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### STRATEGY BUILDING FOR FORESTS OF BELARUS IN CLIMATE CHANGE ENVIRONMENT: MAIN GOALS AND TOOLS

There is a description of main goals and tools of strategy building for forests in climate change environment. The Long-Term Forestry Development Strategy of the Republic of Belarus with Low Greenhouse Gas Emissions until 2050 is based on sustainable forest management principals and principals of “green” economy. There is a set of goals from strategic ones and special climate objectives to climate tasks in the article. The strategy is built on the national policy in the field of belarusian forestry that includes a big amount of programmes, regulation and plans. It is an attempt to compare belarusian strategic process and the European union experience in this question that showed the similarities and the differences. The implementation of the environmentally friendly development of the forestry allows to solve two main problems: adaptation of forest sector to climate change and to increase of forestry contribution increase to climate stabilization. The tools concerns these two activities.

**Key words:** strategic goal, climate oriented strategy, sustainable forest management, forestry.

**Introduction.** Forests and climate influence to each other much. On the one hand forests absorbs carbon from the atmosphere and stores it in biomass and soils, forest species composition depends on climate change, on the other hand forests are significant sources of greenhouse gas emissions. Forests are the key element of low-emission strategy building. Belarusian forestry by demonstrating multi-purpose forest management is strategically building an ecologically oriented forest policy.

**Main part.** There are a huge international policy instruments concerning climate change and forest management. These include the Rio Conventions – on Biodiversity, Climate Change, and Desertification (1992). We have to mention forest sector specific instruments such as the Non-Legally Binding Instrument on All Types of Forests (2007), as well as the International Tropical Timber Agreement (2011), and trade and economic development conventions and initiatives including the Convention on International Trade in Endangered Species (CITES) and the European Union’s Forest Law Enforcement, Governance and Trade (FLEGT) programme.

In the European Union further climate change policy development could be made to scale-up the protection and sustainable use of forests as part of a integrated development framework.

We can emphasis three main options were considered [1]: “stand-alone forests goal”, with its own targets and indicators; forests targets and indicators as part of a natural resources management or ecosystem services goal; forest-relevant aims across several or most of the Sustainable Development Goals.

The main principles and trends of development of forestry with low levels of greenhouse gas emissions in the Republic of Belarus are defined by:

– the Decree of the President of the Republic of Belarus of September 20, 2016 No. 345 “On the Adoption of an International Treaty”;

– State Program of Measures to Mitigate the Effects of Climate Change for 2013–2020 (Resolution of the Council of Ministers of the Republic of Belarus dated June 21, 2013 No. 510);

– the Strategy for the Conservation and Sustainable Use of Biological Diversity (Resolution of the Council of Ministers of the Republic of Belarus dated September 03, 2015 No. 743);

– the National Action Plan for the Development of a “Green Economy” in the Republic of Belarus until 2020 (Decree of the Council of Ministers of the Republic of Belarus dated December 21, 2016 No. 1061);

– the National Strategy for Sustainable Social and Economic Development of the Republic of Belarus until 2030 (minutes of the meeting of the Presidium of the Council of Ministers of the Republic of Belarus dated May 2, 2017 No. 10);

– the Strategic Plan for the Development of the Forestry Sector for the Period from 2015 to 2030 (approved by Deputy Prime Minister of the Republic of Belarus M. I. Rusy dated December 23, 2014 No. 06/20-271);

– the State Program “Belarusian Forest” for 2016–2020 (Resolution of the Council of Ministers of the Republic of Belarus dated March 03, 2016 No. 215).

Forests and forestry in Belarus make a significant contribution to the implementation of global international agreements, such as: the Millennium Declaration; the Convention on Biological Diversity and the Convention on Wetlands; the Convention on Combat Desertification; the Convention on the World Cultural and Natural Heritage.

