. All stakeholders received the draft National Program by e-mail. All comments and suggestions made during the round table discussions are included in this report and the draft National Program.

The goal of round table 2 was to communicate to stakeholders the final draft National Program "Belarusian Forest" for 2021-2025. However, the plan to hold an event involving a large number of people was adjusted due to the current COVID-19 pandemic. Therefore, we decided to prepare a final report on the outcomes of Project Activity 3.1.1.1. The final report will be circulated to all participants of round table 1 and other stakeholders.

The forest sector of Belarus makes a considerable contribution to the achievement of SDGs targets and indicators. Am information booklet has been prepared to inform general public about the forest sector activities. The main task of the information booklet is to create awareness about the role of the national forest sector as an important tool of sustainable development and the industry that conserves and improves the human environment. The booklet is designed as both informational and research-based. The booklet is also a promotional one as it outlines the main activities of the national forest sector.

Introduction

The 2030 Agenda for Sustainable Development adopted on 25 September 2015 by 193 countries envisages that further social and economic development can only be achieved through 17 sustainable development goals (SDGs) by global partnership of governments, private sector, civil society and all people of the world. The Republic of Belarus is committed to implementation of the SDGs at a nationwide scale, i.e., the National Strategy for Social and Economic Development of the Republic of Belarus until 2030 has been adopted; the National platform for reporting indicators of Sustainable Development Goals (SDGs) has been created; the Road Map for achieving SDGs in Belarus is being implemented, etc.

Economic development of the Republic of Belarus has its specific features; forest is an important natural resource here and one of the most significant capital assets. The forest sector of Belarus makes a great impact on economic, social and environmental performance of the country. Hence, it is important to develop a proper governance strategy, both nationwide and sector-specific, which would harmonize the national forest law with provisions of Agenda 2030, international forest policy papers, principles of sustainable development and adaptation to climate change.

The importance of the forest sector to economic, social and environmental strength of Belarus is noted in main policy papers of the Ministry of Forestry. At the same time, poor attention is given to the dialog with general public which generates conflicts with local communities and non-governmental environmental and conservation organizations. Recently, the Ministry of Forestry has strengthened its efforts on raising awareness among local people. Good examples are short information videos about clean-up operations after the large-scale windblow of 2016 and coniferous forest dieback of the past years.

The terms of reference for Activity 3.1.1.1 require assessment of contribution of the forest sector to the achievement of SDGs and draft National Program "Belarusian Forest" for 2021-2025, therefore, an important aspect of the study is to disseminate the study outcomes among stakeholders, i.e., governmental bodies, scientific institutes, academia and non-governmental organizations. Organization of round table discussions and publication of information materials are essential for the dissemination to happen.

Unfortunately, the current COVID-19 pandemic makes it difficult to organize full-scale discussion events involving a lot of people. Therefore, only one round table has been held instead of the two discussions foreseen by Activity 3.1.1.1. Round table 2 was cancelled following social distancing recommendations given by the World bank. Circulation of the discussion materials of the cancelled round table among stakeholders is an alternative way of communicating relevant information.

1 To organize and hold 2 round table discussions (interim and final) aimed to present proposals on achievement of forestry-related indicators of SDGs and involving a wide range of stakeholders (minimum 50 participants in each round table event)

1.1 Information about round table event 1

Round table 1 was held on February 5, 2020 in the BSTU conference room (Figure 1) and was aimed to involve the largest possible number of participants from different regions of the country and to inform the involved experts about the outcomes of Project Activity 3.1.1.1 "Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation".



Figure 1 – Round table 1, February 5, 2020.

On the same date, Belarusian State Technological University was hosting the 84th Scientific and Technical Conference of teaching staff, researchers and PhD students (incl. international participants). So, we had the opportunity to invite to the round table not only participants from Belarus but also experts from Lithuania, Russia and Finland.

The list of participants of round table 1 is given in Appendix 1.

The total number of participants was 51, including 9 foreign experts. The round table was also attended by 12 students of Forestry faculty majoring in Tourism and Nature Management.

The agenda of the round table is given in Appendix 2.

The discussion was split into two sessions. Session 1 was dedicated to the assessment of the forest sector contribution sector to the achievement of SDGs and UNSPF targets. The welcoming speech was made by I.V. Kavrus, Head of BSTU Research Department, who spoke about the role of the University in training forestry professionals and doing forestry-related research. He noted that BSTU is a regular contributor to UNDP, GEF, GFDRR and EU projects. A welcoming coffee break was organized during the registration of participants.

In 2018, a team of University researchers was working on draft forest policy papers within the activity under Belarusian Forestry Development Project (GEF) which is jointly implemented by the Ministry of Forestry and the World Bank.

The welcoming speech on behalf of the Ministry of Forestry of the Republic of Belarus was made by S.P. Sazonov, Consultant of the Forestry Department. He highlighted the great contribution that the forest sector is making into the achievement of several SDGs and pointed out the importance of awareness raising campaigns for the general public.

As many presentations covered related and crosscutting issues, it was suggested to allocate time for questions and discussion upon the first and the second presentation sessions. The suggestion was fully accepted by the round table participants.

The first speaker was A.V. Neverov with the presentation "Sustainable development goals and forestry: general and applied aspects of research". He reported that The 2030 Agenda for Sustainable Development was adopted by the United Nations in 2015 and includes 17 sustainable development goals. The Republic of Belarus joined the Agenda in 2016 and committed to achieve the goals by 2030. The existing Strategic Forestry Development Plan for 2015-2030 contains many of the SDGs indicators. The main goal of the Plan is to establish highly productive resilient forests, to promote conservation and efficient use of biological and landscape diversity in the context of climate change and principles of "green" economy, multipurpose and comprehensive knowledge-based system of management, cutting-edge technological infrastructure and new technologies, promotion of general and professional competence of forestry workers, higher profitability of the forest sector and its economic self-sufficiency, extensive production of high-quality timber and non-timber resources, socioeconomic promotion of rural areas, creation of new jobs in small-sized companies working in timber harvest, woodworking and ecological tourism.

The indicators of achievement of sustainable development goals must be broken down, if applicable, by income level, gender, age, race, ethnicity, migration status, disability, residence and other indices in accordance with fundamental principles of official statistics.

The most demanding and relevant challenge is to implement the SDGs in the actual forestry practice; the development strategy of the forest sector must be in line with the SDGs.

Practical implementation of sustainable development goals can be advisory (indicators – PROXY) and mandatory (guidelines).

The speaker pointed out the important indicators that can be considered as SDG indicators. Those include global efficiency of the growing stock use; natural heritage sites; area of urban and suburban forests. He also put forward some proxy indicators that can be seen as advisory rather than mandatory.



Figure 2–Presentation by A.V. Neverov

UNSPF is a comprehensive document that describes vision, targets, trends, challenges and opportunities of six Global Forest Goals (GFG) and 26 associated targets. It also contains implementation framework and review of conventions for informational collaboration and awareness raising activities.

A.V. Neverov concluded that SDGs and UNSPF targets show the globally strengthened role of forests and forestry. The system of suggested indicators, that are seen as concrete tools of SDGs and UNSPF implementation, requires new priorities to be set in forest management in collaboration with international (including funding) organizations.

Then the floor was given to P.A. Protas with the presentation "Achievement of sustainable development goals in the logging sector of the Ministry of Forestry of the Republic of Belarus".

SDG 7 is aimed to provide universal access to affordable, reliable and modern energy as well as to increase substantially the share of renewable energy and to improve energy efficiency.

Harvest and use of firewood are constantly growing in Belarus, amounting to 1,721 t of reference fuel in 2018. Most firewood is sold through the system of the Ministry of Forestry of the Republic of Belarus.

Generation of heat from renewable sources is also growing in the total heat energy mix. It makes 9.1% of the total energy, 6% being generated from biofuel.

Firewood makes more than half in the renewable energy mix.

The following indicators are suggested to show the contribution of the forest sector into SDG target 7.2:

7.2.1.1.1 «Use of local wood fuels to substitute for natural gas and to increase the contribution of the Belarusian forests to reduce the greenhouse gas emissions».

The wood fuel consumption is highly dependent on the power of boilers. The share of local wood fuels is expected to grow by 10% in the coming 5 years.

General indicator 7.b.1.1.1 «Number of wood fueled energy units» may be suggested. It may also serve as a basis for the action "Increased production and sales of wood fuels" within National Program "Belarusian Forest".

The Ministry of Forestry annually builds about 100 km of new forest roads which contributes to the implementation of SDG 9.

Speaker 3 was V.V. Nosnikov who spoke about The role of the Belarusian forest sector in protection of terrestrial ecosystems (SDG 15).

The forest sector is concerned with almost all sustainable development goals, but the greatest impact is done on SDG 15. Therefore, conservation and regeneration of forest are given much attention in all countries of the world as these issues lie at the heart of sustainable development of each region and the planet earth.

A number of targets, global and national indicators are suggested to achieve SDG 15.

A key indicator of the Goal and its target 1 is "Forest area as a proportion of total land area" which is common to global and local dimensions.

Change in forest area as a proportion of total land area is an indicator of sustainable management of land resources. The transfer of forest lands to other land uses with associated decrease in forest area may be indicative of unsustainable use of ecosystems.

Figure 4–Presentation by V.V. Nosnikov

According to the UN recommendations [1], this indicator is calculated as a percentage

share of forest area to total land area. Our country uses the indicator of forest cover.

Since mid XX century onwards the forest cover has been steadily growing in Belarus. However, it has remained stable at 39.8% for the past three years.

The annual losses of forest lands are compensated by reforestation and transfer of the reforested sites into forest area, i.e., the current clear cuts are compensated by the areas where reforestation was carried out 7 years ago.

Large-scale pathological or catastrophic events have detrimental effect on forest cover. However, they do not affect the sustainability of forest management. The main problem is the calculation methodology that is used to calculate the indicator.



Figure 3–Presentation by P.A. Protas

The volume of aboveground phytomass is constantly growing in Belarusian forests. Over the past 5 years it increased by 5.3% and amounted to 153.2 t per one hectare of forest lands. The indicator is going up due to the general increase in growing stock and average growing stock which has increased by 4.8% over the past 5 years.

Forest certification is an important activity of the Ministry of Forestry which promotes forest productivity, resilience and biological diversity, mitigates negative environmental impacts of logging industry, promotes export capacity of the forest sector and removes barriers of international trade. However, to reduce the number of the indicators, it is advisable to suggest a consolidated indicator irrespective of certification types.

Net coefficient of forest area variation is expressed as a percentage ratio of forest fund area variation in a given year to the total forest fund are in the preceding year. Actually the indicator shows by how much the forest area increased over the preceding year.

Forest management plans are important tools of forest management that help to ensure sustainable long-term production of forest goods and services.

All forests of Belarus have management plans that are made during forest inventory for a 10-year period. This sub-indicator is crucial for sustainable forest management and needs no amendment.

Great emphasis is placed on conservation forests. The dynamics of the conservation areas demonstrates a positive trend. To ensure sustainable forest management it is recommended to use the indicator "Area of forest genetic reserves". Genetic reserves are sites that are aimed at genetic conservation of forests in natural habitats.

The indicator of average growing stock shows the productivity of forests. However, the growing stock is directly linked to the carbon sequestration function. As the forest phytomass increases, so does the carbon stock in forests. From this perspective the average growing stock can be considered as both economic and environmental indicator of sustainable forest management.

The area of mature and overmature forest stands gradually increases in Belarus. It is approaching the area of normal age distribution. The steady growth indicates that management of mature forests allows the growing stock to increase. i.e., forest management is sustainable.

Nowadays the proportion of genetic-breeding forest plantations has reached the desirable value (52.0% in 2018). So, further efforts in the field of forest seed breeding must be focused on maintaining the result achieved.

The average timber harvest in 2018 amounted to 83% of the average stock change and only 49% of the average increment. The sustainability of felling operations can be proved by comparison with the average increment. As the average timber harvest cannot be used to assess sustainability of forest management, this indicator should be replaced by the ratio of the average timber harvest to the average stock increment.

L.V. Fedorovich took the floor during the discussion round upon the first session of presentations.

He advocated the separate inventory of FSC and PEFC certified forests. L.V. Fedorovich also noted the importance of the round table discussion which covered all the forestry-related SDGs. However, as the SDGs were designed to have a global impact, it would be reasonable to consider not only the dimension of Belarus, but also the international commitments of the country.

He also expressed the opinion that the plan of forest roads construction may be considered as unreasonable in view of the ongoing experiment of the self-sustained operation of forestry enterprises. So, the enterprises have to decide how many kilometres of forest roads to build at their own expense.

As the timber inventory is currently being harmonized with international standards, it will be impossible to do the analytics by old methodology.

The payment of labour cannot be different by gender because of the existing established tariff rates. However, there can be difference in the job positions occupied by men and women. This issue must be given more attention to.

Labour safety during logging operations must be considered within SDG 3, especially when logging is done by third-party organizations where labour safety issues may not be given proper attention as it is done in the enterprises of the Ministry of Forestry.

Discussions among the round table participants continued during the coffee break.

V.V. Nosnikov: The certification issues will be discussed with the Ministry of Forestry as there are no major changes. General indicator is expected to experience a slight growth. Wood pellets are mainly sold for export, but their sales hardly amount to 10%.

P.A. Protas: It has been fairly noted that SDGs are of global rather than national dimension. If the Ministry of Forestry makes a nationwide contribution into the achievement of SDGs targets, this contribution is a global-scale one. Our goal is to assess the contribution of the Ministry of Forestry rather than develop sectorspecific indicators.



Figure 5–Talk by L.V. Fedorovich

As the Ministry of Forestry was tasked by the government to expand the forest roads network, we cannot withdraw this indicator.

A.V. Lednitskiy: As for biofuel, 4.7 million t of wood fuel out of the produced 6 million t is consumed by the domestic market.

P.A. Protas: Although we can observe changes in the timber inventory system, the regional committees will always be making plans for firewood supplies to local people. The planned figures must serve as a basis.

A.V. Neverov: The indicator of wage gap is suggested as proxy. It is a part of national statistics. So, the Ministry of Forestry may be asked to submit the figures.

After the coffee break the floor was given to A.V. Neverov with the presentation "National Program "Belarusian Forest" for 2016-2020: main provisions and interim results of implementation".

The National Program is a priority document that outlines main challenges to be addressed.

The traditional structure of the National Program includes the following sections: Main goal; Subgoals (main targets); Action plan; Resources, including funding and timeframes; Executors and Performance.

The speaker gave a review of the National Program targets and indicators by subprograms.

It was noted that generally the indicators were performed and the activities under the National Program were done at an appropriate level. All indicators related to sustainable forest management demonstrate steady growth or remain stable.

The Ministry of Forestry has to involve considerable amount of its own resources to fund the National Program activities, if the public funding is reduced.

The performance of the National Program was assessed at 0.85 and recognized as medium.

V.V. Nosnikov presented the Draft National Program "Belarusian Forest" for 2021-2025.

The responsible customer of the National Program is the Ministry of Forestry of the Republic of Belarus.

Customers of the National Program (subprograms) are the Ministry of Forestry of the Republic of Belarus, the Department of Presidential Affairs of the Republic of Belarus, the Ministry of Defense, the National Academy of Sciences of Belarus, the Ministry of Education.

The National Program "Belarusian Forest" that is effective for the current five-year period has a stronger focus on timber industry which can be clearly seen in the text content of the Program. The forest is seen as a source of raw material that can be used by Bellesbumprom concern enterprises and by the manufacturing enterprises of the Ministry of Forestry. The environmental function of forest, though becoming increasingly important, is hardly noted in the program content.

The forest sector plays an essential role in the achievement of sustainable development goals. The central SDG here is SDG 15 "Life on Land", so it is given the biggest attention in the draft Program.

