

RESOLUTION

Of international scientific and practical conference “Environmental and technological aspects of monitoring and reforestation in the conditions of climate change”

city of Yoshkar-Ola

5-7 June 2019

Volga State University of Technology (Volgatech) hosted the International Scientific and Practical Conference “Ecological and technological aspects of monitoring and reforestation of forests in the conditions of climate change”. Since 2005 it has been a permanent international forum for discussing the regional problems of forestry of the Russian Federation in conditions of changing climate. The aim of conference is to familiarize young scientists and specialists with the latest results of scientific research and practice of reforestation, monitoring and remote assessment of forest management, international projects and technologies in the field of forest ecosystems. The conference is also dedicated to the 100-th anniversary of the foundation of the Higher Forest education in the Volga Region of Russia.

The event was organized by Rosleskhoz, the EU Erasmus+ program, the European Forest Institute, Jean Monnet Center of Excellence at Volgatech. The conference was attended by representatives of the Ministry of Natural Resources, Ecology and Environmental Protection of the Republic of Mari El; Ministry of Forestry of the Republic of Tatarstan; the Ministry of Natural Resources and Ecology of the Chuvash Republic; Nature Reserve “Bolshaya Kokshaga”; Center for Forest Protection of Mari El Republic - the Branch of the Federal Budgetary Institution “Russian Forest Protection”; staff and students of Volga State University of Technology and Mari State University. The scientists from Yoshkar-Ola, Kazan, Penza, Ufa, St. Petersburg, Yekaterinburg and Vologda participated in the conference. Foreign professors from Aristotle University (Greece) and European Forest Institute (Finland) took part in the conference remotely.

After hearing and discussing the presented reports, the conference participants noted the timeliness and relevance of problems of monitoring and reproduction of forests in the conditions of climate change highlighted at the forum.

The conference participants noted that scientific research in the field of reforestation in the Russian Federation in terms of quality and coverage of thematic areas are not inferior to global, including European trends. Russian foresters have accumulated a huge positive experience in natural and artificial reforestation. Forest plantations have been created on hundreds of thousands of hectares, which are a living monument to many generations of foresters. Thanks to the efforts of foresters in some regions of the Federation, the share of forest plantations reaches 30%. Artificial stands are different by high productivity, perform an important ecological function.

In addition to positive experience, there are unresolved issues in the field of reforestation. Currently, there is an imbalance between the harvesting and reproduction of forests. In this regard, within the framework of the national project “Ecology” it is necessary to increase the area of reforestation to 1.5 million hectares, to achieve the ratio of the area of reforestation and afforestation to the area of felled and dead forest plantations to 100 %.

In the field of forest biotechnology, the reports of the participants were devoted to topical problems of use of modern biotechnological methods for solving practical issues of forestry. They present the experience of using biotechnology methods for breeding and reproduction of genetically valuable plant forms.

Issues that warrant more attention included improvement of remote monitoring, regulatory and methodological support of reforestation. Conference participants noted that the current

environmental situation and the low level of environmental awareness of population dictate the need for more persistent improvement of environmental education and awareness.

Recommendations of plenary and section sessions

1. Suggestions on Strategic Planning and Financing

- 1.1. To develop a formal forecast of effects of Global Climate Change with regard to forest complex and to identify necessary adaptation measures.
- 1.2. To take into account forecast indicators in the strategic planning documents, in particular, in Forestry Development Strategy and State Program "Forestry Development". They should include measures to assess risks, increase funding for reforestation, design of burnt areas, development of systems for effective utilization of wood in cases of mass destruction of forests, development of bio refining and bioenergy.
- 1.3. To ensure the openness of data on forestry financing in the context of the constituent entities of the Russian Federation, including measures to conservation and protect the forest, comparative data on economic losses resulting from forest loss from fires and other adverse factors are presented. This information should become the basis for the argumentation about the need for priority financing of measures to conservation and protect forests, and to increase the total amount of financing for forestry.
- 1.4. To develop a set of regulatory documents aimed at improving the monitoring system of forest crops until the end of the rotation of forest plantations production, when the main breed (breeds) occupy (occupies) a dominant position in the upper level of the forest stand. First, to amend the Forest Management Instructions and State Forest Register, including fixing the artificial plantings as separate entry after transferring them to a wooded area, to review OST "Quality assessment of forest crops".

