

FOREST MANAGEMENT IMPROVEMENT AS A SOLUTION TO CLIMATE CHANGE LIMITING

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ВДОСКОНАЛЕННЯ УПРАВЛІННЯ ЛІСОВИМИ РЕСУРСАМИ ЯК ЧИННИК МІНІМІЗАЦІЇ КЛІМАТИЧНИХ ЗМІН

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Climate change on our planet and the state of forests are closely interconnected. On the one hand, we can observe the changes in the Earth's climate, average annual temperatures rising, and changes in rainfall patterns. More frequent and extreme weather conditions have a negative impact on forests. In addition, forests and trees absorb and retain carbon dioxide, mitigating the effects of global warming. On the other hand, there is a fact that deforested and burned forests are considered to be a source of carbon dioxide, contributing to the greenhouse effect. Therefore, there is a necessity in integrated approach to solve these important issues.

Sustainable forest management provides a flexible, robust, credible and well-tested framework for simultaneously reducing carbon emissions, sequestering carbon, and enhancing adaptation to climate change. At the same time, it can help supply environmentally friendly forest products, protect biodiversity, secure freshwater supplies, and provide other essential ecosystem services.

Forests are one of the most important carbon stores on our planet. However, deforestation that aims to exempt the land for agriculture, releases the huge amount of carbon dioxide and other greenhouse gases into the atmosphere, contributing to climate change. At the same time, forest plantations play a crucial role in mitigating the effects of climate change, not only by absorbing greenhouse gases, but also by creating stronger landscapes: they regulate the water regime, improve the condition of soils and preserve them for agriculture.

There is a need to stop deforestation and expand the reforestation. The replacing of fuel (gasoline, diesel) with fossil and biofuel will reduce the pollution of the atmosphere with carbon dioxide. When fuel is burned, carbon dioxide is emitted into the atmosphere. Its high concentration leads to global warming and changes in the Earth's climate. Trees and forests help to mitigate the effects of climate change by absorbing carbon dioxide from the atmosphere and converting it through photosynthesis into carbon, which is "stored" in the form of wood and vegetation. The wood has the ability to hold carbon for a long period, so it will be good to use wood more often for production of durable goods.

Ukraine plays an active role in international climate change cooperation processes. In 2019, the Cabinet of Ministry of Ukraine has approved the Strategy for adaptation to climate change in Ukraine by 2030. The aim is to reach three main objectives: 1. Strengthen capacity aimed to overcome natural disaster and other dangerous climate change consequences. The application of technologies, which may minimize agricultural production losses in case of predicted natural disasters and/or to restore production potential. 2. Provide diversification of economic risks and strengthening economic efficiency. 3. Reduce climate change risk sensitivity scale.

The objectives of the strategy, in their narrow meaning, include the issues of the: expanded reforestation; the improvement of forest protection; working out of regional system of adaptive measures for forest farming, aimed at preserving the biodiversity of forests; increasing the resilience and productivity of forests while climate changes; development of agroforestry; maintenance and restoration and reconstruction of linear forest plantations on arable lands.

Understanding of both regional vulnerability of Ukrainian forests to climate change and optimal ways for developing corresponding adaptation strategies remains poor. The first step is the development of an operative integrated forest monitoring system that would be able to provide early warning information on undesirable changes in forest ecosystems. The second one is development and implementation of an interdisciplinary science program on functioning and resilience of Ukrainian forests under ongoing and expected climate change. Development of adapted to regional conditions models, which include most probable trajectory of Ukrainian forests under expected environmental change and alternate sets of relevant forest management activities, should be of the highest priority.