The draft National Program is split into the following subprograms:

Subprogram 1 "Sustainable environmentally friendly development of forestry, increased forest productivity"

Subprogram 2 "Improvement of forest infrastructure"

Subprogram 3 "Sustainable development of the hunting sector and game management". The titles of the subprograms may be modified depending on the priorities set.

Headline targets and target indicators were presented.

In conclusion it was noted that headline targets and most notable actions are still being defined. So, it was suggested to make comments and suggestions both during the round table and via follow-up communication by phone and e-mail.

The following questions were asked and some proposals were made during the discussion after the second session of presentations.

G.Yu. Fedorov: The Program provides for the more extensive construction of forests roads. It should be noted that they also give access to forest fire setters, so the number of forest fires may increase.

It would be advisable to organize public hearings and expert examination of the National Program. Non-governmental organizations should be involved from the initial stage of the program development.

V.V. Nosnikov: Thank you for the comments. We will discuss the approval procedure of the Program with the Ministry of Forestry. On demand, I can forward the draft

materials to you and will be glad to have your feedback.

Ya.V. Kashurina: I am a representative of a university in Vologda (Russia). Do you have plans for targeted training of students in Belarus?

V.A. Yarmolovich: The admission quotas are dependent on the situation in the forest sector. We haven't had any shortage of applicants over

the recent years. The forest sector is in stable condition; the Ministry of Forestry cooperates with the regions to identify the current demand for targeted training of forestry professionals and submits the summarized data to the Ministry of Education.

Ya.V. Kashurina: Another question is about applications of biotechnology in the forest sector. I couldn't find any information in the draft National Program.



Figure 6–Talk by G.Yu. Fedorov



V.V. Nosnikov: If biotechnology is used to develop biological preparations, it is very useful to forestry. We are developing and applying several preparations to fight mottled butt rot. Some pheromones are being developed as well. Areas under biological preparations and chemical agents are registered separately. As for microclonal propagation, it is mainly applied for decorative plants and berry crops. Now, plantations of Karelian birch are being established. Generally, microclonal propagation is promising for growing the planting stock for special-purpose forest plantations.

S.K. Egorov: Are there any innovations to be adopted in the National Program?

V.V. Nosnikov: The existing Program mentions innovations in its text part. It is highly difficult to set any target indicators for innovative projects. This could be advised only if any public funding is to be allocated to the innovative projects.

A.V, Lednitskiy: Innovations are highly important. However, they are more often adopted in the sphere of back-end production or services. The forest sector is a resource-based industry where innovations are not that widely adopted. However, new methods of monitoring, inventory, forest protection, etc. are in place.

S.K. Egorov: Forest cuts are being carried quite extensively now. Timber is removed from the forests and soils are impoverished. These areas are then planted with new forests which will obviously lack adequate nutrition. The problem could be solved by introducing ashes into the forests so that the soils become more fertile. This could be regarded as an innovative project but there is no funding available.

V.V. Nosnikov: As a manager of National Scientific and Technical Program for Forestry, I can say that most innovative projects are included in the Program and get funded.

L.N. Rozhkov: The question has been raised about the removal of nutrients from forest soils. Strange as it may seem, the forest fertility is improving. We have compared data of soil surveys from the 1960s and the preceding year. The trees extract nutrients from deep layers of soil and probably involve them in the global circulation of nutrients.

Generally, the round table can be considered effective. The professionals had the opportunity to share their opinions during both formal and informal discussions. All stakeholders received the draft National Program by e-mail.

All comments and suggestions made during the round table discussions are included in this report and the draft National Program under the working title "Belarusian Forest" for 2021-2025.



Figure 8-Talk by L.N. Rozhkov

1.2 Information about round table 2

The goal of round table 2 was to communicate to stakeholders the final draft National Program "Belarusian Forest" for 2021-2025 as defined by the terms of reference for Project Activity 3.1.1.1 "Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation". The event was to also aimed to present the information booklet about the contribution of the forest sector into the achievement of SDGs targets in Russian and English.

However, the plan to hold an event involving a large number of people was adjusted due to the current COVID-19 pandemic.

All lectures at Belarusian State Technological University were cancelled. The students switched to distance learning mode. Exams were organized in written form in order to minimize face-to-face contacts between teaching staff and students. In classrooms social distancing was ensured.

The World Bank made recommendations to avoid mass gathering events.

Therefore, we decided to prepare a final report on the outcomes of Project Activity 3.1.1.1.

The main stages of the study involved:

- review of the existing national indicators of SDG 15 and other SDGs as related to forestry; drafting of proposals to supplement or to amend the existing indicators and their performance indexes; development of evaluation indicators for 6 Global Forest Goals and associated 26 targets of the UN Strategic Plan for Forests for 2017-2030;

- development of a draft National Program under the working title "Belarusian Forest" for 2021-2025 based on the review of performance of the effective National Program; proposed updating to the Strategic Forestry Development Plan for 2015-2030;

- review of international granting organizations providing financial aid to pilot projects on achieving SDG and UNSPF targets. Preparation of forestry-related project applications on achieving SDG and UNSPF targets to international granting organizations.

The final report is given in Appendix 3. It will be circulated to all participants of round table 1 and other stakeholders.

2 To prepare an information booklet about the contribution of the forest sector in the achievement of SDGs indicators.

The forest sector of Belarus makes a considerable contribution to the achievement of SDGs targets and indicators. Although SDG 15 "Life on Land" is considered to be central, indirect impact is made on SDGs 1, 2, 7, 8, 9 and 11.

Sometimes the impact is clearly seen, sometimes it cannot be noted not only by ordinary people, but also by professionals working outside the forest sector. That is why it is highly important to raise the awareness of general public about the positive impacts of forestry on various spheres of human life. The awareness raising activities form a positive image of the sector which helps to resolve conflict situations.

These activities are extremely important for the forest sector as it performs not only environmental and social but also economic functions by supplying resources to various industries. Very often only logging activities come into view whereas people do not take notice of such important activities as reforestation, improvement of species composition and quality of forests, conservation of forest resources for future generations, expanding of "green lungs" of the planet.

The main task of the information booklet is to create awareness about the role of the national forest sector as an important tool of sustainable development and the industry that conserves and improves the human environment. The booklet should address a wide range of readers, including non-professionals concerned with forest ecosystems conservation.

The booklet is designed as both informational and research-based. Most data are given as tables or figures and demonstrate trend movements of indicators which can be used by researchers during future studies.

The booklet is also a promotional one as it outlines the main activities of the national forest sector, its achievements and progress. It can be circulated at meetings, conferences and workshops held by the Ministry of Forestry of the Republic of Belarus.

The booklet is made in A5 paper size with landscape orientation of pages. It will be produced using 4/4 color printing on coated 130g/m² paper. The cover is full-color, matte laminated.

The number of pages is 40, not including cover pages. SDG 15 "Life on land" covers 15 pages. SDG 1 "No poverty" and SDG 2 "Zero hunger" cover one page each. Six pages are dedicated to SDG 7 "Affordable and clean energy". SDG 8 "Decent work and economic growth" is described on 4 pages. SDG 9 "Industry, innovation and infrastructure" covers 5 pages. Two pages are dedicated to SDG 11 "Sustainable cities and communities".

There are blank spaces for contact information and notes.

Layout of the information booklet is given in Appendix 4.

Cost estimates of the round table discussions and publication of the booklet are given in Appendix 5.

| Name, surname | Job position | | | | | | | |
|-------------------------|---|--|--|--|--|--|--|--|
| BSTU | | | | | | | | |
| Vadim Nosnikov | Head of Department of Forest Plantations and Soil Science | | | | | | | |
| Alexandr Neverov | Professor, Department of Management, Business Technologies and | | | | | | | |
| | Sustainable Development | | | | | | | |
| Nikolai Kruk | Associate Professor, Department of Forest Plantations and Soil | | | | | | | |
| | Science | | | | | | | |
| Nikolai Yushkevich | Associate Professor, Department of Tourism, Nature Management | | | | | | | |
| | and Game Management | | | | | | | |
| Vyacheslav Zvyagintsev | Head of Department of Forest Protection and Wood Science | | | | | | | |
| Vassiliy Yarmolovich | Dean of Forestry Faculty | | | | | | | |
| Leonid Rozhkov | Professor, Department of Silviculture | | | | | | | |
| Leonid Moskalchuk | Department of Silviculture | | | | | | | |
| Igor Tolkach | Head of Forest Inventory Department | | | | | | | |
| Konstantin Labokha | Head of Department of Silviculture | | | | | | | |
| Tamara Burganskaya | Head of Department of Landscape Architecture | | | | | | | |
| Maxim Chernik | Head of Department of Tourism, Nature Management and Game | | | | | | | |
| | Management | | | | | | | |
| Andrei Lednitskiy | Head of Department of Enterprise Economy and Management | | | | | | | |
| Kazimir Kozhushko | Director of affiliated Negoreloye Forestry Experimental Station | | | | | | | |
| Pavel Protas | Associate Professor, Department of Logging Machinery, Forest | | | | | | | |
| | Roads and Timber Production Technology | | | | | | | |
| Oleg Leonovich | Associate Professor, Department of Woodworking Technology | | | | | | | |
| Pavel Tupik | Associate Professor, Department of Forest Plantations and Soil | | | | | | | |
| - | Science | | | | | | | |
| Andrei Yurenya | Associate Professor, Department of Forest Plantations and Soil | | | | | | | |
| | Science | | | | | | | |
| Alla Ravino | Associate Professor, Department of Management, Business | | | | | | | |
| | Technologies and Sustainable Development | | | | | | | |
| Nikolai Demid | Senior lecturer, Forest Inventory Department | | | | | | | |
| Diana Malashevich | Senior lecturer, Department of Management, Business Technologies | | | | | | | |
| | and Sustainable Development | | | | | | | |
| Artiom Shoshin | Assistant lecturer, Department of Mechanics and Engineering | | | | | | | |
| Anastasiya Kavrus | Junior researcher, Department of Management, Business | | | | | | | |
| | Technologies and Sustainable Development | | | | | | | |
| Yuliya Misuno | Junior researcher, Department of Logging Machinery, Forest Roads | | | | | | | |
| | and Timber Production Technology | | | | | | | |
| Alina Tarasiuk | Engineer, Department of Management, Business Technologies and | | | | | | | |
| | Sustainable Development | | | | | | | |
| Evgeniy Misiuk | Master's Degree student | | | | | | | |
| Belarusian organization | S | | | | | | | |
| Lev Fedorovich | National FSC Representative in Belarus | | | | | | | |
| Elena Sadovskaya | Bagna NGO | | | | | | | |
| Grigoriy Fedorov | Board Member, Ecodom NGO | | | | | | | |
| Aleksey Tishkovets | Chief forester, State conservation and research institution "Polessie | | | | | | | |
| | Radioecological Reserve", Ministry of Emergencies of the Republic | | | | | | | |
| | of Belarus | | | | | | | |

List of participants of round table 1 held on February 5, 2020

| Name, surname | Job position | | | | | | | | |
|---------------------|---|--|--|--|--|--|--|--|--|
| Elena Smolskaya | Chief specialist, Office of Rehabilitation of Contaminated Areas, | | | | | | | | |
| | Department of Chernobyl Disaster Mitigation, Ministry of | | | | | | | | |
| | Emergencies of the Republic of Belarus | | | | | | | | |
| Leonid Birulya | Chief specialist, Department of Woodworking, Bellesbumprom | | | | | | | | |
| | Concern | | | | | | | | |
| Tatyana Barsukova | Senior researcher, Institute of Experimental Botany, Belarus NAS | | | | | | | | |
| Andrei Cherniy | Consultant, Green Economy Office, Head Department of Sustainable | | | | | | | | |
| | Development, Ministry of Economy of the Republic of Belarus | | | | | | | | |
| Vyacheslav Rakovich | Head of Laboratory for Biogeochemistry and Agroecology, Institute | | | | | | | | |
| | of Nature Management, Belarus NAS | | | | | | | | |
| Inessa Volchek | Deputy Head, Office of the World Bank Project Management, UE | | | | | | | | |
| | "Bellesexport" | | | | | | | | |
| Sergey Sazonov | Consultant, Forestry Department, Ministry of Forestry | | | | | | | | |
| Andrey Shevelev | Head of Forestry Office, Minsk SPFA | | | | | | | | |
| Elena Bashlykova | Polotsk Forestry College | | | | | | | | |
| Natalia Osipenko | Polotsk Forestry College | | | | | | | | |
| Sergey Egorov | Santekhspetsnaz private company | | | | | | | | |
| Viktor Gavrish | Belarusian Forest Newspaper | | | | | | | | |
| Foreign experts | | | | | | | | | |
| Linas Daubaras | Kaunas Forestry and Environmental Engineering University of | | | | | | | | |
| | Applied Sciences (Литва) | | | | | | | | |
| Svetlana Khamitova | Vologda State University (Russia) | | | | | | | | |
| Alexandr Pestovskiy | Vologda State University (Russia) | | | | | | | | |
| Marina Ivanova | Vologda State University (Russia) | | | | | | | | |
| Yana Kashurina | Vologda State Dairy Farming Academy named after N.V. | | | | | | | | |
| | Vereshchagin (Russia) | | | | | | | | |
| Oksana Vasilieva | Vologda State Dairy Farming Academy named after N.V. | | | | | | | | |
| | Vereshchagin (Russia) | | | | | | | | |
| Ayrat Sabirov | Kazan State Agrarian University (Russia) | | | | | | | | |
| Alain Minguet | Arbonaut I td (Finland) | | | | | | | | |
| Ksenija Plevak | Arbonaut I td (Finland) | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Appendix 2 Agenda of round table "Integration of sustainable development goals in policy papers of the forest sector of Belarus"

| Date and time: Venue: | February 5, 2020 (Wednesday), 13.30 – 17.30 BSTU conference hall (academic building 3) 13a Sverdlova Str., Minsk |
|--------------------------|--|
| 13.30–14.00 | Registration of participants |
| 14.00–14.10 | Opening of the round table. Welcome speech Ihar Voitau, Rector, Belarusian State Technological University |
| 14.10–14.20 | Welcome speech by a representative of the Ministry of Forestry of the Republic of Belarus |
| 14.20–14.40 | Sustainable development goals and forestry: general and applied aspects of research |
| | Alexandr Neverov, Professor, Department of Management, Business Technologies and Sustainable Development, D.Sc. (Economics); Nikolai Yushkevich, Associate Professor, Department of Tourism, Nature Management and Game Management, PhD (Economics); Alla Ravino, Associate Professor, Department of Management, Business Technologies and Sustainable Development, PhD (Economics) |
| 14.40–15.00 | Achievement of sustainable development goals in the logging sector of the Ministry of Forestry of the Republic of Belarus Andrei Lednitskiy, Head of Department of Enterprise economy and Management, Associate Professor, PhD (Economics); Pavel Protas, Associate Professor, Department of Logging Machinery, Forest Roads and Timber Production Technology, PhD (Engineering) |
| 15.00–15.20 | The role of the Belarusian forest sector in protection of terrestrial ecosystems (SDG 15) Vadim Nosnikov, Head of Department of Forest Plantations and Soil Science, Associate Professor, PhD (Agriculture); Pavel Tupik, Associate Professor, |
| | Department of Forest Plantations and Soil Science, PhD (Agriculture) |
| 15.20–15.30 | Discussion |
| 15.30–16.00 | Coffee break |
| 16.00–16.20 | National Program "Belarusian Forest" for 2016-2020: main provisions and interim results of implementation Alexandr Neverov, <i>Professor, Department of Management, Business</i> <i>Technologies and Sustainable Development, D.Sc. (Economics)</i> |
| 16.20–16.40 | Presentation of the Draft National Program "Belarusian Forest" for 2021- 2025 |
| | Associate Professor, PhD (Agriculture) |
| 16.40–17.00 | Discussion. Wrapping up |