2. Suggestions on Reforestation

- 2.1. To recommend the Executive authorities of forestry of constituent entities of the Russian Federation:
 - To develop and approve technological regulations for main types of operations for reforestation and afforestation, on adaptation to zonal and typological structure of forest areas and the purpose of forest plantations, taking into account the best European experience.
 - To implement an assortment of tree species that corresponds to main functional (target) purpose of the forests being created, into the practice of afforestation and artificial reforestation
- 2.2. To recommend the Ministry of Natural Resources and Environment of the Russian Federation to refer the Republic and the region of the Central and Volga Federal districts to the zone of intensive forest cultivation. To apply for financial support for development and implementation of the inventory program of promising plantations on territory of Volga and Central Federal districts to create a single base of introduced and other valuable species.
- 2.3. To recommend the Federal Forestry Agency and the Ministry of Natural Resources and Environment of the Russian Federation to develop and implement a uniform instruction on integrated assessment of the quality of works on reforestation and afforestation, as well as established plantings until the cycle of completed silvicultural production in constituent entity of the Russian Federation, as well as the system of stimulation measures for timely and qualitative implementation of measures for reproduction of forest resources.
- 2.4. To support the initiative of Volgatch to transfer the promising areas of forest plantations in the Fund of accelerated forest growing of target purpose.

- 2.5 To consider the most appropriate to organize the plantation farms in the Volga and Central Federal Districts, characterized by the most favorable forest conditions for woody plants, developed transport infrastructure and high demand for wood. To work out the issue of using for this purposes lands temporarily retired from under agricultural production.
- 2.6 To regard as an important and promising the development of scientific researches and experimental production works on forest biotechnology (microclonal reproduction of trees and shrubs in vitro, DNA diagnostics and DNA marking).
- 2.7 To recommend the Federal Forestry Agency and the Ministry of Natural Resources and Environment of the Russian Federation to develop a set of measures aimed at supporting the conservation and development of forest nurseries, including standard requirements for forest nurseries and technologies for growing planting material.
- 2.8 To recommend the Federal Forestry Agency and the Ministry of Natural Resources and Environment of the Russian Federation to develop a set of measures on modernization of the fleet of forestry machinery and equipment for forest reproduction, to hold an exhibition of domestic machinery and equipment, to demonstrate its best examples in work directly on the forest cultural area.
- 2.9 It is necessary to intensify the work of the all-Russian society of foresters and other civil society institutions to implement the national project "Ecology". Must be renewed the edition of "Forest newspaper" and theoretical, scientific and production journal "Forestry" as the major media in the field of forestry.
- 2.10 To recommend to use the extensive experience of the Department of landscape construction, botany and dendrology of Botanical garden-Institute of Volga State University of Technology in introduction and acclimatization of trees and shrubs and herbaceous species, their breeding and use for gardening of settlements and recreational zones in the Middle Volga region.

3. Suggestions on international cooperation

- 3.1. To Jean Monnet Center of Excellence of Vogatech to continue the work on the development of international work between Russia and the European Union on the problem of "Forest ecosystems in the conditions of climate change" with the involvement of forest universities, focusing on the development of research projects in the field of remote monitoring of forest ecosystems.
- 3.2. To offer Volga State University of Technology to consider the possibility to act as a pilot structure for adaptation of forest sector to global climate change, the introduction of concept of Climate Smart Forestry, to test the above recommendations in practice.
- 3.3. To improve the quality of scientific research in Russian universities it is necessary to develop international cooperation, exchange of ideas and staff in the framework of research projects with foreign universities. To ask foreign colleagues to participate in the expert commissions on evaluation of the programs of Russian universities in forestry and ecology.
- 3.4. To recommend the Ministry of Science and Higher Education of the Russian Federation to continue supporting participation of Russian universities in projects of inter-university cooperation with EU member states within the framework of Erasmus + program, programs and projects of cross-border partnerships in the field of forestry and environmental protection.

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