

Simulation model as a tool to plan use and development of forest resources

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According to the New Forest Code a regional forest administration should plan development of forest resources and form the Regional Forest Plan. The forest as a resource essentially distinguishes from other natural resources. The forest represents life system with its own dynamics, own unique laws of development. Amount of forest resources, which we shall have in the future, depends on those impacts which we now apply to forest ecosystems. These mechanisms of development should be taken into account, if you are engaged in strategic planning of use of forest resources. One of the objectives of the New Forest Code is to intensify forest use. Simulation modeling of forest ecosystems dynamics could be use as one of the tools for constructing strategy for wood mobilization.

FORRUS-S model has been developed to simulate the dynamics of mixed, multiple-aged stands. Model can be used for comparing outcomes of different forest management alternatives. Advantages and disadvantages of forest management alternatives can be compared based on economic, productive and ecological criteria. Experimental simulation was done for the Kortkerossky forest district of the Komi Republic. Intensive forms of management show better results for the most important indices than extensive forms of management - but their advantage becomes apparent after relatively long time, after about 100-150 years. Extensive forest management in pine stands leads to degradation of pine and almost total replacement by spruce and birch. But the problem is realisation and allocation of income and costs. Exploitation of existing stands without any investments in reforestation provides instantly high income, but threatens future income. Artificial reforestation measures in pine stands (planting, tending of young stands, thinning) should be in our view obligatory. Move to intensive forest management requires adequate investments (including building of all-year haulage roads). This should be taken into account in the state forest policy, and not only budget resources should be assigned for this, but also effective spending-control mechanisms should be implemented.