MINISTRY OF FORESTRY OF THE REPUBLIC OF BELARUS BELARUSIAN STATE TECHNOLOGICAL UNIVERSITY «BELARUSIAN FORESTRY DEVELOPMENT PROJECT» TF0A1173 GEF/WORLD BANK

Report Materials

on the implementation of the stages of the GEF / WORLD BANK project Activity 3.1.1.1: Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation

(on Contract No. BFDP/GEF/CQS/16/19-43/19 dated September 30, 2019)

Project Leader

V.V. Nosnikov (Head of Department of Forest Plantations and Soil Science, educational institution «Belarusian State Technological University», PhD (Agriculture), Associate Professor)

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Minsk, 2020

Contents

| List of main abbreviations | 3 4 |
|---|--------|
| 1 Review of the existing national indicators of SDG 15, proposals to supplement or to | • |
| amend the existing national indicators, their performance indexes | 5 |
| 2 Review and development of proposals for amending national indicators of other SDGs to | |
| 2 Development of evolution indicators for 6 Clobal Ecreet Cools and associated 26 targets | 10 |
| of the UN Strategic Plan for Forests for 2017-2030 | 16 |
| 4 Development of a draft National Program under the working title "Belarusian Forest" for 2021-2025 and proposed updating to the Strategic Forestry Development Plan for 2015- | 10 |
| 2030 | 19 |
| 4.1 Interim results of the National Program over 2016-2019 | 19 |
| 4.1.1 Progress review of targets and activities of subprogram 1 «Increasing of | 10 |
| A 1.2 Progress review of targets and activities of subprogram 2 "Construction of | 19 |
| forest roads» | 26 |
| 4.1.3 Progress review of targets and activities of subprogram 3 «Development | 20 |
| of hunting sector» | 26 |
| 4.1.4 Evaluation of performance and funding of the National Program | 28 |
| 4.2 Draft National Program under the working the "Delarusian Porest" for 2021- | 29 |
| 4.3 Proposed updating to the Strategic Forestry Development Plan for 2015-2030 5 Review of international granting organizations providing financial aid to pilot projects on | 29 |
| achieving SDG and UNSPF targets | 29 |

List of main abbreviations

FSC – Forest Stewardship Council;

PEFC – The Programme for the Endorsementof Forest Certification;

BSTU – Belarusian State Technological University;

GDP – gross domestic product;

RES – renewable energy source;

SFE – state forestry enterprise;

SRI – state research institution;

SPFA – state production forestry association;

GEF – Global Environment Fund;

TSP – tree and shrubbery plantings;

USAIS - Unified State Automated Information System for timber and timber trade recording;

FMIS - Forestry Management Information System

FSP – forest seed plantations;

Ministry of Forestry – Ministry of Forestry of the Republic of Belarus;

NASB – National Academy of Sciences of Belarus;

R&D – research and development;

UN – United Nations Organization;

SPNA – specially protected nature areas;

RB – Republic of Belarus;

UNSPF – United Nations Strategic Plan for Forests for 2017-2030;

CIS – Commonwealth of Independent States;

FER – fuel and energy resources;

FAO – UN Food and Agricultural Organization;

SDG – Sustainable Development Goal.

Introduction

The 2030 Agenda for Sustainable Development (The 2030 Agenda) adopted on 25 September 2015 by 193 countries envisages that further social and economic development can only be achieved through 17 sustainable development goals (SDGs) by global partnership of governments, private sector, civil society and all people of the world. The Republic of Belarus is committed to implementation of the SDGs at a nationwide scale, i.e., the National Strategy for Social and Economic Development of the Republic of Belarus until 2030 has been adopted; the National platform for reporting indicators of Sustainable Development Goals (SDGs) has been created; the Road Map for achieving SDGs in Belarus is being implemented, etc.

Economic development of the Republic of Belarus has its specific features; forest is an important natural resource here and one of the most significant capital assets. The forest sector of Belarus has a major impact on economic, social and ecological indexes of the country. Therefore, it is highly important to develop a proper management approach at the government and sectoral levels. National forest policies and laws must be compliant with provisions of the Agenda-2030, directives of international strategic forestry-related documents, principles of sustainable development and needs for adaptation to climate change.

The common goal of Activity 3.1.1.1: «Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation» under the «Belarusian Forestry Development Project» (GEF/World Bank) is improvement of national forest law and policy in the context of achieving the SDGs.

This document has compiled the summary on the implementation of the stages of the GEF / WORLD BANK project Activity 3.1.1.1: Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation. Work performed at BSTU in frame of the implementation of the Contract No. BFDP/GEF/CQS/16/19-43/19 dated September 30, 2019. The main stages of work were:

- Review of the existing national indicators of SDG 15 and other SDGs as related to forestry; drafting of proposals to supplement or to amend the existing indicators and their performance indexes; development of evaluation indicators for 6 Global Forest Goals and associated 26 targets of the UN Strategic Plan for Forests for 2017-2030 and drafting recommendations for reporting procedures on the contribution of Belarusian forests into the global targets;

- Development of a draft National Program under the working title "Belarusian Forest" for 2021-2025 and proposed updating to the Strategic Forestry Development Plan for 2015-2030;

- Review of international granting organizations providing financial aid to pilot projects on achieving SDG and UNSPF targets. Preparation of at least 10 forestry-related project applications on achieving SDG and UNSPF targets to international granting organizations.

1 Review of the existing national indicators of SDG 15, proposals to supplement or to amend the existing national indicators, their performance indexes

Currently the forest sector of the Republic of Belarus is responsible for the indicators of SDG 15. In order to achieve SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss) national indicators under targets 15.1, 15.2, 15a and 15b have been developed. These include:

- 15.1.1. Forest area as a proportion of total land area;

-15.2.1. Progress towards sustainable forest management (complemented by 6 sub-indicators);

- 15.2.1.1. Forest cover;

- 15.2.1.2. Average growing stock in forests;

-15.2.1.3. Genetic breeding forest plantations as a proportion of total forest sowing planting;

- 15.2.1.4. Average timber harvest per 1 hectare of forest lands;

- 15.a.1.1. and 15.b.1.1. Funding from national programmes for conservation and sustainable use of biological and landscape diversity.

The comparative analysis of national and foreign indicators of SDG 15 has shown that the Republic of Belarus has developed a comprehensive framework of national indicators that are in most cases similar to those of other countries. However, the review made it possible to identify some indicators that exist in foreign countries and can be applied to Belarus.

Forest protection and regeneration are global issues. Conservation and reproduction of forests are essential to sustainable development at the regional and global scale. One of the key indicators under SDG 15 is indicator 15.1 «Forest area as a proportion of total land area». The Forest Code of Belarus defines forest as a natural complex of trees and shrubs, live ground cover, wildlife and microorganisms. However, national indicator 15.1.1 «Forest area as a proportion of total land area» is calculated in terms of forest cover which is established as a percentage ratio of forest area to total area of the country (region). The value of this indicator amounted to 39.9% in 2019 (Figure 1). Since the mid XX century onwards the forest cover has been constantly expanding. However, over the last three years the percentage of the forest cover has been fixed at 39.8%. Indicator 15.1.1 can be reached by maintaining its values at the same value and increasing them. Decrease in the proportion of forest areas may indicate that forest use dominates over reforestation. If forest cover areas demonstrate considerable decline, forest management should be considered as unsustainable.

Sustainable forest management is one of the key ways to conserve and increase land ecosystems. The national progress towards sustainable forest management can be measured by several sub-indicators that include:

- aboveground biomass in forests (t/ha). The volume of aboveground phytomass in Belarusian forests is constantly growing. Over the last 6 years its volume has increased by 6.2% and amounted to 153.5 tons per hectare of forest area (Figure 2). The increase is mainly attributed to growth of the total stand volume and corresponding average stand volume;

- area of FSC and PEFC forests (thousand ha). As of 01.01.2020, 7.6 million ha of forest fund were certified to principles of Forest Stewardship Council (FSC) and 8.1 million ha of forest fund area were PEFC certified;



Figure 1 – Change in forest cover of the Republic of Belarus



Figure 2 - Dynamics of accumulation of phytomass in the forests of Belarus

- net coefficient of forest area variation is a percentage ratio of forest area variation in a given year to the total forest area in the preceding year. Virtually, the indicator shows the percent increase of the forest area during a year. Over 2010-2018 all values of the indicator were positive which shows that the country undertakes focused efforts on expanding the forest lands (Figure 3). The steady growth of forest lands can be attributed to the transfer of land plots from various organizations;



Figure 3 – Dynamics of net coefficient of forest area

- forest area under long-term forest management plan as a proportion of total forest area (%). Overwhelming majority of countries with 98% of global forest area have forest management plans. The smallest area of forests under management plans is registered in tropical climate zones (about 23%). In boreal zones this value amounts to 100%. All forests of Belarus have management plans that are made during forest inventory for a 10-year period. This sub-indicator is crucial for sustainable forest management and needs no amendment. The performance value is keeping of 100% of forest areas under management plan;

- conservation forest established by the law as a proportion of total forest area (%). Specially protected nature areas are areas of the Republic of Belarus with high-value natural complexes and (or) natural sites under special conservation and exploitation regime. The country has one biosphere reserve and four national parks with the total area of 442.6 thousand ha (Figure 4). There are 98 national reserves (792.7 thousand ha), 282 regional reserves (279.7 thousand ha), 932 national and regional natural sites (9.8 thousand ha). On a nationwide scale, specially protected nature areas occupied 15.9% of forest fund area. Significant efforts are being made to increase the area of conservation forests, however, the procedure of transfer of commercial forests into conservation forests needs a scientific justification.

Despite its increasing environmental value, forests continue to be considered as a source of raw materials for various industry sectors. Increment of the average growing stock gives evidence of the fact that forest management is focused on conservation and increase of forest resources, primarily raw materials. However, the indicator of the growing stock is directly connected with carbon sequestration function of forests as the stock increment leads to accumulation of phytomass and to increasing carbon stock. From this perspective the average growing stock can be considered as both economic and environmental indicator of sustainable forest management. Over the last decade the average growing stock of Belarusian forests has been steadily increasing (Figure 5). Over 2009-2018 the total growing stock increased by 15.4% and amounted to 1807.9 million m³. The average growing stock increased by 11.7% (219 m³/ha). Principal growth can be attributed to larger annual wood increment as compared to the volume of harvested timber.





Figure 5 – Changes of the total (million m³) and average (m³) growing stock

At the present stage of forestry development, use of the selected planting material holds a lot of promise for forest regeneration and reforestation. This also helps to maintain biological diversity in forests and improve their resilience and productivity. Sustainable forest management requires a balance between these two issues. National sector of forest seed breeding develops both population and plantation breeding whereas the two methods have equal shares in the total seed harvesting. Many silviculturists opine that such approach is the most favourable for the current development of the forest sector of the Republic of Belarus. The key indicator of these forestry operations is the increased proportion of genetically bred forest plantations in the total area of forest regeneration and reforestation to 50% by 2020. Currently, the share of the creation of forest plantations on a genetic selection basis in the country is already at the desired level - 50% and even exceeds it (56.7% in 2019, the average value of this indicator for 2016-2019 was 48.8 %, Figure 6). Further work in the field of forest seed production should be aimed primarily at maintaining the results achieved. Variations of the indicator are appropriate at a level of \pm 5% of the optimal 50%.



Figure 6 – Changes in genetic breeding forest plantations as a proportion of total forest sowing and planting in the Republic of Belarus

Basic principle of sustainable use of renewable natural resources, including forest resources, is to conserve their permanent reserves that enable them to self-regenerate. The available volume of renewable resources (timber resources in case of forest use) is preserved if consumption rates do not exceed regeneration rates. In the forest sector, the term of increment is used to assess the rate of timber stock change. There are two types of increment: current average periodical (average rate over a short period using the stock volumes during the initial and the final time period) and average (average rate of change over the whole period when it is required to know the stock volume at the given moment and the age of the stock). The average timber harvest in 2018 amounted to 83% of the average stock change and only 49% of the average increment (Figure 7). Thus, the average timber harvest cannot be used to assess sustainability of forest management. Many silviculturists think that this indicator should be replaced by the ratio of the average timber harvest to the average stock increment. The performance value of the ratio should be kept lower than 55%. In this case we can speak about sustainable forest management. As soon as the value approaches to 55%, the forest inventory plan must be changed to obtain accurate data on the average stock increment.



Figure 7 – Changes in the average timber harvest as a proportion of the average increment

The issue of invasive plants is currently important for many countries, including the Republic of Belarus. There are 301 invasive plant species covering the area of 9.6 thousand ha.

Invasive species have a harmful impact on biodiversity, people's health and national economy. They are rapidly spread pushing out other plant species and altering the ecosystems. According to the Resolution of the Council of Ministers of the Republic of Belarus No. 1002 dated 07.12.2016 the list of plants the distribution and population of which are to be regulated includes the following: Heracleum sosnowskyj (*Heracléum sosnówskyi*); giant hogweed (*Heracléum mantegazziánum*); Canadian goldenrod (*Solidágo canadénsis*); giant goldenrod (*Solidago gigantea*); ash-leaved maple (*Ácer negúndo*); cannabis (*Cánnabis satíva*); opium poppy (*Papaver somniferum*); black locust (*Robínia pseudoacácia*); wild cucumber (*Echinocystis lobata*). On this list only two species out of nine are tree species, the others are grass species. Focused efforts are being made to address the problem of invasive plants. They include the following activities: possible dangers to flora are being assessed, maps of the areas occupied by invasive species are being made, the population of invasive species is being accurately calculated, action plans on invasive species control are being drafted. Forestry operations must become strategic actions for the Ministry of Forestry as they will make it possible to drive out the invasive species from the forested lands.

2 Review and development of proposals for amending national indicators of other SDGs to be achieved by the Ministry of Forestry

End poverty in all its forms everywhere (SDG 1). Forests are a significant source of income, living and welfare of rural people dwelling on forest lands. The amount of forest resources per capita is steadily growing in the Republic of Belarus. While the 1990 value was nearly 90 m³ per capita, it more than doubled and amounted to over 180 m³ per capita (Figure 8). Clearly defined and ensured rights to access, to possess and to use natural resources are key factors of sustainable management. Guaranteed rights of possession and use reduce the risk of conversion of forested lands. All forests in the country are state-owned. This fact shapes the forestry operations in Belarus. There is no private forest ownership in the Republic of Belarus. However, the Forest Code provides for free access to forests by population, including mushroom and berry harvesting thus ensuring equal rights for all to access these resources within the forest areas.



Figure 8 – Changes in the amount of forest resources per capita, m^3

End hunger, achieve food security and improved nutrition and promote sustainable agriculture (SDG 2). The goal aims to improve living standards of the population, to end hunger, to achieve improved nutrition and to promote sustainable development. Forest sector can make only a limited contribution to the achievement of Sustainable Development Goal 2 and addressing such issues and eradication of hunger, food security and malnutrition. These problems can be partly solved by non-timber uses of forests and hunting In the Republic of Belarus, non-timber uses of forest related to food security include tree sap collection, harvesting of wild fruits, berries and nuts, picking wild mushrooms and mushrooms growing on forest plantations. This list can be supplemented by honey products, haymaking, cattle grazing, fishery management (products of fisheries located in forested areas), cultivation of crops, decorative plants, medicinal herbs, etc., creation of fruit and berry plantations, nut plantations, free-range animal husbandry (Table 1).

| Resources | Unit | 2016 | 2017 | 2018 | 2019 |
|-------------------------------|----------|--------|----------|----------|----------|
| Total harvest: | thousand | 4040.0 | 5016.0 | 1781 3 | 5733.0 |
| in current prices | BYN | 4049.0 | 5010.0 | 4704.3 | 5755.0 |
| Including: | ton | 162.08 | 60.51 | 155 77 | 74.61 |
| wild berries and fruits | | 102.98 | 09.31 | 155.77 | /4.01 |
| mushrooms calculated as fresh | ton | 0.00 | 0.06 | 0.00 | 0.00 |
| hay | ton | 0.00 | 260.80 | 283.55 | 182.10 |
| birch sap | ton | 0.00 | 18878.76 | 12952.21 | 17362.06 |
| honey products | thousand | 612 20 | 765 51 | 820.24 | 1109.22 |
| | BYN | 015.59 | /03.31 | 829.34 | 1108.25 |
| honey | ton | 95.62 | 104.80 | 123.96 | 137.08 |

Table 1 – Review of non-timber resources, sap yield, fishery products and agricultural products harvested by the organizations under Ministry of Forestry in 2016-2019

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (SDG 4). In the Republic of Belarus, the basic centre of forestry-related higher and vocational education is educational institution «Belarusian State Technological University» (BSTU). Annually about 150 engineers are awarded the university degree in forestry (intramural and extramural studies on a 50/50 basis). Apart from BSTU, the Department of Forestry of Gomel State University named after Francysk Skaryna awards university degree in forestry major. Vocational training is provided by BSTU affiliated colleges: Polotsk State Forestry College, Vitebsk State Technological College, Bobruisk State Forest Engineering College, Gomel State Polytechnic College. Thus, the Republic of Belarus can flexibly respond to demand for forestry professionals. A long-term (five-year and onwards) plan of professional training is made by educational institutions and approved by the forest sector.