**Comparison of the EU forestry development strategy and Belarusian strategy in the context of climate change**

Components of the strategic management process	EU	Belarus
Methodology	Theory of sustainable development, principles of sustainable forest management and principles of “green” economy	Theory of sustainable development, principles of sustainable forest management and principles of “green” economy
Strategic vision	Sustainable forest management	Forest management and Forest Governance
The field of implementation	Forestry	Forestry
Mission	Development of forest management to adapt forests to climate change and mitigation	Climate oriented development of forestry based on: 1) adaptation of forestry to climate change; 2) increase the contribution of forestry to climate stabilization.
Strategic goal	The expansion of the field of protection and sustainable use of forests in the framework of the new integrated development programme (the so-called special forest objectives, achievement of targets on forests as part of sustainable use of natural resources and implementation of ecosystem services, overall, the achievement of sustainable development)	Formation of carbon effective natural and economic system providing sustainable production of forest lands and high-income functioning of economic entities
Strategy	Sustainable forest management strategy to reduce greenhouse gas emissions	The Long-Term Forestry Development Strategy of the Republic of Belarus with Low Greenhouse Gas Emissions until 2050
Programmes and implementation plans	Strategic framework for forests and climate change. Collaborative Partnership on Forests, 2008; the Forest and Climate Change Programme of FAO; Global, regional and national policies on climate change; the Climate Change Guidelines for Forest Managers	The Draft Strategy for the Adaptation of the Belarusian Forest Sector to Climate Change until 2050; the Draft National Action Plan on Increasing the Absorption of Greenhouse gases by Sinks (Forests, Swaps) until 2030 (including projection until 2050)

There is a comparison of the EU forestry development strategy and belarusian in the context of climate change (table).

Nowadays in Belarus the process of strategy building for forests in climate change environment is on the stage of implementation. The difference in strategic process is in the mission. In belarusian option the problem not only adaptation and mitigation of climate change are considered but increase the contribution of forestry to climate stabilization.

In accordance with the Decree of the President of the Republic of Belarus dated September 20, 2016 No. 345, the Republic of Belarus became a Party to the Paris Agreement and being the Party to the Agreement it develops and implements its own national activities to prevent climate change.

The Republic of Belarus assumes obligation to ensure a reduction of greenhouse gas emissions by 2020. This reduction will be not less than 28% of the level of emissions in 1990 without taking into account emissions and sinks of greenhouse gases in the sector “Land use, land use change and forestry” and without any supplementary conditions (the obligation does

not imply the use of mechanisms of international carbon market and attraction of foreign financial resources for the introduction of the best available technologies).

Taking into account additional activities for reduction of carbon intensity of national economy, the undertaken obligations (decrease by 28% in comparison with 1990) will be fulfilled.

The preconditions for the development of the Long-Term Forestry Development Strategy of the Republic of Belarus with low greenhouse gas emissions until 2050 (Strategy) are:

- world environmental problems, including the greenhouse effect;
- the need in joint actions by the world community to prevent an environmental crisis;
- the adoption of a global strategy for sustainable development reflected in international protocols, conventions, agreements, including the Paris Agreement of 2015 (global level);
- the orientation of the Republic of Belarus towards the implementation of the sustainable development strategy and the implementation of the principles

of “green” economy reflected in the state documents including the National Action Plan for the Development of the “Green” Economy until 2020 (national level);

- the need adaptation the low-carbon economy of the forest sector of the Republic of Belarus as one of the most important environmental-forming industries;

- the requirements to comprehensive implementation of the sustainable development strategy.

The Long-Term Forestry Development Strategy of the Republic of Belarus with Low Greenhouse Gas Emissions until 2050 presents the principal provisions for the justification of climate-oriented forest policy, strategic goals and objectives, as well as the system of measures necessary to achieve them.

The conceptual line for the development of the Strategy is determined by the methodology for the formation of an ecological and economic system of forestry focused on forest stock extension and sustainable production of forest fund ecosystems, activation and efficiency of the absorption and deposition processes and the regulation of greenhouse gas emissions based on reasonable forest management. The particular attention is given to the implementation mechanism of the Strategy, its specific tool – institutional, assessment and economic indicators based on the targets.

Forest management with low greenhouse gas emissions is aimed at achieving sustainable, cost-effective, environmentally responsible and socially oriented forest utilization and forest management. Economic efficiency implies increased profitability of forest management. Environmental responsibility ensures the achievement of its environmental goals including climate-oriented development. The social orientation of forest management and forest utilization ensures satisfaction in public goods and ecosystem services, and the growth of the well-being of the people.

The key provisions for the Strategy development are:

- the emission of carbon from wood harvested from principal and regeneration cuts is compensated by adequate extent of atmospheric carbon dioxide absorption by forests;

- the mass of carbon deposited in the annual volume of timber harvested from the cuts of all types should not exceed a year’s absorption in the carbon dioxide equivalent by forested or deforested forestry fund lands;

- continuous, permanent and sustainable forest management along with a system of earmarked climate-oriented activities provides low-carbon forestry development in the long term;

- the principles of new economy of forestry and “green” economy adequately reflect the interests of low-carbon forestry development and its high rental income. With effective combination of functions of wood use and carbon sequestration, we can observe the effect of “double” rent (both economic and ecological one that simultaneously reflect the economic and environmental value of the constantly producing forest).

