CLIMATE CHANGE AND FORESTS OF EASTERN EUROPE

Petro I. Lakyda and Roman D. Vasylyshyn
Department of Forest Management, National University of Life and Environmental Sciences of Ukraine

ABSTRACT
The global climate changes touch the forests of the Earth. Forests of Europe are an important component of global ecological system. Forests of Eastern Europe are a subject of particular interest from the point of view of their ecological potential, as until recent time they were a part of closed socialistic system of former USSR. It was ascertained, that one of the most effective way of combating global climate change is to increase percentage of forest land in the region.

By using of the original technique, experimental and literary data, ecologic potential of the forests of the region and its influence on climate changes was estimated. The main point of the technique is an integral combination of conversion ratios of phytomass components for main forest forming tree species of the studied region and forest cadastre data. Based on the abovementioned technique, amounts of phytomass and sequestered carbon in forests of nine Eastern European countries (Estonia, Latvia, Lithuania, Belarus, Ukraine, Moldova, Georgia, Armenia and Azerbaijan) were calculated. A complex index which enables estimation of efficiency of use of ecological potential of forests is density of carbon in forest ecosystems. By the end of the last century in the abovementioned countries this index was equal 4.08 $kg \cdot (m^2)^{-1}$ (Moldova) to 6.28 $kg \cdot (m^2)^{-1}$ (Lithuania).

Because of scarcity of statistical data on dynamics of forest areas, stocks and productivity in the abovementioned countries, authentical estimation of trends of carbon dynamics is problematical. Regional trends of influence of forests on climate change can be observed on an example of Ukraine.

Results of the study prove an increase of carbon content in forests of Ukraine during a period from 464,5 millions of tons (1988) to 658,9 millions of tons (2008). Average carbon density has increased correspondingly. Taking into account big afforestation potential of Ukraine (2.5-3 millions of hectares) on former agricultural lands, regional ecological potential is going to increase.