Achieve gender equality and empower all women and girls (SDG 5). The employment pattern of the Belarusian forest sector is typically dominated by male workforce which can be explained by physically challenging working environments. The work of a forester, wildlife manager, taxator or other related trades is hard. It involves long-lasting stay in forests in all weathers and seasons, long-distance cross-country walks, exposure to such wildlife hazards as stinging insects, ticks, snakes, wild animals, etc. As of 01.01.2019 the staff listing of the organizations under the Ministry of Forestry accounts for 37,820 workers with 6,523 female employees (17.2%) (Figure 9). Women most often work in the job positions that involve a lot of paperwork, i.e., accountants, assistant forest officers, engineers of forestry enterprises, etc. The gender structure of students doing their degree in forestry has an indirect effect on the gender structure of employment in the forest sector. Review of the graduate body over the last 12 years (from 2008 to 2019) reveals the average male/female ratio of 65/35%.



Figure 9 – Employment structure by gender

Ensure availability and sustainable management of water and sanitation for all (SDG 6). Forests are vital to conservation of water resources of the country. They facilitate infiltration of rainfall moisture into soils, replenish underground water which favourably affects water content in rivers and lakes, in particular, in dry seasons with low precipitation. In accordance with the Forest Code of the Republic of Belarus forests located within water conservation zones are classified as conservation forests. Final fellings are banned in these forests as well as harvest of tree stumps and roots. There are also restrictions and prohibitions relating to forest management as prescribed by the law on water protection and management. Thus, it can be concluded that the forest sector makes its contribution to the achievement of SDG 6. Strengthening of water protection capacity of forests is a top priority of modern forestry that is enshrined at the statutory level.

Ensure access to affordable, reliable, sustainable and modern energy for all (SDG 7). The Republic of Belarus possesses extensive timber resources, therefore, development and harnessing of renewable energy sources (RES) is a relevant issue in bioenergetics. Besides, the forest sector supplies local people and energy units with wood fuel to produce heat and power (Figures 10 and 11). The proportion of RES in total energy generation was 6.2% in 2018 and 6.7 in 2019. The energy balance of RES was largely dominated by wood biomass (over 94%) in the form of firewood, wood chips, waste wood. The Ministry of Forestry annually supplies the domestic market with about 5 million m³ of firewood and about 1.9 million m³ of wood chips. Another important area of use of wood biomass as a renewable energy source is the reduction of greenhouse gas emissions, which is especially important against the backdrop of global climate change. Thus, the Ministry of Forestry makes a significant contribution to the achievement of SDG 7 targets and the need to develop this area at the national and industry levels.

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8). Annual growth rates of sale of forest commodities can serve as the most appropriate indicator of economic growth in the forest sector. However, the specific character of the sector does not make it possible to measure in monetary terms all the forest commodities that cater for population needs (non-timber resources, ecosystem services, etc.). Therefore calculations must be based on the outcomes that promote economic growth, i.e. annual revenues from marketed goods and services. This value can further be used to calculate the index of growth rate of labour productivity. The contribution that is made by the forest sector to SDG 8 can also be measured by recreational function of forest. Forests and their ecosystems provide an excellent environment for ecological tourism that occupies an important share in the tourism industry of the country.







Figure 11 – RES mix in the Republic of Belarus in 2018, % (Data source: Department of Energy Efficiency under the National Standardization Committee of the Republic of Belarus)

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (SDG 9). To ensure sustainable development and provide wider opportunities for people it is necessary to invest in infrastructure, i.e., transport, energy supply, information technology. The forest sector annually invests in the infrastructure development (construction of forest roads, construction and modernization of administration buildings and other facilities for forestry enterprises, automated systems of electronic timber record, uniform state automated information system (USAIS), etc.). The annual construction by the Ministry of Forestry of more than 100 km of new forestry roads (Figure 12) makes it possible to increase the accessibility of forests and the efficiency of ecosystem services, as well as increase the effectiveness of forest protection measures. The contribution of the forest sector to SDG 9 becomes more relevant and noticeable due to the fact that most forestry enterprises are located in small towns and rural areas.



Figure 12 – Construction of forest roads by the Ministry of Forestry of the Republic of Belarus, km (Data source: The Ministry of Forestry of the Republic of Belarus)

Make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11). SDG 11 aims to solve problems of global urbanization that has a direct impact on people's quality of life. These problems include overpopulation, poverty, social inequality, inadequate housing, poor infrastructure, inefficient consumption of energy resources and excessive domestic waste. Trees and green areas in urban environments are indispensable elements of sustainable cities and suburban landscapes. Green spaces reduce pollution and noise, give shades and have a positive health impact. They are essential to people's welfare. The forest sector addresses the above problems through significant impact of forested areas on cultural and natural heritage of the nation, including ecosystem and sociocultural services that forests render. Negative effects from urbanization and climate change can impair the capacity of cities and towns to cater for people's needs. Therefore, sustainable urban and suburban forests can help to achieve SDG 11.

Ensure sustainable consumption and production patterns (SDG 12). SDG 12 targets aim at improving people's quality of life, creation of jobs, promotion of local culture and products. The forest sector contributes to SDG 12 by its tourism and recreation resources. As of 01.01.2019, 129.3 thousand ha of forest lands had been leased for these purposes, e.g., culture and health events, tourism and recreation, mass sporting events and other similar activities (the dynamics of the recreational and recreational forests are shown in Figure 13).

To measure the performance of the forest sector under SDG 12 targets, it is possible to use the indicator «Export revenues from hunting tourism services». Further development of hunting tourism will make the contribution of the forest sector even more obvious, first of all, through creation of additional «green» jobs in the forest sector. It will make the national tourism industry more competitive and contribute to the development of the national economy (table 2).

| Indicator | Year | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|-------|-------|-------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2014 | 2015 | 2018 |
| Revenues from game management, billion BYN | 1.4 | 2.0 | 3.1 | 3.7 | 4.9 | 7.5 | 11.8 | 16.9 | 173.5 | 199.0 | 251.6 |
| Revenues from inbound hunting tourism, billion BYN | 0.37 | 0.52 | 0.82 | 0.91 | 1.21 | 2.01 | 3.95 | 5.69 | 69.9 | 69.5 | 85.9 |
| Inbound hunting tourism revenues as a proportion of the total revenues from game management, % | 26.1 | 25.9 | 26.3 | 24.3 | 23.1 | 26.7 | 33.5 | 33.6 | 40.3 | 34.8 | 34.1 |

Table 2 – Revenues from inbound hunting tourism





(Data source: The National Statistical Committee of the Republic of Belarus)

Take urgent action to combat climate change and its impacts (SDG 13). Worldwide forests are seen as an important tool of climate action and current climate change. Increasing forest areas and concurrent accumulation of their biomass cause carbon adsorption from the atmosphere and corresponding mitigation of global warming effects. Thus, any work that is aimed at increasing forest cover and the productivity of forests can be considered as climate action. Such measures include, for example, actions to reduce the consequences of natural disasters in forests (fires, windfalls, drying out, etc.), which cause significant damage to forestry (Figure 14).



Figure 14 – Dynamics of Forest Fires

The forest sector shall prioritize actions aimed at strengthening of conservation and resilience of forest stands to adverse effects of climate change by increasing the share of mixed forests. Natural reforestation must be used more extensively to improve the resilience of forest

stands. The Republic of Belarus has prepared a set of documents on the development of the forest sector under climate change, i.e., *Strategy for Adaptation of the Belarusian Forest Sector to Climate Change until 2050, National Action Plan for Adaptation of the Forest Sector of Belarus to Climate Change until 2030, National Action Plan on Increasing the Absorption of Greenhouse Gases by Sinks until 2030.*

3 Development of evaluation indicators for 6 Global Forest Goals and associated 26 targets of the UN Strategic Plan for Forests for 2017-2030

Contribution of the forest sector of Belarus to UNSPF strategic goals and targets is very much similar its contribution to Sustainable Development Goals. Forest stands have a significant impact on sustainable development of the humankind through their environmental, economic, social and cultural functions. Sustainable forest management, conservation of forest ecosystems, their timely restoration after natural disasters or pathological effects lie at the core of the UN Strategic Plan for Forests and equally assist in achieving sustainable development goals, in particular, SDG 15.

Belarus implements ongoing actions on increasing forested areas. However, methodical approaches must be changed and active reforestation must be in place to achieve Target 1.1 (Forest area is increased by 3 per cent) in the Republic of Belarus. Over the past 10 years the forest cover has increased by 1.5%. FAO methodology of calculation of the forest area will make the contribution of the forest sector of Belarus to Target 1.1 obvious. Inclusion of tree and shrubbery vegetation and large-scale forest planting on poor agricultural lands can yield an additional 5% growth.

Carbon stock in forests is attributed to its carbon sequestration in forest phytomass. Forest phytomass stored 784.9 million t of carbon in 2019 (Figure 15). Maintenance and enhancement of this value is an important task of the Belarusian forest sector aimed at achieving UNSPF Target 1.2.



Figure 15 - Dynamics of the total amount of carbon in the phytomass of stands

Since the mid-XX century the forest cover of Belarus has increased from 22.1% to 39.8% owing to intensive artificial reforestation. Nowadays each and all clear-cut areas are due to be regenerated by natural reforestation or forest planting. Ongoing actions are taken to improve

species composition and increasing the forest productivity. Strategic documents on adaptation to climate change have been developed with assistance of the World Bank.

There is no «extreme poverty» in Belarus. At the same time there is a growing need for actions to reduce the number of low-income population, including forest-dependent people, as laid down by Target 2.1. A steady growth of salary has been registered in the forest sector as well as narrowing of the gap with the average countrywide salary (table 3).

| Indicator | 2014 | 2015. | 2016 | 2017 | 2018 | | |
|---|-------|-------|-------|-------|--------|--|--|
| Average salary in Belarus | 680,6 | 742,4 | 801,6 | 995,3 | 1115,3 | | |
| Average salary in the forest sector | 520 | 561 | 620 | 772 | 963 | | |
| Proportion of the average salary in Belarus | 76,4 | 75,6 | 77,4 | 77,6 | 86,4 | | |

Table 3 – Average salary in Belarus and in the forest sector in 2014-2018, BYN

The contribution of Belarusian forests to food safety (Target 2.4) is made by harvesting of berries, mushrooms, honey, birch sap, hunting. The 2019 harvest comprised 74.6 t of fruit and berries, 17362 t of birch sap, 137 t of honey. Hunting yielded 550-600 t of meat.

Biodiversity conservation and climate change mitigation in Belarus (Target 2.5) are ensured through the management system of conservation forests and regulation of species composition. Specially protected nature areas occupy 15.7% of the total forest area in Belarus. The system of the conservation areas is continuously increasing as laid down by target 3.1. The proportion of mixed forest plantations is planned to increase to 95%, that of mixed forest stands to 77%.

Forestry operations without a long-term forest management plan (Target 3.2) are against the law in Belarus. The plan is laid out as a ten-year forest inventory project.

Sustainable forest management (Target 3.3) is corroborated by forest certification systems. Forest certification is an activity of the Ministry of Forestry that promotes sustainability and productivity of forests, improves biodiversity of forest areas, mitigates negative environmental impacts of the timber industry, increases export opportunities of the forest sector and removes technical barriers to international trade. The Republic of Belarus has adopted two forest certification systems, i.e., that of Forest Stewardship Council (FSC) and the Forest Certification System under the National Conformity System of the Republic of Belarus. The latter was approved by Pan European Forest Council (PEFC). Forest certification is a voluntary process that is initiated by an entity (applicant).

Due to the specific character of its activities the forest sector is financed by two funding models. i.e., budgetary and commercial. The funding pattern of the forestry activities is to be maintained in the long-term with allocation of budgetary finances and receipts from forestry operations (table 4).
| Indicators | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 (estimate) |
|---|-------|------|-------|-------|--------|--------|--------------------|
| Costs of forest management, million BYN | 307 | 328 | 374 | 388 | 463 | 551 | 588 |
| including public expenditure, million BYN | 104 | 120 | 136 | 143 | 165 | 183 | 204 |
| Revenues from forestry activities, million BYN | 194,8 | 230 | 277,5 | 280 | 294,8 | 379,5 | 383 |
| revenues from commercial activity output, million BYN | 330,8 | 444 | 540,2 | 656,8 | 798,7 | 954,8 | 1042 |
| Sum total of revenues from forestry activities and revenues from commercial activity output, million BYN. | 525,6 | 674 | 817,7 | 936,8 | 1093,5 | 1334,3 | 1425 |
| Revenues from forest products, million BYN | 1640 | 1821 | 2145 | 2863 | 3395 | 4415 | 4636 |
| External revenues from export sales, million BYN | 20 | 20 | 20 | 22 | 22 | 22 | 24 |

Table 4 – Financial structure of the forest sector of the Republic of Belarus, 2013-2019

Forests are integrated into state policy and strategic documents of Belarus (Target 5.1). The Republic of Belarus is a party to many international conventions and fulfils its commitments on the development of strategies, national action plans, etc.

Belarus has formed an effective system of public administration of forest resources, so illegal logging is registered as one-off incidents (Target 5.2). According to the Forest Code there is a clearly defined management structure with clearly assigned authorities. A uniform state information system of timber record is being developed to reduce risks of law violation during logging and timber transportation.

National forestry-related policies and programs are mandatory to be coordinated across stakeholders, departments and are brought up for public discussion (Target 5.3). This process also involves research and educational institutions of the country. Land use issues related to forestry (Target 5.4) are laid down in the State Land Cadastre.

The forest sector of Belarus widely adopts international best practices of the countries that are advanced in forestry and maintains close collaboration ties worldwide. The most outstanding and successful example of international cooperation is joint actions with the World Bank within various projects and programs that date back to the 1990s.

4 Development of a draft National Program under the working title "Belarusian Forest" for 2021-2025 and proposed updating to the Strategic Forestry Development Plan for 2015-2030

4.1 Interim results of the National Program over 2016-2019

4.1.1 Progress review of targets and activities of subprogram 1 «Increasing of efficiency of forest resources management».