According to the National Strategy for Sustainable Social and Economic Development of the Republic of Belarus until 2030, the main objective of forestry development is to increase the resource potential of forests and to ensure sustainable, cost-effective, environmentally responsible and socially-oriented forest management based on the principles of uniformity, complexity, permanence and sustainability in the interests of living and future generations of people.

The new emphasis complements the above definition by the system of climate-oriented forest development goals:

- main strategic climate-oriented goal;
- special climate objectives (goals);
- climate tasks (problems).

The main strategic climate oriented goal is expressed by the need to form a carbon-efficient natural and economic system that ensures sustainable production of forest fund lands and high-profit functioning of the economic entities.

Special climatic goals for the long-term development of the forestry sector of the Republic of Belarus with low greenhouse gas emissions for the period up to 2050 ensure:

- adaptation of forestry to climate change;
- absorption increase of atmospheric carbon dioxide by the forest fund;
- sustainability of long-term carbon deposition in forest pools and its sequestration by forest lands;
- formation of an effective system for the decrease of carbon dioxide emission into the atmosphere in forestry.

Each of the goals is filled with specific content and determined by a set of specific tasks, the solution of which is provided by the Strategy (The Draft Strategy for the Adaptation of the Belarusian Forest Sector to Climate Change until 2050), the Draft National Action Plan on Increasing the Absorption of Greenhouse gases by Sinks (Forests, Swaps) until 2030 (including projection until 2050).

Climate-oriented development of forestry involves solving two main problems [2]:

- adaptation of forest sector to climate change;
- forestry contribution increase to climate stabilization.

These problems are interrelated, the second one can be considered within the framework of the first (as a process and an element of adaptation).

From the position of system analysis and the development of strategic decisions, the consideration of forestry as a factor of the climate stabilization becomes politically significant.

Within the developed strategy, the system of climate oriented measures can be differentiated into:

- activities on adaptation of forest sector to climate change;
- activities aimed at contributing of forest sector into the solution to climate problem based on the systematization of absorption, deposition and emission processes happening in ecosystems of forest fund.

The main adaptation activities are related to:

- strengthening of the role and representation of natural processes of nature, its gene pool and patterns in the economic activities of forestry organizations, regulating in this aspect the benefits of natural reforestation;
- the increase in the percentage of partial cuts providing the possibility to form uneven-aged forest stands and positively affect the forest cover;
- the active formation of mixed plantations based not only on growing of valuable species undergrowth, but also on secondary species;
- the use of the method of partial forest plantations combining the advantages of natural and artificial forest regeneration;
- to cultivate the system of seed production.

Activities on the contribution of forestry to the solution of the climate problem are the following:

- increase of atmospheric carbon dioxide absorption by forest ecosystems;
- ensuring sustainable long-term carbon sequestration in forest pools and forest land sequestration;

- formation of an effective system to reduce carbon dioxide emission into the atmosphere.

The suggested Strategy is based on integrated approach and determined by the need in:

- absorption increase of atmospheric carbon dioxide by the forest fund;
- sustainable long-term carbon deposition in forest pools and its sequestration by forest lands;
- formation of an effective system for the decrease of carbon dioxide emission into the atmosphere in forestry.

**Conclusion.** The Long-Term Forestry Development Strategy of the Republic of Belarus with Low Greenhouse Gas Emissions until 2050 has a main strategic goal to create of carbon effective natural and economic system providing sustainable production of forest lands and high-income functioning of economic entities.

The system of tools adequate to the system of goals of the Strategy of the Republic of Belarus with low greenhouse gas emissions can be differentiated as activities on adaptation of forests to climate change and on contribution of forestry into the solution of climate problem.

The principal measures for adaptation are connected with the enhanced role of nature and its natural processes.

When the international community (interested countries) introduces mechanisms of the international carbon market and a fee-based system of carbon dioxide deposition, the forestry will have a real financial interest in increasing the forests' assimilation potential as a resource factor to increase their profitability and efficiency (in comparison with traditional kinds of fee-based forest management). In these conditions, it will be possible to observe the growing role of the assessment tool for low-carbon forestry development and its information support using IT technologies.

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