The National Program "Belarusian Forest" for 2016-2020 is split into three subprograms (subprogram 1 "Increasing of efficiency of forest resources management", subprogram 2 "Construction of forest roads", subprogram 3 "Development of hunting sector"). The Program is aimed to promote cost-efficient, environmentally responsible and socially oriented forest management, use of forest resources, hunting and game management. The progress review of <u>subprogram 1</u> outlines the performance of 2 headline targets and 9 target indicators. Headline target 1 is the forest cover of the country. It is defined as forest area as a proportion of total land area. The target is fully consistent with target 15.1 of SDG 15 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land area" as well as indicator 5.1.1 "Forest area as a proportion of total land a

Over the first three years (2016-2018) of the five-year National Program the forest cover figures demonstrated a steady growth by equaling the target values or outperforming them (Figure 16). This shall mainly be attributed to the fact that the area of lands transferred to the forest fund exceeded the clear cut areas. The forest cover increased by approx. 0.1% due to the fact that the areas included in the forest fund were larger than those removed from it. Since 2019 (actually in 2018) the forest cover has declined by 0.1% and amounted to 39.8% due to sanitary clear cuts of the areas with forest dieback, especially coniferous forests. The adverse weather effects that led to large-scale dieback came unexpected, so the target values of forest cover (40.1%) were not achieved for the objective reasons not related to forest management.





Headline target 2 is defined as "Timber harvest per 1 hectare of forest lands" which is determined as the ratio of total timber harvest to forest area. This target is related to SDG 15 and is a sub-indicator of national indicator 15.2.1 "Progress towards sustainable forest management". The National Program provides for 19.0% increase in timber harvest by 2020 compared with the year of 2015. The increase can be explained by the changing age structure of national forest with increasing proportion of mature and overmature forests. However, due to the mass dying of coniferous forests the planned values were constantly outperformed. Actual performance of the target was 57.1% in 2018 and 46.6% in 2019. The figures can be explained by extensive sanitary clear cuts and selective fellings. Thus, the targets of subprogram 1 were fully achieved in 2016-2019 (table 5).

| Indicator | Evaluation | | | Years | | |
|----------------------------------|---------------------------------|-------|-------|-------|-------|-------|
| | | 2016 | 2017 | 2018 | 2019 | 2020 |
| 1. Forest cover as per national | Target | 39.6 | 39.7 | 39.8 | 39.9 | 40.1 |
| standard, % | Actual | 39.7 | 39.9 | 39.8 | 39.8 | 39.8 |
| | Deviation | +0.1 | +0.2 | +0.0 | -0.1 | -0.3 |
| 2. Average growing stock, | Target | 198 | 200 | 203 | 208 | 210 |
| m ³ /ha | Actual | 211 | 215 | 217 | 219 | 220 |
| | Deviation | +13 | +15 | +14 | +11 | +10 |
| | As above, % | +6.6 | +7.5 | +6.9 | +5.3 | +4.8 |
| 3. Mature and overmature | Target | 12.8 | 13.1 | 13.,4 | 13.7 | 14.0 |
| forests as a proportion of total | Actual | 13.0 | 13.6 | 14.7 | 15.6 | 16.3 |
| forest area, % | Deviation | +0.2 | +0.5 | +1.3 | +1.9 | +2.3 |
| 4. Timber harvest per 1 hectare | Target | 2.30 | 2.35 | 2.40 | 2.45 | 2.50 |
| of forest lands, m ³ | Actual | 2.28 | 2.49 | 2.73 | 3.27 | 3.08 |
| | Deviation | -0.02 | +0.14 | +0.33 | +0.82 | +0.58 |
| | As above, % | -0.9 | +6.0 | +13.8 | +33.5 | +23.2 |
| | As a proportion of increment, % | 58.5 | 63.8 | 70.0 | 83.8 | 79.0 |
| 5. Forest cover as per FAO | Actual | 42.8 | 42.9 | 43.0 | 43.1 | 43.2 |
| standard, % | Relative to the previous year | _ | +0.1 | +0.1 | +0.1 | +0.1 |

Table 5 – Progress review of target indicators of the National Program "Belarusian Forest" for 2016-2020.

The Program provides for 6.1% increase in average growing stock by 2020 compared with the year of 2015. The average growing stock demonstrated a continuous growth and even exceeded the estimated target values by 10-15 m³/ha or 4.8-7.5%. The excessive growth slowed down towards 2020. The slowdown effect can be explained by factual intensification of cuts which increased from 2.28 to 3.27 m³/ha by 2020. When reviewing the target indicator of average growing stock it should be mentioned that the Forest Cadastre and the National Program used different calculation methodologies which produced contrasting figures. For instance, the Forest Cadastre reports the 2018 average growing stock as 219 m³/ha, whereas the National Program reports the same indicator as 205.9 m³/ha, the planned target value being 203.0 m³/ha. Therefore, the calculation methodology of the National Programs needs to be harmonized with that of the Forest Cadastre.

Even though the increase in cuts was considerably outperforming the planned figures (starting from 2017 by 6.0-33.5%), it did not go beyond the changes in average growing stock (due to sustainable forest management). The average growing stock was steadily growing by annual 3.9 m³/ha (m³/ha/year), whereas the proportion of forests excluded from final cutting

remained within 20.1-20.9%. The indicator is compared to the types of increment; therefore its measuring unit shall be the same. The new National Program must ensure its compliance with modern standards of forest assessment, i.e., $m^3/ha/year$.

Proportion of mature forests also outperformed the planned figures due to the new 2016 edition of the Forest Code. The proportion of mature forests has approached its optimum value (16%) in terms of the actual felling age and maturity (in 2017 - 14.7%, in 2018 - 15.6%). This created all necessary conditions for normal cuts (sustainable cuts) to be carried out in most forestry enterprises for the subsequent five years.

The current National Program is strongly focused on selection breeding in forestry. Main actions related to selection breeding are contained in Activity 4 of subprogram 1 and Activity 6 of subprogram 1. All planned actions were outperformed over the reviewed period. Forest seed plantations were established on the area of 201.5 ha against the planned 195.0 ha (+3.3%). Forest plantations from breeding planting stock were established on the area of 73,148.8 ha (+55.6%). Target indicator "Genetic breeding forest plantations as a proportion of total reforestation and afforestation" amounted to 48.8% against the planned 41.9%. This indicator is consistent with national indicator 15.2.1.3 "Genetic breeding forest plantations as a proportion of total forest sowing and planting" under SDG 15.

Artificial forests currently occupy one quarter of the total forested area of the country. Large-scale and highly-efficient artificial reforestation and afforestation made it possible to increase the forest cover of the country from 22.1 to 39.9% in the post-war period. This percentage of the forest cover can be regarded as close-to-optimum value for Belarus as it can ensure extensive regeneration of forest resources and biodiversity conservation. Temporarily unstocked areas have traditionally been treated by the following reforestation scheme: 50% artificial reforestation; 50% natural reforestation, including 10% assisted natural reforestation. It may be concluded that species composition, age structure and other qualities of forests demonstrate a clear uptrend which is strongly dependent on the scope of forest resources.

Hard-leaved forests are of strategic value in the Republic of Belarus. Currently they occupy only 3.4% of the total forest area in the country, so their area must steadily increase. One of the ways to increase the area of hard-leaved forests is more extensive use of hard-leaved saplings during reforestation. One of the actions of the National Program provides that hard-leaved plantations shall make no less than 11.5% of the total afforestation and reforestation. Unfortunately, this action has not been given proper attention to. In 2016 the area of established hard-leaved plantations amounted to only 2,544 ha or 8.6% of the total forest planting and sowing; in 2017 it decreased to 2,402 ha (7.4%), in 2018 it was 2,121 ha (6.1%) with further decline to only 5.9% in 2019 (Figure 17). This can mainly be explained by large-scale artificial reforestation of areas unstocked through clear-cutting in recent years (Figure 18).

Strategic planning must envisage an ongoing long-term increase in artificial reforestation. This increase must be progressive without account of the reforestation activities in the areas which are temporarily unstocked due to large-scale natural disasters or pathological effects on forests. Artificial reforestation can be expanded by using Norway maple in the mixed composition of forest plantations. Active fruiting stage of English oak is expected in the nearest future which will yield acorns for forest nurseries. Therefore, in light of the above facts, the activity must be revised in the new National Program. This must not be linked to the total area of forest planting anymore.



Figure 17 - Dynamics of planned and actual areas of hard-leaved forest plantations, ha



Figure 18 – Coniferous forest plantations and their proportion

Today our silviculturists are facing up the task to create forests of a designated species composition and to obtain targeted forest products. This requires industrial techniques for timber growing which is not possible without innovative development of all technological stages "from seed to yield". The National Program provides for annual forest plantations of 262 ha for growing of commercial pulpwood. In reality, more plantations are established. In 2016 they were established on 412 ha, in 2017 – on 517 ha, in 2018 – on 432 ha, in 2019 – on 280 ha. So, the total area of newly established forest plantations amounted to 1,641 ha (125.3%), the five-year plan being 1,310 ha. According to the classic approach to industrial growing of pulpwood, forest plantations must be concentrated on large areas. At the same time, reforestation has been carried out successfully for many decades in the country. Forests have been regenerated as natural complexes. Afforestation was done by the same approach whereas the majority of afforested sites were

registered as forest plantations. One of the options to intensify logging without major damage to natural complexes is to transfer such sites into the category of forest plantations where timber harvest is allowed disregarding the felling ages established by the law. These forest plantations must be counted when determining the forest cover of the territory. Plantation-based silviculture must be developed in Belarus. However, today the priority goal shall be not so much the supply of timber as the reduction of the load on natural forest ecosystems. Thus, it is advisable to categorize all afforestation sites as forest plantations that are a part of the forest fund.

One of the priorities of the National Program is forest management on contaminated areas and assessing the capacity to obtain products of standard quality. Compared with the year of 2015, the area of contaminated forests reduced by 108.9 thousand ha (7.8%). Nevertheless, as of 2019, an area of 1283.8 thousand ha was occupied by contaminated forests which are engaged in forest management, including reforestation activities.

The first and foremost forest protection issue is ongoing forest monitoring. A system of pathological forest monitoring has been arranged to ensure timely detection of forest damage, pest control, forest diseases and other pathological phenomena. A multilevel forest control system which detects large pathological areas has been deployed in Belarus (Figure 19). However, there are some challenges in respect of early detection of forest pathologies as well as those pathological phenomena that have not previously been registered in the country. These difficulties can impede timely and proper forest protection measures. On the other hand, it is well known that early detection of pathological phenomena in the forest is the most efficient and cost-effective method. Therefore, the system of pathological forest monitoring needs to be improved in terms of its operational responsiveness and accuracy.



Figure 19 – Dynamics of dead forests and forests under pathological monitoring over 1998-2018 in Belarus

One of the actions laid down in the National Program is the improvement of forest protection technology by using advanced environmentally friendly pesticides and biopreparations that are compliant with international standards. Development and application of environmentally friendly technologies of plant protection is a global trend. Biological methods and means of forest protection are dynamically developing and increasingly used in forests of the Republic of Belarus. New biopreparations and ecological technologies emerge, thus helping to conserve biological diversity and maintaining environmental function of forests.

Another important activity of the National Program is use of timber. In 2019, 26.9 million m^3 of commercial timber was harvested to cater for the needs of the national economy. The pattern of timber harvest from national forests was as follows: the Ministry of Forestry –

25.6 million m^3 of commercial timber; the Department of Presidential Affairs of the Republic of Belarus – 964.5 thousand m^3 ; the Ministry of Defense – 83.3 thousand m^3 ; the National Academy of Sciences of Belarus – 138.6 thousand m^3 ; Minsk City Executive Committee – 20.1 thousand m^3 ; the Ministry of Education – 96.6 thousand m^3 ; the Ministry of Emergencies – 49.0 thousand m^3 . The volumes of timber harvest went up due to large-scale forest dieback caused by adverse weather effects and any other types of cuts. However, the growing stock of forests has an upward trend which makes it possible to increase the annual allowable cut and to ensure sustainable forest resources management as well. The annual allowable cuts grew from 11.9 million m^3 in 2016 to 14.3 million m^3 in 2019.

Considerable advances have been observed in retrofitting of logging industry. At the beginning of 2019 the Ministry of Forestry possessed 294 harvesters, 350 forwarders, 817 short log trucks, 1285 long-haul-dump machines, 60 mobile choppers, etc. In 2019 the country's forestry enterprises purchased 20 harvesters and 35 forwarders, 98 long-haul-dump machines, 92 short log trucks, 15 choppers and other logging machines and equipment in the amount of approx. 66.5 million BYN. This gave the opportunity to mechanize about 47% of timber harvesting operations. The total timber harvest by harvesting machines amounted to 9153.9 thousand m³ (100.4% compared to the year of 2016).

Target indicator 'Timber harvest by advanced multifunctional machines as a proportion of total timber harvest (%)" was set for 2016 and 2017 and was outperformed by 12% and 3% respectively. The indicator was not set for 2018-2020. It was replaced by the target indicator "Timber harvest by advanced multifunctional machines" for the subsequent three years (million m^3). In 2018 the planned figures were outperformed by 3%, but already in 2019 they were adjusted downwards from 11.5 to 10.7%. This can be explained by long time required to produce the multifunctional machines (more than 180 days). So, the adjusted figures were outperformed by 4.6% in 2019.

Under the existing laws all necessary conditions have been created to promote forestry and logging services. Timber harvesting services were rendered to the amount of 6.64 million m^3 , including 6.55 million m^3 of timber harvested from the forests of the Ministry of Forestry. Over the reviewed period of 2016-2019 the target indicators "Timber harvest per 1 hectare of forest lands (m^3/ha) ", "Market capacity of logging services", "Production output of fuel wood chips (thousand m^3)" either outperformed or met the planned figures (Figures 20–22). Their annual growth was higher than the planned figures.



Figure 20 – Comparison of planned and actual performance of indicators "Timber harvest per 1 hectare of forest lands (m³/ha)" in 2016-2020



Figure 21 – Comparison of planned and actual performance of indicator «Market capacity of logging services» in 2016-2020

The Ministry of Forestry is responsible for catering to the timber needs of woodworking enterprises. In order to promote value-added production and increase export sales, the forestry enterprises develop their manufacturing by producing sawn timber, rounded logs, wood chips, pellets, etc. The manufacturing facilities employ more than 3.5 thousand people living in towns and rural areas. Within the framework of the Woodworking Industry Development Program of the Ministry of Forestry of the Republic of Belarus for 2015-2020, 54.3 million BYN was allocated to promote retrofitting of the woodworking production facilities in 2019. 61 retrofitting projects were implemented, including sawmilling industry - 25 projects; installation of log sorting line - 1 project; band saw machines – 4 projects; installation of positioning equipment – 25 projects; establishment of dried timber production – 4 projects; installation of circular saw machines for lumber production – 2 projects. In 2019, woodworking facilities processed 5.47 million m³ of timber, or 112.4% compared with the previous year. Although round timber was not exported in 2018, the total export sales of timber products and export services amounted to 140 million USD or 94% compared with 2017.

The country's forestry enterprises annually sell about 5 million m³ of firewood to the domestic market and the sales volumes are steadily growing. Considerable amount of the firewood is sold to local people; the rest is processed into fuel wood chips. The planned volumes were set at 6,519.0 thousand m³. The actual volume amounted to 9,893.7 thousand m³, including 9,401.2 thousand m³ from the forests of the Ministry of Forestry. The total production of fuel wood chips amounted to about 3,000.0 thousand m³, or 127.1% of the National Program target (Figure 23). The firewood sales made up 9,050.1 thousand m³, including 2,890.2 thousand m³ of fuel wood chips.



Figure 22 – Comparison of planned and actual performance of indicator «Production output of fuel wood chips (thousand m³)» in 2016-2020

The Ministry of Forestry undertakes considerable efforts in the field of forest certification to enter external markets and compete successfully. As of 01.01.2020, 7.6 million ha of forest fund were certified to principles of Forest Stewardship Council (FSC) and 8.1 million ha of forest fund area were PEFC certified.

4.1.2 Progress review of targets and activities of subprogram 2 «Construction of forest roads»

The target indicator "Volume of construction of forest roads" (subprogram 2 "Construction of forest roads") was completely performed. The performance of the planned figures averaged 101.8% over the four-year period (Figure 23). Annual construction of 100 km of new forest roads improved the accessibility of forest areas and efficiency of ecosystem services. For instance, timber hauling was constantly growing due to higher allowable cut rates (from 11.9 million m³ in 2016 to 14.3 million m³ in 2019).



Figure 23 – Performance of target indicator "Volume of construction of forest roads" of the National Program "Belarusian Forest" (subprogram 2 "Construction of forest roads")

4.1.3 Progress review of targets and activities of subprogram 3 «Development of hunting sector»

The hunting sector (subprogram 3 "Development of hunting sector") plays an important part in the distribution of lands and hunting activity of people. As of 01.01.2019, the countrywide area of rented hunting grounds was 16.8 million ha, including 7.6 million ha of forests, 8.2 million ha of fields, 1 million ha of swamplands. The most valuable game species are moose, red deer, roedeer. The actual population of moose was 38.4 thousand individuals in 2018, red deer – 22.7 thousand individuals, roedeer – 100.2 thousand individuals which makes the respective 88%, 39% and 71% of the optimum population of these game species. The optimum population is determined by the hunting economy republican unitary enterprise "Belgosokhota" (table 6). Over the four-year program period all target indicators were performed and considerably exceeded. However, the indicators related to financial receipts were characterized by a drop in growth, even though their absolute values were constantly increasing.

| | | | | | | Perfo | rmance fig | ures (by ye | ars) | | | | | |
|---|---------------------|-------|--------|---------------------|-------|--------|---------------------|-------------|--------|------------------------|-------|---------|------------------------|--|
| Indicators | Unit of | | 2016 | | 2017 | | 2018 | | | 2019 | | | | |
| | measur ement. | plan | actual | Perfo- rmance, % | plan | actual | Perfo- rmance, % | plan | actual | Perfor- mance, % | plan | actual | Perfo- rmance, % | |
| Actual population of game animals as a proportion of the optimum population | | | | | | | | | | | | | | |
| moose | % | 75 | 79.7 | 106.3 | 78 | 84.5 | 108,3 | 85 | 89 | 104.7 | 87 | 96.7 | 111.1 | |
| red deer | | 17 | 19.9 | 117.1 | 19 | 24.1 | 126,9 | 23 | 25.8 | 112.2 | 25 | 29.6 | 118.4 | |
| roedeer | | 47 | 51.4 | 109.4 | 49 | 57.0 | 116,4 | 58 | 61.7 | 106.4 | 60 | 67.3 | 112.2 | |
| Number of hunting licenses | pcs | 1000 | 1217 | 121.7 | 1100 | 1231 | 111,9 | 1200 | 1226 | 102.2 | 1300 | 1505 | 115.8 | |
| Public revenues from state duties imposed on hunting licensing, total | thousa nd BYN | 800 | 1069.7 | 133.7 | 960 | 1132.8 | 118 | 1108.081 | 1197 | 108 | 1334 | 1386 | 103.9 | |
| Public revenues from rental payments, total | thousa nd BYN | 280.0 | 851.6 | 304.1 | 611.0 | 1097.9 | 179,7 | 643.0 | 1177.4 | 183.1 | 677.0 | 1133.98 | 167.5 | |

Table 6 – Performance review of the target indicators of subprogram 3 of the National Program "Belarusian Forest" for 2016-2020

4.1.4 Evaluation of performance and funding of the National Program

Performance of subprograms and the National Program over the period of 2016-2019 was evaluated by the methodology of performance evaluation.

Figure 24 and Table 7 show interim data of the Ministry of Forestry on funding of subprograms 1-3 and the National Program over the period of 2016-2019.



Figure 25 – Actual expenditure of subprograms and the National Program "Belarusian Forest" in 2016-2019

| Sources of funding | Per cent |
|---|----------|
| Public funding | 33.80% |
| Local budgets | 0.12% |
| Own funds | 7.74% |
| Credit resources | 15.42% |
| Revenues from forestry operations | 41.72% |
| Fixed charges on timber sales for construction of forest roads | 1.17% |
| Extrabudgetary centralized investment funds of the Ministry of Forestry | 0.03% |
| Total | 100% |

Table 7 – Sources of funding of the National Program in 2016-2019

As can be seen from Figure 25, over the period of 2016-2019 the actual expenditure of subprograms 1 and 3 exceeded the planned funding; on the contrary, the planned funding surpassed the actual expenditure of subprogram 2. In terms of financial planning, the National Program "Belarusian Forest" for 2021-2025 should contain a more careful justification of the planned funding for its subprograms.

Revenues from forestry operations (41.72%) and public funding (33.8%) have the largest proportions in the funding pattern. The actual volumes of funding by own funds and revenues from forestry operations are preliminary data [data of the Ministry of Forestry].

4.2 Draft National Program under the working title «Belarusian Forest» for 2021-2025

Draft National Program under the working title "Belarusian Forest" for 2021-2025 is based on the performance of activities and target indicators of the current National Program. Following the progress review of indicators and actions of the current National Program "Belarusian Forest", the draft National Program "Belarusian Forest" for 2021-2025 should contain the following provisions:

1) the layout of the draft National Program "Belarusian Forest" for 2021-2025 shall be compliant with the requirements of the current laws and regulations;

2) goals and targets of the draft National Program "Belarusian Forest" for 2021-2025 shall be consistent with targets and indicators of Sustainable Development Goals and the 2030 Agenda for Sustainable Development, in particular, SDG 15;

3) the previous layout of the draft National Program shall be maintained, as regards its subprograms. Therefore, the draft National Program should contain the following three subprograms:

- subprogram 1 «Forestry»;

- subprogram 2 «Construction of forest roads»;

- subprogram 3 «Hunting sector».

4.3 Proposed updating to the Strategic Forestry Development Plan for 2015-2030

Proposed updating to the Strategic Forestry Development Plan for 2015-2030. The Strategic Plan is a comprehensive and relevant policy document of the forest sector, however, there are some activities for which the objectives of the Plan have already been reached or require some amendments. These include action 22.2 "develop a system and criteria of forest groups and protection categories in the context of forest functions" which was included in the new edition of the Forest Code. The group classification of forests was abolished by the Code, the protection categories were made more specific which led to changing age structure of forests. As a result, the area of commercial forests increased as did the timber harvest volumes.

Provisions of Action 22.6 on introduction of microclonal technique for growing of planting stock are controversial. This technique is based on polyreproduction of individual plants. If used extensively, it may result in degradation of genetic pool of our forests. Therefore, the provisions must be reworded as follows: "use of microclonal techniques for growing of planting stock for plantation silviculture".

The Strategic Forestry Development Plan for 2015-2030 contains an exhaustive description of activities in the field of logging, forest roads and transport infrastructure, energy uses of wood biomass. They rely on the provisions of international conventions and national legislation of the Republic of Belarus, review of targets and their changes over the planned timeframe.

5 Review of international granting organizations providing financial aid to pilot projects on achieving SDG and UNSPF targets

The fundamental mission of international organizations, funds and programs is to promote and assist in addressing current global and local challenges. Their scope of activity covers a wide range of areas and focuses on the most current challenges that the world is facing today. Today, most funding agencies are focused on the projects which aim to achieve targets of sustainable development goals (SDG). Many countries, including Belarus, can address global challenges by conservation and maintenance of forest ecosystems, efficient use of their resources and creation of a sustainable ecosystembased platform for social and economic development. International government funding includes both multilateral and bilateral funding (Figure 26). Multilateral funding can further be split into two groups: multilateral funds and multilateral banks for development. Domestic and transnational funds are aimed at rendering assistance in developing national forest policies and allocate funding for development and implementation of concrete action plans, construction of industrial facilities, maintenance and conservation of valuable natural sites, etc.



Figure 26 – Types of funding sources [2]

Private funds mainly support to charity, educational, religious or other similar activities to promote common wealth by providing grants to other non-profit organizations. Many private funds provide financial aid to nature conservation projects, including climate change initiatives. A review of the funds websites shows that the funds often include forests in the framework of their climate change projects; however, sustainable forest management is paid less attention to.

This report contains a review of international programs and funds for research projects on forestry, exchange of knowledge and best practices. Most international programs and funds embrace a very wide scope of research areas. The main eligibility criterion is the relevance of the study; the expected project outcomes must be aimed to address specific challenges. The best known research-focused programs and funds are Horizon 2020, European Cooperation in Science and Technology (COST), Marie Skłodowska-Curie actions, Royal Swedish Academy of Sciences, U.S. Civilian Research and Development Foundation, The Royal Society, London.

Several international organizations have been selected from among those that can provide grant aid to relevant and promising forestry-related projects in the Republic of Belarus. The selection was made by several criteria that were based on the review of more than 50 organizations and funds. The list of criteria can facilitate the fund-raising search and evaluate the eligibility of project applications. The following criteria were identified: the project idea must match the profile of the funding organization; the project application must follow principles and guidelines of the funding organization; the project must be within the geographic reach of the funding organization; the complexity of preparation and submission of a project application; the estimated budget of the project; the necessity of finding project partners; the proportion of approved project applications per call; possibility to submit project applications without tendering procedure. The criteria made it possible to make a priority list and an additional list of organizations, funds and programs.

GEF funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements. GEF support is provided to government agencies, civil society organizations, private sector companies, research institutions, among the broad diversity of potential partners, to implement projects and programs in recipient countries. In most cases the GEF cooperates with project proponents through its executive agencies. The GEF Agencies are the operational arm of the GEF. They work closely with project proponents – government agencies, civil society organizations and other stakeholders – to design, develop and implement GEF-funded projects and programs. The GEF has established 18 executive agencies. Some of them are presented in table 8

Table 8 – GEF agencies

| Ø | European Bank for Reconstruction and Development (EBRD) ensures sustainability through private sector and municipal environmental infrastructure projects at the country and regional level in the countries of Eastern and Central Europe and Central Asia, particularly in the fields of energy efficiency, biodiversity and water management. |
|-----------------------------------|--|
| F A O | United Nations Food and Agriculture Organization (FAO) posseses technical capacity and experience in fisheries, forestry, agriculture, and natural resources management. The FAO has strong experience in sustainable use of agricultural biodiversity, bioenergy, biosafety, sustainable development in production landscapes, and integrated pest and pesticides management. |
| | United Nations Development Programme (UNDP) has experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation. UNDP assists countries in designing and implementing activities consistent with both the GEF mandate and national sustainable development plans. |
| UN () environment programme | United Nations Environment Programme (UNEP) is the only United Nations organization with a mandate to coordinate the work of the United Nations in the area of environment for which the core business is the field of environment. UNEP also provides the GEF with a range of relevant experiences, proof of concept, testing of ideas, and the best available science and knowledge upon which it can base its investments. It also serves as the Secretariat to three of the Multilateral Environmental Agreements (MEAs), for which GEF is the/a financial mechanism. |
| | United Nations Industrial Development Organization (UNIDO) can involve the industrial sector in GEF projects in the following areas: industrial energy efficiency, renewable energy services, water management, chemicals management (including persistent organic pollutants and ozone depleting substances), and biotechnology. UNIDO also has extensive knowledge of small and medium enterprises (SMEs) in developing and transition economy countries. |
| | The World Bank Group (WBG) is a leading international financial institution at the global scale in a number of sectors, similar to the comparative advantage of the regional development banks. The WBG has strong experience in investment lending focusing on institution building, infrastructure development and policy reform across all the focal areas of the GEF. |

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation. Forestry is one of the priority areas of Horizon 2020 Programme. To rise to the challenge, research and demonstration activities will encourage cooperation across basic and applied research disciplines, as well as between researchers, practitioners, businesses and other stakeholders.

RISE is a Horizon 2020 section that promotes collaboration between the research and innovation sectors, based in Europe (EU Member States and Horizon 2020 Associated Countries) and outside Europe (third countries). Joint research and innovation projects involve staff exchanges, while building and expanding international networks, fostering research and innovation and turning creative ideas into innovative products, services or processes. RISE should exploit complementary competences of the participating organizations, as well as other synergies, and enable networking activities, organization of workshops and conferences to facilitate sharing of knowledge, new skills acquisition and career development for research and innovation staff members.

The Small Grants System coordinated by foreign diplomatic missions (primarily, embassies) to the Republic of Belarus is a most important funding instrument for the projects that are directly or indirectly aimed at SDGs implementation at the local level. The first and most common form of such financial aid is when foreign governments allocate personal grants and scholarships to promote academic mobility and to support people of certain occupations, gender or physical condition. The second form of financial aid provided through foreign embassies are grants for non-governmental and other organizations.

One of the essential steps of writing a project funding application is a careful study of information for beneficiaries and applicants on the website of a funding organization. As a rule, each organization has established its own procedure, rules and conditions for submission of applications. Figure 27 shows a generalized process of application for funding.

| Defining an area | Submission of | Reviewing of | Allocation | Project |
|------------------|----------------|---------------------|------------|----------------|
| for funding | an application | an application | of funding | implementation |

Figure 27 – Procedure for submission of applications

The project applications may be submitted in one or two steps. A one-stage application procedure involves detailed description of the project proposal, its goals, objectives, stages, budget and concrete project outcomes. The application must contain a list of organizations and partners to be engaged in the project, description of their qualifications, capacity and expertise, previous experience of project work. The submitted application is reviewed by the funding organization that makes the decision on budget allocation.

A two-stage application (Figure 28) starts with the submission of a project concept note or a short description of project concept. It is important to present the project rationale and the outcomes that will address several local or global challenges.

The funding organizations select the most relevant and promising projects at the stage of approval of concept notes. If a concept note is approved, a more detailed application is drafted.

Different organizations and funds have their own systems of reviewing and approving project proposals for funding (table 9).

| < Preparation and approval of concept notes < |
|--|
| • Preparation and submission of concept notes of project proposals |
| Technical review of concept notes by experts |
| Review of approved concept notes by the Fund Secretariat |
| Preliminary approval of budget |
| Drafting and approval of projects |
| • Preparation and submission of concept notes of project proposals |
| • Technical review of concept notes by experts |
| • Review of approved concept notes by the Fund Secretariat |
| Preliminary approval of budget |
| Figure 28 – Two-stage application for project funding |

There are several eligibility criteria for evaluation of project concepts: project area, country of implementation, project relevance, budget eligibility, length of the project, etc. Due to the insufficiency of financial resources, the funding organizations cannot approve all the project applications for funding. On average, about 10-15% of all applications are approved.

| Catagory | Criterion | Weight per | Total |
|--------------------|---|------------|--------|
| Calegory | Citterion | category | weight |
| 1. Relevance | 1.1 Relevance of the strategy (value for money) | 15% | |
| | 1.2 Rationale (capacity building) | 20% | |
| | 1.3 Theory of change (clarity and quality) | 45% | 65% |
| | 1.4 UN (additionality and localization) and the SDG | 10% | |
| | Fund (added value) | | |
| | 1.5 Cross-cutting issues (e.g., gender issues) (question 6) | 10% | |
| 2. Application and | 2.1 Roles and responsibilities (clarity and applicability) | 20% | |
| implementation | 2.2 Facilities (technical facilities and/or access to | 20% | |
| | technical facilities) | | |
| | 2.3 Timeframe and stages (clarity and applicability) | 10% | |
| | 2.4 Budget (cost-effectiveness and benefits) | 20% | 35% |
| | 2.5 Development stage (results of previous projects, | 15% | |
| | analysis and feasibility) | | |
| | 2.6 Risk management (including off-track risk and | 15% | |
| | reputational risks) | | |

Table 9 – Eligibility criteria for project concept notes

So, the review of international granting organizations providing support to pilot projects on achieving SDG and UNSPF targets has shown that in spite of several common approaches to grant allocation each organization has its own requirements to project applications. These requirements are uniform in terms of the name of the project, the goal, challenges and rationale. During the implementation of the project, 11 project applications were developed. All project applications contain all important aspects so that they can easily be adapted to different requirements of different funding organizations. The project applications touch upon the areas which are most closely related to achievement of the SDG and UNSPF targets, improvement of forestry education and hands-on experience of recovery from adverse weather impacts on forests.

Appendix 4



Layout of information booklet "Forest sector of Belarus. Contribution to sustainable development goals"



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Forestry-related Sustainable Development Goals (SDGs)



SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



SDG1 End poverty in all its forms everywhere



SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture



SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all



SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable



Content

| SDG15 |
|--|
| Introduction |
| General description of Belarusian forests |
| Forest cover |
| Aboveground phytomass |
| Carbon stock in forest phytomass |
| FSC and PEFC certified forests |
| Specially protected nature areas |
| Average growing stock in forests |
| Genetic breeding forest plantations as a |
| proportion of total forest sowing and planting |
| Forest seed plantations |
| Reforestation |
| Forest nurseries |
| limber harvest |
| SDG 1 |
| Forest and water |
| SDG 2 |
| Non-timber uses of forest and hunting |
| SDG 7 |
| Wood fuel |
| Renewable energy sources |
| |





SDG 8

Contribution of the forest sector to the economic development of the Republic of Belarus Contribution of the forest sector to the ecological development of the Republic of Belarus SDG 9 Forest roads Manufacturing industry Environmentally friendly and clean technologies Research work SDG 11

Natural heritage of forests Urban and suburban forests

Contacts





Introduction

The brochure outlines national progress toward forestry-related Sustainable Development Goals (SDGs).

When national indicators were defined, they were made consistent with the global goals and the Strategic Forestry Development Goals of the Republic of Belarus n the context of fundamental principles of official statistics.

Practical implementation of Sustainable Development Goals can be advisory (proxy indicators) and mandatory.

Related to forestry, the 17 Sustainable Development Goals are specifically interpreted and expressed through a framework of special indicators.

SDG 15 "Life on land" and its indicators are central to the forest sector.

In addition to the targets and indicators of SDG 15 which are indispensable to the forest sector, there are proxy indicators that are focused on sustainable development issues of both regional (SDGs 2, 7, 8 and 9) and global (SDG 1, 11, etc.) dimensions.

The suggested framework of indicators (working tools of SDGs implementation) is aimed to set new priorities for forest management, including close collaboration with internationals (incl. funding) organizations.

The national indicators allow quality evaluation of the contribution that is made by the forest sector to SDGs and the global sustainable development policy.





Average area of the enterprises involved in forest management is 80,848 ha.

Average area of a forestry station is 10,106 ha, area of a logging camp is 3,733 ha, a ranger district – 833 ha.

General description of Belarusian forests

Forests are a key component of land ecosystems. They have a great impact not only on human wellbeing but also favourably affect our environment. All forests of Belarus are state-owned; 90% of them are managed by the Ministry of Forestry of the Republic of Belarus

The Ministry of Forestry of the Republic of Belarus comprises 6 regional State Production Forestry Associations, 98 state forestry enterprises, 836 forestry stations and several specialized enterprises. The Department of Presidential Affairs of the Republic of Belarus is in charge of 4 national parks, 1 reserve and 2 forestry enterprises; the Ministry of Emergencies is in charge of Polessie State Radioecological Reserve; the Ministry of Defense manages 2 military forestry enterprises; the National Academy of Sciences controls 3 experimental forestry facilities; the Ministry of Education is in charge of 2 educational experimental forestry stations.

Table 1 – Distribution of the forest fund of the Republic of Belarus (as of 01.01.2020)

| National government bodies and other governmental organizations | Area, thousand ha | Proportion of the total area (%) |
|---|----------------------|-------------------------------------|
| Ministry of Forestry of the Republic of Belarus | 8461.3 | 87.9 |
| Department of Presidential Affairs of the Republic of Belarus | 767.8 | 8.0 |
| Ministry of Emergencies of the Republic of Belarus | 216.9 | 2.3 |
| Ministry of Defense of the Republic of Belarus | 90.1 | 0.9 |
| National Academy of Sciences of the Republic of Belarus | 41.6 | 0.4 |
| Ministry of Education of the Republic of Belarus | 27.8 | 0.3 |
| Local authorities | 15.4 | 0.2 |
| Total | 9620.9 | 100.0 |

6

«State Forest Cadastre of the Republic of Belarus



The total area of the forest fund of the Republic of Belarus is 9,620.9 thousand ha. Forest-covered lands occupy 8,280.3 thousand ha. Commercial forests occupy 6,580.1 thousand ha or 79.5 %.

The total growing stock of forests is 1,831.8 million m³, 83.5% of which can be harvested. Mature and overmature forests have 375.4 million m³ of growing stock. The prevailing trees species are coniferous (Scots pine Pinus sylvéstris, Morway spruce Picea ábies, European larch Lárix decidua); their proportion in the total growing stock amounts to 65.9% or 1,206.8 million m³. The growing stock of deciduous species (English oak Quércus róbur, common ash Fráxinus excélsior, common hornbeam Cárpinus bétulus, Norway maple Ácer platanoides) is 61.9 million m³ or 3.4%. The total average change in growing stock is 33.4 million m³.





Average change in growing stock is 40 m³/ha.

Average age is 56 years.

Average density is 0.71.



The highest forest cover is in Lelchitsy district (68.2%).

The lowest forest cover is in Nesvizh district (11.0%).

Areas covered with woody shrubs occupy about 46.5% of the total area of **Belarus**

8

Forest cover

SDG target 15.1 is "by 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements". National indicator under this target is 15.1.1 "Forest area as a proportion of total land area" or forest cover.







4000 3000

Aboveground phytomass

1944 1955 1965 1973 1983 1994 2001 2010 2014 2016 2017 2018 2019

As habitat-forming and climate-regulating functions of forests became increasingly recognized, the volume of phytomass was identified as an important indicator. The growth of forest phytomass volumes shows that the favourable environmental impact of forests is enhanced. The value of phytomass is defined through the impact it has on the size and direction of carbon flows in the global carbon cycle. Increase in phytomass volumes has an upward effect on the carbon stock in forests while decrease has an opposite effect.

The volume of aboveground phytomass in **Belarusian forests** is constantly growing. The increase is mainly attributed to growth of the total and average growing stock. Over the past 6 years the volume of aboveground phytomass has gone up by 6.2% and amounted to 153.5 t/ha of forested area. 10



Carbon stock in forest phytomass

The forest sector of Belarus makes a great contribution to the national economy. It also has its impact on global and regional issues, including carbon cycle. The carbon stocking function of forest comes into effect through carbon dioxide absorption during photosynthesis and carbon sequestration in forest phytomass. From 1956 to 2019, the carbon stock in forest phytomass increased 2.8 times and amounted to 784.9 million t C (or 94.8 t per 1 hectare of forested lands).

Dynamics of total carbon stock in forest phytomass



From 1956 to 2019, the total area of the forest fund grew 1.3 times, the total growing stock increased 3.7 times. This promoted the growth in phytomass of national forest ecosystems, net flow of carbon from atmosphere into forests and the resulting carbon stock increase.



The Forest Certification System under the National Conformity System of the **Republic of** Belarus was approved by **PEFC Council in** 2010 and recognized as conforming to the PEFC requirements. Responsible forest certification body is "Belgiproles" enterprise.

12

FSC and PEFC certified forests





11

Forest certification is aimed to promote sustainability and productivity of forests, to improve biological diversity of forest areas, to mitigate negative environmental impacts of the timber industry and to increase export opportunities of the forest sector and remove technical barriers to international trade. The Republic of Belarus has adopted two forest certification systems, i.e., that of Forest Stewardship Council (FSC) and the Forest Certification System under the National Conformity System of the Republic of Belarus. The latter was approved by Pan European Forest Council (PEFC). Forest certification is a voluntary process that is initiated by an entity (applicant). A contract for certification services is made between the applicant and the certifying body.

| Area of certi | | ertified forests | Nu | Number of certified entities | | | |
|--------------------------|------------|--|------|--|--|--|--|
| Certificatio n system | million ha | proportion of the total forest fund, % | pcs. | proportion of the total number of entities engaged in forestry, % | | | |
| FSC | 9.1 | 95.1 | 106 | 89.1 | | | |
| PEFC | 8.6 | 89.1 | 104 | 87.4 | | | |

Specially protected nature areas

Considerable attention is given to specially protected nature areas. As of 01.01.2020, the total area of specially protected nature areas amounted to 1524972.0 ha or 15.9% of the total forest fund. Conservation of valuable gene pool is done by allocating genetic reserves. Currently in Belarus forest genetic reserves occupy the total area of 4183 ha allocated for four species, i.e., Scots pine – 1232 ha, European spruce – 665 ha, English oak – 2181 ha and common ash – 105 ha.





The country has one biosphere reserve and four national parks. On a nationwide scale, specially protected nature areas occupy 15.9% of the forest fund of the country.

13



Average growing stock of stands per hectare:

coniferous

forests – 249 m³, including pine – 246 m³, spruce – 261 m³;

hardwooded broadleaved– 183 m³, including oak – 187 m³;

softwooded broadleaved – 186 m³, including birch – 179 m³, black alder – 206 m³.

14

Average growing stock in forests

One of the national indicators under global indicator 15.2.1 "Progress towards sustainable forest management" is national indicator 15.2.1.2 "Average growing stock" which is expressed in m³ per 1 ha. Increase in average growing stock in forests shows that forest management is aimed to conserve and enhance forest resources. The indicator is mainly related to the productive function of forests. However, the average growing stock is directly connected with the carbon sequestration function of forests as well. As the volume of forest phytomass increases, so does the carbon stock in forests. From this perspective the average growing stock can be considered as both economic and environmental indicator of sustainable forest management.



Changes in total and average growing stock in forests

There is a certain potential for the continuing increase in average growing stock. Middle-aged and maturing forests with the largest increment are highly predominant in Belarus.

The areas of mature and overmature forests are gradually growing in Belarus and they have already approached the value of normal age distribution. Over the past 10 years the area of mature and overmature forests has increased by 60%. The growing stock has risen by 77%, specifically by means of coniferous species that have almost doubled their stock (98%). Stock increase of soft-leaved forests amounted to 64%, that of hard-leaved to only 20%. Steady growth of the indicator proves that timber harvesting in mature forests allows for timber stock building, i.e., the forests are managed in a sustainable way. Average growing stock of maturing forest stands is currently higher than that of mature and overmature forests and is continuously increasing (by 11.1% over the last 10 years). This tendency demonstrates sustainability of intermediate yield.







Current value of the indicator is 56.7%.

This indicator is expressed as a percentage and is a ratio between the area of forest sowing and planting by breeding material and improved seeds and the total area of forest sowing and planting.

16

Genetic breeding forest plantations as a proportion of total forest sowing and planting

At the present stage of forestry development, use of the selected planting material holds a lot of promise for forest regeneration and reforestation. This also helps to maintain biological diversity in forests and improve their resilience and productivity. Nowadays the proportion of genetic breeding forest plantations has reached the desired value of 50% and even exceeds it (56.7% in 2019, the average value over 2016-2019 is 48.8%). Therefore, future efforts in the field of forest seed breeding must be focused on keeping the achieved values at the same level. Acceptable variations shall be maintained at \pm 5% of the desired value which is 50%.





Average growing stock in mature forests per hectare:

coniferous – 300 m³, including pine – 294 m³, spruce – 340 m³;

hardwooded broadleaved forests – 253 m³, including oak – 254 m³;

softwooded broadleaved – 269 m³, including birch – 265 m³, black alder – 280 m³.

Forest seed plantations

Sustainable forest management requires a balance between forest sustainability and productivity. National sector of forest seed breeding develops both population and plantation breeding whereas the two methods have equal shares in the total seed harvesting. Plantation breeding is primarily aimed at enhancing forest productivity and the quality of timber. Population breeding conservation nromotes and improvement of biological diversity of forests, strengthens their resilience to environmental impacts. adverse Breeding planting stock is obtained from the stationary forest seed breeding facilities, i.e., forest seed plantations, selection of elite trees and seed stands, testing of elite capacity of the selected trees, etc. Main source of selection seed harvesting are forest seed plantations.







Productive forest seed plantations of coniferous and deciduous species occupy 1546.1 ha on forest areas of the Republic of Belarus. Annually new forest seed plantations are created on the area of 60 ha. 4.1 tons of forest seeds was harvested from forest seed plantations in 2019.





In 2019 afforestation and reforestation were carried out on 51.8 thousand ha (afforestation – 670 ha).

During reforestation forest plantations were established on 44.7 thousand ha, including 25.6 thousand ha by selection planting stock, 4.6 thousand ha by containerized planting stock.

18

Reforestation

Conservation of forest ecosystems as laid down by SDG target 15.1 is only possible through timely and proper regeneration of unstocked areas. The Forest Code (2015) provides for obligatory reforestation of temporarily unstocked areas within a three-year period. Main reforestation methods are forest planting and sowing.

Over the recent years the artificial reforestation was quite intensive on the areas affected by the 2016 windblow and large-scale dieback of pine forests in 2017-2019.

Reforestation areas, thousand ha





Forest nurseries

Forest regeneration in Belarus is assisted by 86 permanent forest nurseries which occupy an area more than 1,400 ha. In 2019 the forest nurseries yielded 410 million standard seedlings and saplings of more than 200 species of trees and shrubs.

The Ministry of Forestry controls the largest number of forest nurseries (78) which produced 402 million seedlings and saplings in 2019. Ballrooted planting stock is grown at the premises of the Republican Breeding and Seed Production Centre, Glubokoe experimental forestry enterprise and Ivatsevichi forestry enterprise. New premises are being completed in Mogilev forestry enterprise.

The Department of Presidential Affairs of the Republic of Belarus manages 5 permanent forest nurseries on the total area of 29.5 ha. Experimental forestry facilities of the Institute of Forest under the National Academy of Sciences of Belarus have 2 forest nurseries of 19.6 ha; Negoreloye Forestry Experimental Station under the Ministry of Education has one permanent forest nursery of 34.0 ha.





Average area of a forest nursery of the Ministry of Forestry is 16.9 ha.

123.1 pieces of selection planting stock have been grown in 2019.

About 48 million plants have been grown in greenhouses and 22.8 million pieces have been grown as containerized planting stock.

19



Timber harvest by final partial cuts amounted to 15% in 2019.

The 2014 timber harvest by sanitary clear cuts was 2.2 million m³ or 57% of the timber harvest by other types. In 2018 it was 13.3 million m³ or 89%.

Timber harvest

National indicator 15.2.1.4 "Average timber harvest per 1 hectare of forest lands " is defined as a proportion of merchantable wood harvest in the total forest area and is measured in cubic metres per 1 hectare. In the Republic of Belarus the timber harvest is constantly growing which can be explained by increase in growing stock and improving age structure of forests. It grew 1.6 times from 2000 to 2015 and amounted to 2.1 m³ per 1 ha. However, the 2016 windblow and the 2017 large-scale dieback of pine forests caused the timber harvest to go up to 3.3 m³/ha in 2018. Other types of forest cuts began to prevail in the pattern of timber harvest methods which was previously dominated by sanitary clear cuts.

Dynamics of timber harvest by methods of cutting, th. m³





Basic principle of sustainable use of renewable natural resources, including forest resources, is to conserve their permanent reserves that enable them to self-regenerate. So, the timber harvest should be compared with annual increase in growing stock. The methodology used in Belarus calculates the average change in growing stock, the loss of growing forest is disregarded. The increment, which takes account of the loss, is not calculated.

Dynamics of average change in growing stock and timber harvest





The increment in Belarusian forests is about 6.5 – 6.8 m³/ha.

40% of the average change in growing stock and 23% of the increment were harvested in 2009. In 2018 the values were 85% and 50% respectively.

In the forests of Europe the harvest of current increment is about 60%.



Article 16 of the Forest Code: protective forests include: - forests located within water conservation zones; - forests located within the first and second belts of sanitary control of drinking water supply systems and sources.

Forest and water

The activity of the Ministry of Forestry is closely related to SDG indicator 1.4.1.1 "Proportion of population having access to improved water sources/improved sanitary facilities on the territory of public forest fund".

The contribution of the forest sector to target 1.4 can be described by the favourable impact that forest areas have on the quality of water sources (including ecosystem and sociocultural services of forests).

As reported by Republican Unitary Enterprise "Belgosles", the area of forests located within water conservation zones and forests located within the first and second belts of sanitary control of drinking water supply systems is 1,871,762.6 ha.





In Belarus, the per capita area of forests located within water conservation zones and forests located within the first and second belts of sanitary control of drinking water supply systems is 0.2 ha.

Non-timber uses of forest and hunting

SDG 2 can be implemented through non-timber uses of forest (primarily picking of berries and mushrooms) and hunting.

The largest amount of non-timber resources is harvested by the enterprises of the Ministry of Forestry and the Department of Presidential Affairs of the Republic of Belarus. In 2019, the enterprises of the Department of Presidential Affairs harvested 51.7 t of wild berries and fruits, 14.0 t of mushrooms.



Harvest of non-timber products (Ministry of Forestry), 2016-2019

| Name | 2016 | 2017 | 2018 | 2019 |
|--|--------|---------|---------|---------|
| Total harvest: in current prices | 4049.0 | 5016.0 | 478.3 | 5733.0 |
| including: Wild berries and fruits, t | 163.0 | 69.5 | 155.8 | 74.6 |
| Нау, т | - | 260.8 | 283,6 | 182,1 |
| Medicinal herbs, kg | 318.7 | 304.0 | 0.2 | 504.1 |
| Birch sap, t | 0.0 | 18878.8 | 12952.2 | 17362,1 |
| Honey products, thousand BYN | 613.4 | 765.5 | 829.3 | 1108.2 |
| Honey, t | 95.6 | 104.8 | 124.0 | 137.1 |

Dynamics of the population and hunting for the main game animals, individuals (2003-2018)

| Year | Game animal species (optimum population) | | | | | |
|------|--|---------|-----------------|---------|-----------------|---------|
| | Moose(23000) | | Red deer(20000) | | Roedeer(85 000) | |
| | Population | Hunting | Population | Hunting | Population | Hunting |
| 2003 | 15970 | 514 | 4887 | 172 | 51188 | 3 145 |
| 2004 | 16277 | 582 | 5 0 3 1 | 142 | 53252 | 2 907 |
| 2005 | 15734 | 659 | 4 933 | 186 | 51522 | 3 105 |
| 2006 | 16151 | 744 | 5 747 | 412 | 50868 | 2 912 |
| 2007 | 17709 | 990 | 6767 | 329 | 52998 | 3 562 |
| 2008 | 19559 | 1 159 | 8064 | 441 | 59101 | 4 402 |
| 2010 | 22750 | 1 595 | 9 395 | 706 | 69092 | 5 787 |
| 2012 | 26946 | 2 356 | 11325 | 876 | 73284 | 6614 |
| 2015 | 32023 | 3 839 | 15222 | 1 157 | 74568 | 7 880 |
| 2018 | 38 4 4 5 | 5 461 | 22691 | 2 0 3 1 | 100 166 | 12371 |

If the number of hunted animals is converted into the weight of meat products, the annual weight of highquality meat results in 550-600 tons.

23



The current timber harvest can generate 10 million m³ or 2.5 t of reference fuel of wood biomass for energy uses. The forest sector can help to achieve SDG target 7.1 "By 2030, ensure universal access to affordable, reliable and modern energy services" through the contribution it makes to the national power industry as well as by supplying wood fuel to population.

Nowadays, Belarus possesses facilities for the production of over 10 million m³ of firewood and over 3 million m³ of wood chips.

Forestry enterprises of the Ministry of Forestry have 61 facilities for the production of wood chips. Their total capacity is 1.76 million m³ per year. There are also 22 new export-oriented facilities for wood fuel production, including:

• 10 facilities for the production of wood pellets and briquettes, 21.2 thousand t per year;

• 11 production facilities for the production of split firewood, 33.6 thousand m³ per year.

Wood fuel







Considerable part of the firewood harvest is sold to local population and entities as firewood. The rest is processed into wood chips to be used for heat and power generation at boiler houses and CHP plants in small towns and rural areas.



The 2019 fuel wood harvest amounted to 9893.7 thousand including m³, 9401.2 thousand m³ harvested from the forests of the Ministry of Forestry. The wood chips output totaled 2923.0 thousand **m**³.





The country produces about 300 thousand t of pellets per year. The Ministry of Forestry has 10 operating facilities with the production output of 22 thousand t/year. The Bellesbumprom **Concern runs 4** production facilities with the output of 36 thousand t/year.

26

In 2020-2023, pellet-producing facilities are to be established at the premises of various organizations and enterprises. Their total capacity will amount to 700 thousand t per year. If the market environment is conducive, further production facilities may be built for this type of renewable fuel in future. The main source for wood pellet production is small-sized and low-quality timber as well as sawing and woodworking waste.



Location of pellet-producing facilities to be put into operation in 2020





Renewable energy sources

SDG target 7.2 "By 2030, increase substantially the share of renewable energy in the global energy mix".

The Republic of Belarus possesses extensive wood resources so the target can be achieved through including of renewable wood fuel resources in the national energy mix.



Proportion of local fuel and energy resources in the gross consumption, %

Proportion of renewable energy sources in the gross consumption , %



In 2019, the proportion of renewable energy sources in the gross consumption of fuel and energy resources amounted to 6.7%. The renewable energy mix is largely dominated by wood biomass (more than 94%) in the form of firewood, wood chips and wood waste.



The energy sector of Belarus produces the largest greenhouse gas emissions, i.e., 57.7% of the total countrywide emissions. However, the emissions dropped by 41.18%: from 98,104.42 Gg CO2 equivalent in 1990 to 57,708.68 Gg CO2 equivalent in 2017. 28



Public concerns related to global climate change and increasing greenhouse gas emissions from burning of fossil fuels raise public awareness about alternative energy sources. Much attention is given to energy uses of renewable sources, including wood fuel.





Number of power units using renewable energy

SDG target 7.b «By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support».

In 2016-2019, 109 power units using wood fuel and peat were out into operation in the country. Their total capacity is 367 MWt.





Belarus has 22 mini CHP plants and over 3,200 boiler houses that burn firewood and wood chips. In 2019, the total electric capacity of the RES units was 414 MWt. The electric capacity is expected to reach 635.1 MWt by 2021.





The specific

Contribution of the forest sector to the economic development of the Republic of Belarus

Being an important industry of the national economy, the forest sector has a great impact on the country's development. It secures full and decent employment for rural people. The contribution of the forest sector can be shown by a system of social indicators which describe the two most important pillars of development: economic (SDG targets 8.1-8.3, 8.9) and environmental (SDG target 8.4)

Economic indicators of the forest sector development in the Republic of Belarus, 2013-2019



Total revenues from forestry operations and product sales, million BYN

character of the forest sector makes it difficult to express its products and services in monetary terms and, thus, to show the contribution it makes to people's welfare.



Contribution of the forest sector to the ecological development of the Republic of Belarus

SDG target 8.4 "Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead" is very much focused on "improvement of global resource efficiency in consumption and production". In the context of the forest sector this would mean continuous increase in growing stock and shall include the following indicators: increase in growing stock; proportion of growing stock consumption; carbon efficiency factor of growing stock. The above indicators are calculated by special formulas and their changes can be illustrated by the graph.



Economic growth must be geared to conserve the environment.

The forest sector ensures sustainable production of global ecological resource.

31



National Programme

"Hospitable

Belarus" for

2016-2020

Resolution of

the Council of

Republic of

23.03.2016)

outlines the

targets of

tourism

Belarus.

dated

Ministers of the

Belarus No. 232

development in

the Republic of

(approved by the

The contribution of the forest sector to target 8.9 is made by forests (forest landscapes) that include the forest ecosystems which create a favourable and enabling environment for ecological tourism in Belarus. Sustainable nature tourism is a vital sector of the national tourism industry.

SDG Target 8.9. "By 2030, devise and implement policies to promote sustainable tourism that creates

The sustainable development targets of tourism in the Republic of Belarus:

jobs and promotes local culture and products" shall be used when applicable".

- increase in export earnings from 154.1 million USD in 2015 to 180.9 million USD in 2020;
- increase in the number of tourists and holiday-makers travelling across Belarus;
- professional certification of minimum 18 tourist guides and guide-interpreters per year;
- development and update of minimum 7 excursion tours per year;
- increase in the number of international visitors to the Republic of Belarus from 4,386 thousand people in 2015 to 4,842 thousand people in 2020;
- increase in the number of incoming guided tourists from 276.3 thousand visitors in 2015 to 305 thousand visitors in 2020;
- organization of minimum 12 events aimed to promote tourism and travel to Belarus (fairs, trade shows, familiarization tours) per year.





Sustainable financing of expanding forest ecosystem services, in particular, global services, calls for goaloriented and ongoing international support, including calculation values of economic assessment of carbon sequestration.

The international instruments include:

1. Addis Ababa Action Agenda of the Third International Conference on Financing for Development (Resolution 69/313 adopted by the General Assembly on 27 July 2015, annex to the UN Strategic Plan for Forests for 2017-2030).

2. The Global Forest Financing Facilitation Network and Trust Fund in support of the United Nations Forum on Forests. The following indicators of sustainable financing are proposed:

1. Public expenditure as a proportion of the total costs of forest management, %

2. Public expenditure for forest management as a proportion of the total receipts from forestry activities and revenues from commercial activity, %

3. Costs of forest management as a proportion of the total revenues from products of forest, woodworking and pulp-and-paper industries, %

4. External revenues from export sales as a proportion of the total funding of the forest sector, %

Indicators of sustainable financing of the forest sector, 2013-2019



Public expenditure as a proportion of the total costs of forest management, %

Public expenditure for forest management as a proportion of the total receipts from forestry activities and revenues from commercial activity,

% Costs of forest management as a proportion of the total revenues from products of forest, woodworking and pulp-and-paper industries, %

External revenues from export sales as a proportion of the total funding of the forest sector. % The complex forest sector shall keep the existing funding structure, i.e., by public funding and own revenues.

33

Annually, about 120 km of new forest roads are built in Belarus. About 100 km of forest roads are built by forestry enterprises of the Ministry of Forestry.

The current forest roads density is only 0.27 km/km².

Forest roads

The forest sector of the Republic of Belarus makes a great contribution to SDG target 9.1 "Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all". Annually, about 120 km of new forest roads are built; the existing forest roads are maintained and serviced by responsible forestry enterprises; thus, equitable access to non-timber resources of forest is ensured for all.







Manufacturing industry

SDG Target 9.2 "Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries".

Production value of wood and paper goods and printed products amounted to 3,890 million BYN in 2017; 5,112 million BYN in 2018; 5,602 million BYN in 2019. The manufacturing sector demonstrates a steady upward trend. In 2019 it produced 1,716 thousand m³ of particle boards, 223.0 million m³ of fiber boards, 368.5 thousand t of paper and cardboard.

In order to achieve target 9.2, the Ministry of Forestry undertakes ongoing efforts aimed to enhance timber harvest, to retrofit and expand timber processing facilities and to establish new facilities for high-value-added production and to increase export sale capacity, i.e., sawmilling, production of rounded logs, wood chips, wood pellets, etc.

The annual export sales of sawmilling and woodworking products are constantly growing. In 2019, the enterprises of the Ministry of Forestry exported timber products and services at the sum of 153.9 million USD or 109% of the year of 2018.



The production output of the Ministry of Forestry grew from 263.4 million BYN in 2018 to 309.2 million BYN in 2019.

In 2019, the average staff number of woodworking shops at the forestry enterprises was 4,231 workers, i.e., it increased by 648 workers compared with the year of 2018.



In 2019, the woodworking shops processed 5.47 million m³ of timber, including 775.8 thousand m³ of large-sized timber; 1.08 million m³ of medium-sized timber; 221.8 million m³ of small-sized timber: 2.1 million m³ of firewood.



Timber processing in woodworking shops of the Ministry of Forestry, thousand m³



Environmentally friendly and clean technologies

SDG target 9.4 "By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities". The Republic of Belarus joined the Paris Agreement which was adopted in 2015 and replaced the Kyoto Protocol. So, the country has committed to reduce the greenhouse gas emissions by minimum 28% as compared with the year of 1990. The Republic of Belarus has developed the National Action Plan on the "Green Economy" Development until 2020 and the National Action Plan on Implementation of the Principles of the "Green Economy" in the forestry of the Republic of Belarus until 2030.





The Belarusian Forestry Development **Project is** supported by the European Bank for Reconstruction and Development loan in the amount of 40,714,000 USD as well as by Global Environment Facility grant in the amount of 2,739,726 USD.

38

Research work

SDG target 9.5 "Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending".

Research and development works on relevant issues of forestry, forest management, forest economy are annually implemented by research and educational institutions of the country (Belarusian State Technological University, Institute of Forest of Belarus NAS, Institute of Experimental Botany of Belarus NAS, etc.). The Ministry of Forestry is the leading customer of the National Programme "Forests of Belarus: sustainable management, innovative development, resources". The Ministry of Forestry has its own extra-budgetary centralized investment fund which can be used to support research and innovation in the forest sector. International cooperation makes a significant contribution to research and development activities, primarily cooperation with FLEG and the World Bank.











Republic of Belarus in the field of environmental protection is aimed at improving the quality of life and working conditions of citizens, rational use and protection of natural resources. development implementation of "green" technologies in practice.


Natural heritage of forests



SDG target 11.4 "Strengthen efforts to protect and safeguard the world's cultural and natural heritage"

The forest sector addresses the SDG 11 target through significant impact of forested areas on cultural and natural heritage of the nation through the following actions:

responsibility for preservation, regeneration and protection of forest-related cultural and natural heritage sites;
strengthening of national cultural and natural heritage with due attention to local culture of regions, natural and landscape forest complexes:

promotion of sustainable tourism in forested areas (in particular, cultural, natural and landscape heritage sites);
ensuring resilience and growth of forest areas allocated for biodiversity conservation.

Specially protected nature areas (SPNA) play an essential role in preservation of forest natural heritage.



Urban and suburban forests

The forest sector of Belarus promotes environmental sustainability of cities and towns by creating recreational forests (SDG target 11.7 "By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities").

Trees and green spaces are indispensable components in the design of sustainable cities, towns and suburban areas. Green belts help to reduce noise and pollution, give shade and have a favourable effect on human health. Urban and suburban forests are essential to the wellbeing of dwellers in both big cities and small settlements of Belarus.







Over a ten-year period (from 2006 to 2016) the area of recreational forests in Belarus increased by 0.25 thousand km². Under target 11.7 the upward trend must be maintained by 2030.

40

In 1992 the Belovezhskaya Pushcha National Park was made a UNESCO World Heritage Site.

39

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Notes



Appendix 5

Cost estimates of the round table discussions and publication of the booklet Stages 6 and 7 of Project Activity 3.1.1.1: Improvement of national forest policy in the context of international conventions, principles of biodiversity and climate change mitigation

| Item | USD |
|---|----------|
| Labour costs, including | |
| Experts | 2 283.00 |
| Technical staff | 675.00 |
| Translator | 200.00 |
| Charge on payroll | 1693.07 |
| Overhead and administrative costs | 1741.93 |
| Round table costs, including | |
| Catering (two coffee breaks) | 322.00 |
| Stationery (notebooks, pens, etc.) | 205.00 |
| Costs of booklet publication, including | |
| Proofreading and editing | 300.00 |
| Publication | 980.00 |
| TOTAL | 8 400,00 |